US Army Corps
of Engineers
Louisville District

Solicitation for

DESIGN AND CONSTRUCT AVONICS RESEARCH LABORATORY
Wright Patterson, Ohio

9 September 1999

RFP DACA27-99-R-0037

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OMB APPROVAL NO. 2700-0042

SOLICITATION, OFFER, AND AWARD (Construction, Alteration, or Repair)	1. SOLICITATION NO.	2. TYPE OF SOLICITATION	3. DATE ISSUED	PAGE OF PAGES
	DACA27-99-R-0037	☐ SEALED BID (SFB) ☒ NEGOTIATED	9 Sept 1999	1 of 4

IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO.

7. ISSUED BY CODE	8. ADDRESS OFFER TO
U.S. Army Engineer District, Louisville Corps of Engineers 600 Dr. Martin Luther King, Jr. Place Louisville, Kentucky 40202-2230	U.S. Army Engineer District, Louisville Corps of Engineers 600 Dr. Martin Luther King, Jr. Place, Room 821 Louisville, Kentucky 40202-2230

9. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE NO. *(Include area code)* ***(NO COLLECT CALLS)***
	See Instructions	See Instruction

SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder."

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS *(Title, identifying no., date):*

This project is a new 5962 sm addition to Building 620, and is a three story structure containing computer labs and offices with security and communications and options for the parking lot, metal roof and systems furniture. Proposals will be evaluated based on (1) experience, (2) price, (3)technical approach, (4) project management and (5)subcontracting plan, in descending order of importance.

The estimated cost range of this project is from $10,000,000 to 25,000,000.

BID MODIFICATIONS RECEIVED BY FACSIMILE OR TELETYPE WILL NOT BE CONSIDERED.

AWARD IS BEING MADE PURSUANT TO THE SMALL BUSINESS COMPETITIVENESS DEMONSTRATION PROGRAM.

DEFENSE PRIORITY AND ALLOCATION REQUIREMENTS (SEP 1990) FAR 52.211-14: This is a rated order certified for national defense use, and the Contractor shall follow all the requirements of the Defense Priorities and Allocations System regulation (15 CFR 700). PRIORITY RATING: DO-C2

11. The Contractor shall begin performance within _10_ calendar days and complete it within _**_ calendar days after receiving ☐ award, ☒ notice to proceed. This performance period is ☒ mandatory, ☐ negotiable. *(See **Section 00800, Para 1.)*

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS?	12B. CALENDAR DAYS
☒ YES ☐ NO	10

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and _(**see Section 00115)**__ copies to perform the work required are due at the place specified in Item 8 by **4:30 p.m**. local time **12 October 1999**. If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee ☐ is, ☒ is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than __60___ calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

OFFER *(Must be fully completed by offeror)*

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*	15. TELEPHONE NO. *(Include area code)*
DUNS #	16. REMITTANCE ADDRESS *(Include only if different than Item 14)* TIN #
CODE FACILITY CODE	

17. The offeror agrees to perform the work at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government within __60___ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirement stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)*

AMOUNTS	Bidders shall show his prices on the Bid Schedule of this section.

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS

The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each

AMENDMENT NO.										
DATE										

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*	20B. SIGNATURE	20C. OFFER DATE

AWARD *(To be completed by Government)*

21. ITEMS ACCEPTED:

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA	
24. SUBMIT INVOICES TO ADDRESS SHOWN IN *(4 copies unless otherwise specified) Will be identified in Delegation letters.*	ITEM: Sec 110 Para. 30	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO ☐ 10 U.S.C. 2304(c)( ) ☐ 41 U.S.C. 253(c)( )
26. ADMINISTERED BY CODE U.S. Army Engineer District, Louisville Corps of Engineers, P.O. Box 59 Louisville, KY 40201-0059		27. PAYMENT WILL BE MADE BY USACE Finance Ctr. (UFC) 5700 Wasp Avenue EFT:T Millington, TN 38054-5005

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

☐ 28. NEGOTIATED AGREEMENT *(Contractor is required to sign this document and return ____ copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration slated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract.	☐ 29. AWARD *(Contractor is not required to sign this document* Your offer on this solicitation is hereby accepted as to the item listed. This award consummates the contract, which consists of (a the Government solicitation and your offer, and (b) this contrac award. No further contractual document is necessary.
30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)*	31A. NAME OF CONTRACTING OFFICER *(Type or print)*

30B. SIGNATURE	30C. DATE	31B. UNITED STATES OF AMERICA BY	31C. AWARD DATE

ALL BIDDERS READ THE FOLLOWING INSTRUCTIONS

1. Each bidder shall, upon request of the Contracting Officer, furnish a list of the plant available to the bidder and proposed for use of the work.

2. Bidders are cautioned that drawings may not be reproduced to exact scale. All drawings, whether full size or reduced, should be checked for potential discrepancies, dimensions and scales should be verified and all drawings compared.

3. Bidders are required to acknowledge receipt of all amendments to this solicitation on Standard Form 1442 in the space provided, by completing Blocks 8 and 15 of the Amendment Form (SF 30), by separate letter, or by telegram prior to opening of bids. Failure to acknowledge all amendments may cause rejection of the bid/proposal.

4. Telegraph modifications may be received at the bidding office by telephone from the receiving telegraph company. The telegraph company shall call (502) 582-5591 to deliver the message. The telegraph company shall confirm the message by sending a copy of the written telegram to the bidding office within 7 calendar days of delivery of the telephone message.

CAUTION TO BIDDERS

BEFORE SIGNING AND MAILING THIS BID, PLEASE TAKE NOTE OF THE FOLLOWING, AS FAILURE TO PERFORM ANY ONE OF THESE ACTIONS MAY CAUSE YOUR BID TO BE REJECTED.

1. **AMENDMENTS**. Have you acknowledge receipt of ALL amendments? If in doubt as to the number of amendments issued, please contact our office.

2. **AMENDED BID PAGES**. If any of the amendments furnished amended bid pages, the amended bid pages must be used for preparation of your bid.

3. **LATE BIDS**. Please refer to the Instructions section contained in this package.

4. **BID GUARANTEE**. If bid guarantee is required for this project, sufficient bid guarantee in proper form must be furnished with your bid for construction projects exceeding $100,000.

5. **MISTAKE IN BID**. Have you reviewed your bid prices for possible errors in calculations or work left out?

6. **FAX MODIFICATIONS OF BIDS**. We do not permit modifications of bids by fax.

BID SCHEDULE

CONTINUATION SHEET	REFERENCE NO. DOCUMENT BEING CONTUNUED DACA27-99-R-0037	PAGE 4 of 4

NAME OF OFFEROR OR CONTRACTOR

ITEM NO.	SUPPLIES/SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
	Wright Patterson AFB, Ohio				
0001	Design and Construct Avionics Research Laboratory (Phase IIIA) within the 5' line.	1		L/S	$_____
0002	Site work to the 5' line.	1		L/S	$_____
	TOTAL BASE				$_____
	BID OPTIONS				
0003	North Parking Lot	1		L/S	$_____
0004	Structural Standing Seam Metal Roof (SSSMR) System	1		L/S	$_____
	BASE BID PLUS OPTION #1 AND #2				$_____
0005	CID Package	1		L/S	$_____
	TOTAL BASE BID PLUS OPTIONS #1, #2 AND #3				$_____
	Prices for the options: **Option 0003 North Parking Lot** shall be good for **365** day, **Structural Standing Seam Metal Roof** shall be good for **14** days, and **CID Package** shall be good for **354** days, after award of the contract. The project duration shown in Section 00800, para. 1 will not be affected by the exercising of the options. Special Bid Conditions. If a modification to a bid based on unit prices is submitted, which provides for a lump sum adjustment to the total estimated cost, the application of the lump sum adjustment to each unit price in the bid schedule must be stated. If it is not stated, the bidder agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the bid schedule.				

BID SCHEDULE

CONTINUATION SHEET	REFERENCE NO. DOCUMENT BEING CONTUNUED DACA27-99-R-0037	PAGE 4 of 4

NAME OF OFFEROR OR CONTRACTOR

ITEM NO.	SUPPLIES/SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT

16 February 1999

SECTION 00110

INSTRUCTIONS FOR NEGOTIATED CONTRACTS

28 March 1998
(1)1. Instructions to Offerors--Competitive Acquisition (OCT 1997)
FAR 52.215-1

(a) Definitions. As used in this provision--
Discussions are negotiations that occur after establishment of the competitive range that may, at the Contracting Officer's discretion, result in the offeror being allowed to revise its proposal. In writing or written means any worded or numbered expression which can be read, reproduced, and later communicated, and includes electronically transmitted and stored information. Proposal modification is a change made to a proposal before the solicitation's closing date and time, or made in response to an amendment, or made to correct a mistake at any time before award. Proposal revision is a change to a proposal made after the solicitation closing date, at the request of or as allowed by a Contracting Officer as the result of negotiations. Time, if stated as a number of days, is calculated using calendar days, unless otherwise specified, and will include Saturdays, Sundays, and legal holidays. However, if the last day falls on a Saturday, Sunday, or legal holiday, then the period shall include the next working day.

(b) Amendments to solicitations. If this solicitation is amended, all terms and conditions that are not amended remain unchanged. Offerors shall acknowledge receipt of any amendment to this solicitation by the date and time specified in the amendment(s).

(c) Submission, modification, revision, and withdrawal of proposals.

(1) Unless other methods (e.g., electronic commerce or facsimile) are permitted in the solicitation, proposals and modifications to proposals shall be submitted in paper media in sealed envelopes or packages

(i) addressed to: U.S. Army Engineer District, Louisville
600 Dr. Martin Luther King, Jr. Place
Room 821
Louisville, KY 40202-2230

(ii) showing the time and date specified for receipt, the solicitation number, and the name and address of the offeror. Offerors using commercial carriers should ensure that the proposal is marked on the outermost wrapper with the information in paragraphs (c)(1)(i) and (c)(1)(ii) of this provision.

(2) The first page of the proposal must show--

(i) The solicitation number;

(ii) The name, address, and telephone and facsimile numbers of the offeror (and electronic address if available);

(iii) A statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation and agreement

to furnish any or all items upon which prices are offered at the price set opposite each item;

(iv) Names, titles, and telephone and facsimile numbers (and electronic addresses if available) of persons authorized to negotiate on the offeror's behalf with the Government in connection with this solicitation; and

(v) Name, title, and signature of person authorized to sign the proposal. Proposals signed by an agent shall be accompanied by evidence of that agent's authority, unless that evidence has been previously furnished to the issuing office.

(3) Late proposals and revisions.

(i) Any proposal received at the office designated in the solicitation after the exact time specified for receipt of offers will not be considered unless it is received before award is made and--

(A) It was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(B) It was sent by mail (or telegram or facsimile, if authorized) or hand-carried (including delivery by a commercial carrier) if it is determined by the Government that the late receipt was due primarily to Government mishandling after receipt at the Government installation;

(C) It was sent by U.S. Postal Service Express Mail Next Day Service-Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term “working days” excludes weekends and U.S. Federal holidays;

(D) It was transmitted through an electronic commerce method authorized by the solicitation and was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or

(E) There is acceptable evidence to establish that it was received at the activity designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers, and the Contracting Officer determines that accepting the late offer would not unduly delay the procurement; or

(F) It is the only proposal received.

(ii) Any modification or revision of a proposal or response to request for information, including any final proposal revision, is subject to the same conditions as in subparagraphs (c)(3)(i)(A) through (c)(3)(i)(E) of this provision.

(iii) The only acceptable evidence to establish the date of mailing of a late proposal or modification or revision sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the proposal, response to a request for information, or modification or revision shall be

processed as if mailed late. “Postmark” means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, offerors or respondents should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and the envelope or wrapper.

(iv) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(v) The only acceptable evidence to establish the date of mailing of a late offer, modification or revision, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the “Express Mail Next Day Service-Post Office to Addressee” label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. “Postmark” has the same meaning as defined in paragraph (c)(3)(iii) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, offerors or respondents should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and the envelope or wrapper.

(vi) Notwithstanding paragraph (c)(3)(i) of this provision, a late modification or revision of an otherwise successful proposal that makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

(vii) Proposals may be withdrawn by written notice or telegram (including mailgram) received at any time before award. If the solicitation authorizes facsimile proposals, proposals may be withdrawn via facsimile received at any time before award, subject to the conditions specified in the provision entitled “Facsimile Proposals.” Proposals may be withdrawn in person by an offeror or an authorized representative, if the representative's identity is made known and the representative signs a receipt for the proposal before award.

(viii) If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the office designated for receipt of proposals by the exact time specified in the solicitation, and urgent Government requirements preclude amendment of the solicitation or other notice of an extension of the closing date, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume. If no time is specified in the solicitation, the time for receipt is 4:30 p.m., local time, for the designated Government office.

(4) Unless otherwise specified in the solicitation, the offeror may propose to provide any item or combination of items.

(5) Proposals submitted in response to this solicitation shall be in English and in U.S. dollars, unless otherwise permitted by the solicitation.

(6) Offerors may submit modifications to their proposals at any time before the solicitation closing date and time, and may submit modifications in

response to an amendment, or to correct a mistake at any time before award.

(7) Offerors may submit revised proposals only if requested or allowed by the Contracting Officer.

(8) Proposals may be withdrawn at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.

(d) Offer expiration date. Proposals in response to this solicitation will be valid for the number of days specified on the solicitation cover sheet (unless a different period is proposed by the offeror).

(e) Restriction on disclosure and use of data. Offerors that include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall--

(1) Mark the title page with the following legend: This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed--in whole or in part-- for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of--or in connection with-- the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]; and

(2) Mark each sheet of data it wishes to restrict with the following legend: Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.

(f) Contract award.

(1) The Government intends to award a contract or contracts resulting from this solicitation to the responsible offeror(s) whose proposal(s) represents the best value after evaluation in accordance with the factors and subfactors in the solicitation.

(2) The Government may reject any or all proposals if such action is in the Government's interest.

(3) The Government may waive informalities and minor irregularities in proposals received.

(4) The Government intends to evaluate proposals and award a contract without discussions with offerors (except clarifications as described in FAR 15.306(a)). Therefore, the offeror's initial proposal should contain the offeror's best terms from a cost or price and technical standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. If the Contracting Officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals.

(5) The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit cost or prices offered, unless the offeror specifies otherwise in the proposal.

(6) The Government reserves the right to make multiple awards if, after considering the additional administrative costs, it is in the Government's best interest to do so.

(7) Exchanges with offerors after receipt of a proposal do not constitute a rejection or counteroffer by the Government.

(8) The Government may determine that a proposal is unacceptable if the prices proposed are materially unbalanced between line items or subline items. Unbalanced pricing exists when, despite an acceptable total evaluated price, the price of one or more contract line items is significantly overstated or understated as indicated by the application of cost or price analysis techniques. A proposal may be rejected if the Contracting Officer determines that the lack of balance poses an unacceptable risk to the Government.

(9) If a cost realism analysis is performed, cost realism may be considered by the source selection authority in evaluating performance or schedule risk.

(10) A written award or acceptance of proposal mailed or otherwise furnished to the successful offeror within the time specified in the proposal shall result in a binding contract without further action by either party.

(11) The Government may disclose the following information in postaward debriefings to other offerors:

(i) The overall evaluated cost or price and technical rating of the successful offeror;

(ii) The overall ranking of all offerors, when any ranking was developed by the agency during source selection;

(iii) A summary of the rationale for award; and

(iv) For acquisitions of commercial items, the make and model of the item to be delivered by the successful offeror.

28 March 1998
2. PREPARATION OF PROPOSALS--CONSTRUCTION (OCT 1997) FAR 52.236-28

(a) Proposals must be (1) submitted on the forms furnished by the Government or on copies of those forms, and (2) manually signed. The person signing a proposal must initial each erasure or change appearing on any other proposal form.

(b) The proposal form may require Offerors to submit proposals prices for one or more items on various bases, including --

(1) Lump sum price;
(2) Alternate prices;
(3) Units of construction; or

(4) Any combination of paragraphs (b)(1) through (b)(3) of this provision.

(c) If the solicitation requires submission of a proposal on all items, failure to do so may result in the proposal being rejected without further consideration. If a proposal on all items is not required, Offerors should insert the words "no proposal" in the space provided for any item on which no price is submitted.

(d) Alternate proposals will not be considered unless this solicitation authorizes their submission.

28 March 1998
3. NOT USED.

4. PERFORMANCE AND PAYMENT BONDS.

4.1 After the prescribed forms are presented to the offeror to whom award is made for signature, a written contract on the form prescribed by the specifications shall be executed and two bonds, each with good and sufficient surety or sureties acceptable to the Government shall be furnished: a Performance Bond (Standard Form 25) and a Payment Bond (Standard Form 25A). The penal sums of such bonds will be as follows:

(a) Performance Bond. The penal sum of the performance bond shall equal one hundred percent (100%) of the contract price.

(b) Payment Bond.
(1) When the contract price is $1,000,000 or less, the penal sum will be fifty percent (50%) of the contract price.

(2) When the contract price is in excess of $1,000,000 but not more than $5,000,000, the penal sum shall be forty percent (40%) of the contract price.

(3) When the contract price is more than $5,000,000 the penal sum shall be $2,500,000.

4.2 Any bonds furnished will be furnished by the Contractor to the Government prior to commencement of contract performance.

4.3 Rules for Use of Individual Sureties.

(a) One individual surety is adequate support for a bond, provided the unencumbered value of the assets pledged by that individual surety equal or exceed the amount of the bond. An offeror may submit up to three individual sureties for each bond, in which case the pledged assets when combined must equal or exceed the penal amount of the bond. Each individual surety must accept both joint and several liability to the extent of the penal amount of the bond.

(b) An individual surety may be accepted only if a security interest in acceptable assets is provided to the Government by the individual surety. The security interest shall be furnished with the bond, and may be provided by one or a combination of the following methods:
(1) An escrow account with a federally insured financial institution in the name of the contracting agency.

(2) A lien on real property, subject to restrictions contained herein.

(c) Acceptable assets include:

(1) Cash or certificates of deposit, or other cash equivalents with a federally insured financial institution;

(2) United States Government securities at market value;

(3) Stocks and bonds actively traded on a national U.S. security exchange with certificates issued in the name of the individual surety (these assets will be accepted at 90 percent of their 52-week low, as reflected at the time of submission of the bond)

(4) Real property owned in fee simple by the surety without any form of concurrent ownership (these assets will be accepted at 100 percent of the most current tax assessment value exclusive of encumbrances or 75 percent of the properties' unencumbered market value provided a current appraisal is furnished)

(5) Irrevocable letters of credit (ILC) issued by a federally insured financial institution in the name of the contracting agency and which identify the agency and solicitation or contract number for which the ILC is provided.

(d) Unacceptable assets include but are not limited to:

(1) Notes or accounts receivable;

(2) Foreign securities;

(3) Real property as follows:

a. Real property located outside the United States, its territories, or possessions.

b. Real property which is a principal residence of the surety.

c. Real property owned concurrently regardless of the form of co-tenancy except where all co-tenants agree to act jointly.

d. Life estates, leasehold estates, or future interests in real property.

(4) Personal property such as jewelry, furs, antiques;

(5) Stocks and bonds of the individual surety in a controlled, affiliated, or closely held concern of the Offeror/Contractor;

(6) Corporate assets (e.g., plant and equipment);

(7) Speculative assets (e.g., mineral rights);

(8) Letters of credit, except as provided in subparagraph c(5) above.

(e) With respect to the acceptance of real property, the individual surety shall provide:

(1) Evidence of title in the form of a certificate of title prepared by a title insurance company approved by the United States Department of Justice;

(2) Evidence of the amount due under any encumbrance shown in the evidence of title

(3) A copy of the current real estate tax assessment of the property or a current appraisal dated no earlier than 6 months prior to the date of the bond, prepared by a professional appraiser who certifies that the appraisal has been conducted in accordance with the generally accepted appraisal standards as reflected in the Uniform Standards of Professional Appraisal Practice.

(4) Failure to provide evidence that the lien has been properly recorded will render the offeror nonresponsible.

(f) An individual may be excluded from acting as individual surety on bonds for any of the following causes:

(1) Failure to fulfill the obligations under any bond.

(2) Failure to disclose all bond obligations.

(3) Misrepresentation of the value of available assets or outstanding liabilities.

(4) Any false or misleading statement, signature or representation on a bond or affidavit of individual suretyship.

(5) Any other cause affecting responsibility as a surety of such serious and compelling nature as may be determined to warrant exclusion.

An individual surety excluded pursuant to this subsection shall be included on the list entitled "Parties Excluded from Procurement Programs."

(g) Any bidder or offeror should carefully review these requirements which are set forth in Section 28 of the Federal Acquisition Regulations (FAR).

28 March 1998
5. SITE VISIT (Choice 2)(CONSTRUCTION) FAR 52.236-27 (FEB 1995).

(a) The clauses at 52.236-2, Differing Site conditions, and 52.236-3, Site Investigations and conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.

(b) An organized site visit will be schedule for –

20 September 1999 at 10:00 a.m. at Wright Patterson Air Force Base, Area B.

(c) Participants will meet at –

Wright Patterson AFB, OH, Area B
Building 620
Main auditorium, 2nd floor, next to tower elevators.

(d) Visitation constraints

This is an area which has security constraints.
The following must be understood by all of those who wish to participate in the site visit.

(1.) Use of Laptop computers in the auditorium

Authorization has been obtained to allow the use of Laptop computers in the auditorium (no outside connection) to support this meeting. However anyone who wants to carry a Laptop computer into the auditorium, whether it is used or not, must inform Mr. Joe Cardenia at fax(937)255-4511(attn: Joe Cardenia), NLT 16 September 1999, of the model and serial #, and the responsible owner at the meeting.

(2.) Use of Laptop computers usage external to vault room

At least one, and possibly two, Internet connections will be available for shared usage by visitors.

(3.) Phone Accesses

Inbound voice calls to (937)255-6567, will be 100% manned while the vault is open. Outbound Class A Line calls on (937)255-6568 can be used as needed. Public phones are almost non-existent.

(4.) Base Access

You can be pre-registered to get on base if you notify Mr. Dave Tischler, phone number in (1.) above. Notify him, preferably, by 13 September 1999, who will be driving onto base. Otherwise, you may be required to sign-in at “Pass & ID”(building # 58, outside the base), unless you have a DoD sticker on your vehicle.

16 Feb 1999
6. REQUESTS FOR INFORMATION relating to this procurement should be directed to the Louisville District, Corps of Engineers, as follows:

Procurement of Plans
& Specifications--Elaine McKim.....502/582-6295
Prospective Offerors may find the planholders list on the Internet at
http://cadd02.orl.usace.army.mil/ebs/asp/advertisedsolicitations.asp

Technical Questions on Plans
& Specifications—Tom Walker.....FAX... 502/582-6763 or email at <thomas.p.walker@lrl02.usace.army.mil>

24 Sep 1998
7. AVAILABILITY OF SPECIFICATIONS LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS FPMR Part 101-29

(AUG 1998) FAR 52.211-1

(a) The GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29, and copies of specifications, standards, and commercial item descriptions may be obtained for a fee by submitting a request to --

GSA Federal Supply Service
470 East L'Enfant Plaza, SW
Washington, DC 20407, Telephone (202) 619-8925
Facsimile (202) 619-8978

(b) If the General Services Administration, Department of Agriculture, or Department of Veterans Affairs issued this solicitation, a single copy of specifications, standards, and commercial item descriptions cited in this solicitation may be obtained free of charge by submitting a request to the addressee in paragraph (a) of this provision. Additional copies will be issued for a fee.

24 Sep 1998
8. AVAILABILITY OF SPECIFICATIONS LISTED IN THE DOD INDEX OF SPECIFICATIONS AND STANDARDS (DODISS) AND DESCRIPTIONS LISTED IN THE ACQUISITION MANAGEMENT SYSTEMS AND DATA REQUIREMENTS CONTROL LIST, DoD 5010.12-1 (AUG 1998) FAR 52.211-2.

(a) Copies of specifications, standards, and data item descriptions cited in this solicitation may be obtained for a fee by submitting a request to the –

Department of Defense Single Stock Point (DoDSSP)
Building 4, Section D
700 Robbins Avenue
Philadelphia, PA 19111-5094
Telephone (215) 697-2667/2179
Facsimile (215) 697-1462

(b) Order forms, pricing information, and customer support information may be obtained –

(1) By telephone (215) 697-2667/2179; or

(2) Through the DoDSSP Internet site at http://www.dodssp.daps.mil.

20 March 1997
9. AVAILABILITY OF SPECIFICATIONS AND STANDARDS NOT LISTED IN DODISS, DATA ITEM DESCRIPTIONS NOT LISTED IN DOD 5010.12-L, AND PLANS, DRAWINGS, AND OTHER PERTINENT DOCUMENTS (DEC 1991) DFARS 252.211-7001

Offerors may obtain the specifications, standards, plans, drawings, data item descriptions, and other pertinent documents cited in this solicitation by submitting a request to:

Technical Point of Contact as stated in Paragraph 6.

Include the number of the solicitation and the title and number of the specification, standard, plan, drawings, or other pertinent document.

10. NOT USED.

16 Feb 1999
11. INDUSTRY SMALL BUSINESS SIZE STANDARDS FAR 19.102.

11.1 General.

(a) The SBA establishes small business size standards on an industry-by-industry basis. (See 13 CFR 121.)

(b) Small business size standards are applied by--

(1) Classifying the product or service being acquired in the industry whose definition, as found in the Standard Industrial Classification (SIC) Manual, best describes the principal nature of the product or service being acquired.

(2) Identifying the size standard SBA established for that industry; and

(3) Specifying the size standard in the solicitation, so that offerors can appropriately represent themselves as small or large.

(c) For size standard purposes, a product or service shall be classified in only one industry, whose definition best describes the principal nature of the product or service being acquired even though for other purposes it could be classified in more than one.

(d) When acquiring a product or service that could be classified in two or more industries with different size standards, contracting officers shall apply the size standard for the industry accounting for the greatest percentage of the contract price.

(e) If a solicitation calls for more than one item and allows offers to be submitted on any or all of the items, an offeror must meet the size standard for each item it offers to furnish. If a solicitation calling for more than one item requires offers on all or none of the items, an offeror may qualify as a small business by meeting the size standard for the item accounting for the greatest percentage of the total contract price.

(f) Any concern which submits a bid or offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is deemed to be a small business when it has no more than 500 employees, and--

(1) In the case of Government acquisitions set-aside for small businesses, such nonmanufacturer must furnish in the performance of the contract the product of a small business manufacturer or producer, which end product must be manufactured or produced in the United States. The term "nonmanufacturer" includes a concern which can manufacture or produce the product referred to in the specific acquisition but does not do so in connection with that acquisition. For size determination purposes there can be only one manufacturer of the end item being procured. The manufacturer of the end item being acquired is the concern which, with its own forces, transforms inorganic or organic substances including raw materials and/or miscellaneous parts or components into such end item. Whether an offeror on a particular acquisition is the manufacturer or a nonmanufacturer for the purpose of a size determination need not be consistent with whether such

concern is or is not a manufacturer for the purpose of the Walsh-Healey Act.

(2) A concern which purchases items and packages them into a kit is considered to be a nonmanufacturer small business and can qualify as such for a given acquisition if it meets the size qualifications of a small nonmanufacturer for the acquisition, and if more than 50 percent of the total value of the kit and its contents is accounted for by items manufactured by small business.

(3) For the purpose of receiving a Certificate of Competency on an unrestricted acquisition, a small business nonmanufacturer may furnish any domestically produced or manufactured product.

11.2 The industry size standards are set forth in the following table. The table column labeled "SIC" follows the standard industrial classification code as published by the Government in the Standard Industrial Classification Manual. The Manual is intended to cover the entire field of economic activities. It classifies and defines activities by industry categories and is the source used by SBA as a guide in defining industries for size standards. The number of employees or annual receipts indicates the maximum allowed for a concern, including its affiliates, to be considered small.

11.3 Size standards for construction and special trades.
A concern is small if its average annual receipts for its preceding 3 fiscal years did not exceed $17 million. However, if 75 percent or more of the work (in terms of dollar value) called for by the contract is classified in one of the industries, subindustries, or classes of products listed in this paragraph, the concern is small if its average annual receipts for its preceding 3 fiscal years did not exceed the size standard for that industry, subindustry, or class of products. (See Division C, "Contract Construction," of the SIC Manual).

Classification Code	Industry, Subindustry, or Class of Products	Size Standard*
	MAJOR GROUP 15--BUILDING CONSTRUCTION--GENERAL CONTRACTORS AND OPERATIVE BUILDERS	
1521	General Contractors--Single-Family House	$17.0
1522	General Contractors--Residential Buildings, Other Than Single-Family	17.0
1531	Operative Builders	17.0
1541	General Contractors--Industrial Buildings and Warehouses	17.0
1542	General Contractors--Nonresidential Buildings Other Than Industrial Buildings and Warehouse	17.0
	MAJOR GROUP 16--CONSTRUCTION OTHER THAN BUILDING CONSTRUCTION--GENERAL CONTRACTORS	
1611	Highway and Street Construction, Except Elevated Highway	17.0
1622	Bridge, Tunnel, and Elevated Highway Construction	17.0
1623	Water, Sewer, Pipe Line, Communication and Power Line Construction	17.0
1629	Heavy Construction, Except Dredging N.E.C.	17.0
1629	Dredging and Surface Cleanup Activities	13.5

1711	Plumbing, heating (except electric), and air conditioning	7
1721	Painting, paperhanging, and decorating	7
1731	Electrical Work	7
1741	Masonry, stone setting, and other stonework	7
1742	Plastering, drywall, acoustical and insulation work	7
1743	Terrazzo, tile, marble, and mosaic work	7
1751	Carpentry Work	7
1752	Floor laying and other floorwork, not elsewhere classified	7
1761	Roofing, siding, and sheet metal work	7
1771	Concrete work	7
1781	Water well drilling	7
1791	Structural steel erection	7
1793	Glass and glazing work	7
1794	Excavating and foundation work	7
1795	Wrecking and demolition work	7
1796	Installation or erection of building equipment, not elsewhere classified	7
1799	Special trade contractors, not elsewhere classified	7

* (Average Annual Receipts) (Millions)

12. CONTRACT PRICES - BIDDING SCHEDULES (DEC 1991) DFARS 52.236-7008.

(a) The Government's payment for the items listed in the Bidding Schedule shall constitute full compensation to the Contractor for--

(1) Furnishing all plant, labor, equipment, appliances, and materials; and

(2) Performing all operations required to complete the work in conformity with the drawings and specifications.

(b) The Contractor shall include in the prices for the items in the Bidding Schedule all costs for work in the specifications, whether or not specifically listed in the Bidding Schedule.

2 Jan 96
13. ARITHMETIC DISCREPANCIES EFARS 52.214-5000.

(a) For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies found on the face of the bidding schedule as submitted by the offeror:

(1) Obviously misplaced decimal points will be corrected;

(2) In case of discrepancy between unit prices and extended price, the unit price will govern;

(3) Apparent errors in extension of unit prices will be corrected; and

(4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purposes of bid evaluation, the Government will proceed on the assumption that the offeror intends his offer to be evaluated on the basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.

1 February 1995
14. WAGE RATES. The Wage Decisions of the Secretary of Labor are applicable to the work to be performed under this contract and are contained in SECTION 00800, SPECIAL CONTRACT REQUIREMENTS. Modifications are periodically made to the wage decisions. The complete modifications will be issued by amendment to the solicitation.

22 June 1998
(1)15. NOTICE OF BUY AMERICAN ACT REQUIREMENTS – CONSTRUCTION MATERIALS. (MAY 1997)

(a) Offerors are required to comply with the requirements of Federal Acquisition Regulation (FAR) clause 52.225-5, Buy American Act – Construction Materials, of this solicitation. The terms “construction material” and “domestic construction material,” as used in this provision, have the meanings set forth in FAR clause 52.225-5.

(b) Offerors should request a determination regarding the inapplicability of the Buy American Act in time to allow determination before submission of offers. For evaluation of a request for a determination regarding the inapplicability of the requirements of the Buy American Act prior to the time set for receipt of offers, the information and applicable supporting data required by paragraphs (c) and (d) of Far clause 52.225-5 shall be included in the request. If an offeror has not requested a determination regarding the inapplicability of the Buy American Act prior to submission of its offer, or has not received a response to a request made prior to submission of its offer, the information and supporting data shall be included in the offer.

(c) Evaluation of offers.

(1) For evaluation of offers, (unless agency regulations specify a higher percentage) the Government will add to the offered price 6 percent of the cost of any foreign construction material proposed for exception from the requirements of the Buy American Act based on claimed unreasonable cost of domestic construction materials in accordance with paragraph (b)(3)(i) of FAR clause 52.225-5.

(2) If the evaluation of offers results in a tie between an offer including such foreign construction material excepted on the basis of unreasonable cost, as evaluated, and an offer including solely domestic construction material or other foreign construction material listed in the solicitation at paragraph (b)(2) of FAR clause 52.225-5, or subsequently excepted in accordance with paragraphs (b)(3)(ii) or (iii) of FAR clause 52.225-5, award shall be made to the offeror that submitted the latter offer.

(d) Alternate offers.

(1) When an offer includes foreign construction material not listed by the Government in the solicitation at paragraph (b)(2) of Far clause 52.225-5, offerors also may submit alternate offers base on use of equivalent domestic construction.

(2) If alternate offers are submitted, a separate Standard Form 142 shall be submitted for each alternate offer, and a separate price comparison table, prepared in accordance with paragraph (c) and (d) of FAR clause 52.225-5, shall be submitted for each offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception to apply.

(3) If the Government determines that a particular exception requested under paragraph (c) of FAR clause 52.225-5 does not apply, the Government will evaluate only those offers based on use of the equivalent domestic construction material, and the offeror shall be required to furnish such domestic construction material.

(i) In sealed bid procurements, any offer based on use of that particular foreign construction material shall be rejected as nonresponsive.

(ii) In negotiated procurements, any offer based on use of that particular foreign construction material may not be accepted unless revised during negotiations.

16. LISTING OF EMPLOYMENT OPENINGS. Offerors should note that this solicitation includes a provision requiring the listing of employment openings with the local office of the State employment service system if the award is for $10,000 or more.

16 Feb 1999
17. NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999) FAR 52.222-23.

(a) The Offeror's attention is called to the EQUAL OPPORTUNITY and the AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION clauses of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

.....

Goals for minority participation for each trade	Goals for female participation in each trade
11.5%	6.9%

.....

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area. If the Contractor performs construction work (whether or not it is Federal or Federally assisted) in a geographical area located outside the covered area,

it shall apply the goals established for the geographical area where such work is actually performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs (OFCCP) Office.

(c) The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity clause, specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction" and its efforts to meet prescribed goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary, for Federal Contract Compliance, U.S. Department of Labor within 10 working days following award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the—

(1) Name, address and telephone number of the subcontractor;
(2) Employer identification number of the subcontractor;
(3) Estimated dollar amount of the subcontract;
(4) Estimated starting and completion dates of the subcontract; and
(5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in the contract resulting from this Solicitation, the "covered area" is Dayton, Ohio which includes Greene County.

16 Feb 1999
18. SUBCONTRACTING PLANS FOR SMALL BUSINESS CONCERNS. Offerors are cautioned that compliance with CONTRACT CLAUSE: SMALL BUSINESS SUBCONTRACTING PLAN requires that the offeror, if a large business, submit a subcontracting plan for subcontracting with small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns. Offerors desiring assistance in developing a source list are encouraged to contact small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns, associations and appropriate Offices of Small and Disadvantaged Business Utilization, addresses which may be obtained from the District Labor Adviser, U.S. Army Engineer District, P.O. Box 59, Louisville, Kentucky 40201 (Telephone 502/582-5679).

19. PERFORMANCE OF WORK BY CONTRACTOR. Attention is directed to SPECIAL CONTRACT REQUIREMENT: PERFORMANCE OF WORK BY CONTRACTOR. The successful offeror must furnish the Contracting Officer, within 5 days after award, a description of the work which he intends to perform with his own organization, e.g., earthwork, paving, brickwork, or roofing), the percentage of the total work this represents, and the estimated cost thereof.

20. PAYMENT FOR BOND PREMIUMS. CONTRACT CLAUSE: PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS provides that upon presentation of evidence of full

payment, the Government will immediately reimburse the Contractor the cost of premiums for performance and payment bonds. This reimbursement amount is not in addition to the amount offered for the work covered by this Request for Proposals, and offerors are cautioned to include the cost of such premiums in the offer items shown on the Bidding Schedule (or in the lump sum amount of the offer if no offer items are listed). If bond premiums are reimbursed under this clause, such reimbursed amount will be recovered by the Government from the progress payments made to the Contractor or, if no progress payments are made, from the amount otherwise due the Contractor upon final payment.

21. NOT USED.

22. COMMERCIAL AND GOVERNMENT ENTITY (CAGE) CODE REPORTING (DEC 1991) DFARS 252.204-7001

(a) The Offeror is requested to enter a CAGE code on its offer in the block with its name and address. The CAGE code entered must be for that name and address. Enter CAGE before the number.

(b) If the Offeror does not have a CAGE code, it may ask the Contracting Officer to request one from the Defense Logistics Services Center (DLSC). The Contracting Officer will--

(1) Ask the Contractor to complete section B of a DD Form 2051, Request for Assignment of a Commercial and Government Entity (CAGE) Code;

(2) Complete section A and forward the form to DLSC; and

(3) Notify the Contractor of its assigned CAGE code.

(c) Do not delay submission of the offer pending receipt of a CAGE code.

20 August 1997
23. NOT USED.

28 March 1998
24. SERVICE OF PROTEST (AUG 1996) FAR 52.233-2.

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO) shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from:

Ms. Denise A. Bauer, Contracting Officer
U. S. Army Engineer District, Louisville
Corps of Engineers - ATTN: CELRLCT
600 Dr. Martin Luther King, Jr. Place, Room 821
Louisville, KY 40201-0059

(b) The copy of any protest shall be received in the office designated above on the same day a protest is filed with the GSBCA or within one day of filing a protest with the GAO.

20 March 1997
25. DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER (APR 1998) FAR 52.204-6

(a) The offeror shall enter, in the block with its name and address on the

cover page of its offer, the annotation “DUNS” followed by the DUNS number that identifies the offeror’s name and address exactly as stated in the offer. The DUNS number is a nine-digit number assigned by Dun and Bradstreet Information Services.

(b) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one. A DUNS number will be provided immediately by telephone at no charge to the offeror. For information on obtaining a DUNS number, the offeror, if located within the United States, should call Dun and Bradstreet at 1-800-333-0505. The offeror should be prepared to provide the following information:

(c) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one. A DUNS number will be provided immediately by telephone at no charge to the offeror. For information on obtaining a DUNS number, the offeror should call Dun and Bradstreet at 1-800-333-0505. The offeror should be prepared to provide the following information:

(1) Company name.
(2) Company address.
(3) Company telephone number.
(4) Line of business.
(5) Chief executive officer/key manager.
(6) Date the company was started.
(7) Number of people employed by the company.
(8) Company affiliation.

(d) Offerors located outside the United States may obtain the location and phone number of the local Dun and Bradstreet Information Services office from the Internet Home Page at http://www.dbisna.com/dbis/customer/custlist.htm. If an offeror is unable to locate a local service center, it may send an e-mail to Dun and Bradstreet at globalinfo@dbisma.com.

20 March 1997
26. NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (SEP 1990) FAR 52.211-14.

Any contract awarded as a result of this solicitation will be a [ ] DX rated order; [X] DO-C2 rated order certified for national defense use under the Defense Priorities and Allocations System (DFARS) 15 CFR 700, and the Contractor will be required to follow all of the requirements of this regulation.

27. NOT USED.

28. RESTRICTIVE LIMITATION

(a) Except for Additives and Options, the Government shall accept all items listed in Schedule 00010 of this solicitation.

(b) Offers may not be submitted for quantities less than those specified.

29. AWARD TO SINGLE OFFERS. Subject to the provisions contained herein, award shall be to a single offeror.

22 June 1998
30. SUBMISSION OF INVOICES

In accordance with Section 00010, Para. 24, submit invoices to:

WRIGHT-PATTERSON AREA OFFICE-CD-W-W
2700 D St., Suite 1 - Area B, Bldg. 22B
P.O. Box 31039
Airway Finance Post Office
WPAFB, OH 45433-0039
Tele: (513) 255-2977

31. NOT USED.

20 March 1997
32. EVALUATION OF OPTIONS (JUL 1990) FAR 52.217-5
Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

33. NOT USED.

LOCATION OF BID OPENING. Bidders are provided the following information as a service by the government. The government cannot be held liable for street closures, traffic delays or other problems that may be encountered due to reliance upon the government's suggested routes to the Federal Building.

Motorist coming from I-65 North:

Immediately after crossing the kennedy bridge, take exit I-64 West (St. Louis). Once in I-64, take the 9th street exit. Continue straight on 9th street for approximately seven blocks to Broadway (first major street with two-way traffic). Turn left on Broadway; go two blocks and turn left on 7th street (7th street is one-way north bound). Approximately ½ block north on 7th street is a stop light, our building is on the right just past the light. There should be ample parking available either by street-side or garage parking. Upon entering the building proceed to the eighth floor and go to room 821.

Motorist coming from I-65 South:

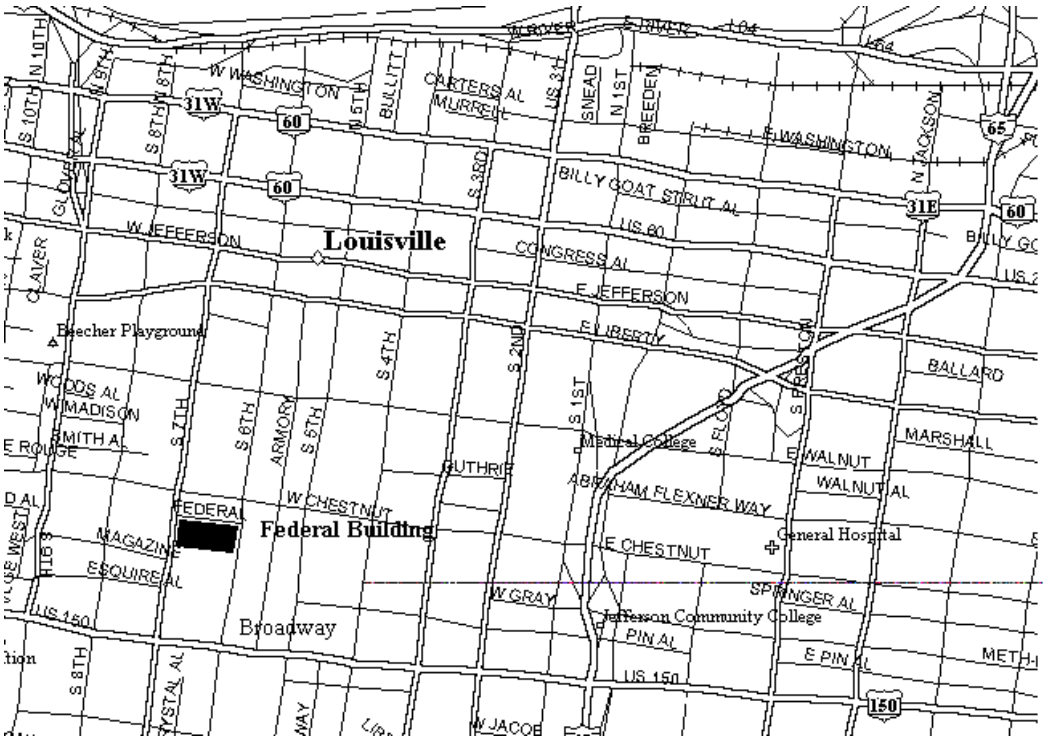
Take Broadway exit and turn left on Broadway (west bound) and continue to 7th street and turn right. Approximately ½ block north on 7th street is a stop light, our building is on the right just past the light. There should be ample parking available either by street-side or garage parking. Upon entering the building proceed to the eighth floor and go to room 821.

Motorist coming from I-64 East and West:

Exit the 9th street exit. At the bottom of the ramp continue south down 9th street for approximately seven blocks until you come to Broadway (first major two way street). Turn left on Broadway and to two blocks and turn left on 7th street (7th street is one-way north bound). Approximately ½ block north on 7th street is a stop light, our building is on the right just past the light. There should be ample parking available either by street-side or garage parking. Upon entering the building proceed to the eighth floor and go to room 821.

Motorist coming from I-71:

Follow routing for intersecting with I-64 and follow the instructions for I-64 motorists.



SECTION 00115

PROCEDURES FOR SUBMITTAL OF OFFERS

The procedures for the submission of all proposals shall be as specified in this section and in accordance with the additional procedures listed below.

1.1. Who May Submit. The intent of this solicitation is to select one contractor for the design and construction of the Avionics Laboratory Phase IIIA Addition at Wright-Patterson Air Force Base, Ohio. Firms formally organized as design-build entities, design firms and construction contractors that have associated specifically for this project, or other interested parties, may submit proposals. In the latter case, the association may be a joint venture or a subcontractor. For the purposes of this solicitation, no distinction is made between formally organized design-build entities and project-specific design-build associations. Both are referred to as the design-build offeror (or simply offeror) before award of a contract, and as the design-build contractor (or simply contractor) after award.

1.2. Where to Submit. Offerors shall submit the below-listed number of proposal packages to the Corps of Engineers at the address shown in Section 00010, Block 8 of Standard Form 1442.

1.2. Submission Deadline. Proposals shall be received by the Corps of Engineers no later than the time and date specified in Section 00010, Block 13 of Standard Form 1442. All information requested by Sections 1 through _6_ must be submitted for the proposal to be considered competitive.

1.3. Submission Format and Number of Submittals. Submit Sections ___1, 2 and 3___ together in one large D-ring binder, with table of contents and tabbed section dividers. Submit Sections ___4, 5, and 6___ each in a separate envelope. The number of submittal copies is:

Sections 1-3	Original and 6 copies
Section 4	Original only
Section 5	Original only
Section 6	Original only

1.4. General. Offerors should limit submissions to the data essential for evaluation so that a minimum of time and funds are spent in preparing the information. However, in order to be effectively and equitably evaluated, offerors must include, for each phase as appropriate, information that is sufficiently detailed to describe the offeror's qualifications and experience, design and engineering features of the proposal, and management capabilities to successfully complete the project. Requirements stated in this RFP are minimums. Proposals that meet or exceed these requirements are encouraged and will be rated accordingly.

1.5. Proposal Requirements. Submit the following information:

* * * * * * * * * * PROPOSAL SUBMITTALS * * * * * * * * * * * *

Section 1: Qualifications and Experience (TAB 1).

a. Prime Contractor Experience (TAB 1-A). Provide descriptions of projects ongoing or completed within the last 5 years, including design/build projects, which are similar to this project in size and scope and dollar value. Include a description of the work self-performed for each project, the original and final contract amounts, the original and final completion dates, and an explanation for any differences. Include a point of contact with phone number for the two most recent projects, for verification of performance. Describe previous experience, if any, in working with the proposed subcontractors for Design, Mechanical, Electrical and Security Offeror may use the attached form.

b. Design Firm(s) Experience (TAB 1-B). Provide descriptions of projects, including design/build projects, within the last 5 years, which are similar to this project in size and

scope. Include points of contacts, Offeror may use the attached form for each entity doing design.

c. Individual Personnel Experience (TAB 1-C). Identify key personnel to be assigned to this project. Offeror may use the attached form for each person**.** Personal shall include:

Overall Project Manager
Design Project Manager
Construction Project Manager
Project Superintendent
Quality Control Manager
Architect
Electrical Engineer
Communications Engineer
Civil Engineer
Structural Engineer
Mechanical Engineer
Fire Protection Engineer
Interior Designer

The Fire Protection and Communications Engineers may be mechanical and electrical engineers with formal training, accreditation and experience in these areas.. Only provide resumes for those people who have a specific assignment in the project organization. Provide a statement that the assigned personnel will be made available for the duration of their role on this project. Indicate under specific experience the role that each individual had in any project examples cited. Designers must meet the registration requirements of Section 00800. Indicate a Designer of Record who will stamp and sign their professional responsibility for each or all disciplines. The Fire Protection Engineer must meet the requirements of Military Handbook 1008C, Fire Protection for Buildings, Para. 1.5 . This document may be seen at the website:

http://www.hnd.usace.army.mil/techinfo/milhbk.htm

The Quality Control Manager must meet the requirements of spec Section 01451. Later substitution of any key personnel for which resumes are provided will require approval of the Contracting Officer.

d. Mech & Elect Subcontractor Experience (TAB 1-D). For the Mechanical and Electrical subcontractors, provide descriptions of projects within the past 5 years that are similar to this project in scope and size and dollar value. Include a description of the self-performed work, and a point of contact with telephone number for verification of performance. Offeror may use the attached form for each subcontrctor.

Section 2: Technical Approach (TAB 2). This section requires no submission of formal drawings. Offerors may submit drawings or sketches to demonstrate required information or to show cost-effective alternatives to any requirements of this solicitation. The building floor plan and building exterior elevations shall not be altered for this proposal submittal.

a. Conformance with RFP (TAB 2-A). Provide a narrative limited to 3 pages or less indicating understanding of and conformance with the RFP requirements for the design. Include a list of any proposed exceptions, deviations or betterments. There should be an acknowledgment that schematic site plans, schematic architectural floor plans and elevations, and fairly detailed specifications are furnished as mandatory requirements that allow limited design freedom in their completion as construction documents

b. Alterations & Additions (TAB 2-B). Provide a narrative concerning any proposed demolition, alterations and additions to the adjacent Lab Phase I and Bldg 620 East Wing to complete the new Lab Phase IIIA Addition. Indicate an understanding of the design issues associated

with designing an addition to an existing building complex, including circulation, fire separation and egress.

c. Technical Information (TAB 2-C). Provide narrative description, sketch drawings and catalog cuts as appropriate to explain and illustrate the design and/or material quality proposed for the following aspects of design:

(1) Raised floor system. Ability of raised floor to carry required heavy loads and be of squeak-free construction. (TAB 2-C1)

(2) Movable partition systems. Sound rating and ease of operation of partitions. (TAB 2-C2)

(3) Mechanical equipment and controls, with manufacturers and models. Also submit information showing that the proposed equipment will fit in the mechanical room and that it can be serviced easily within the required areas and clearances. (TAB 2-C3)

(4) Light Fixtures. Type of lighting, ease of maintenance, and use of long life tubes. (TAB 2-C4)

d. Site Design & Engineering (TAB 2-D). Provide narrative description of the site design, including utilities, drainage, paving and curbs, landscaping, and lighting. Describe location and type of light fixtures, and provide catalog cuts of them.

Section 3: Project Management. (TAB 3)

a. Project Organization (TAB 3-A). Provide a description of the firms involved and their roles and contractual relation to each other. Provide an organization chart showing the firms and people who will be directly involved in the management, design and construction. Clearly show offsite versus onsite personnel.

b. Team Approach (TAB 3-B). Provide descriptions of use of a team approach in the design and construction of previous projects, and how it will be used for this project. Team approaches include the planned participation of the design team in the preparation of the proposal through all phases of the design and construction process to closeout, and the use of partnering to facilitate successful design and construction.

c. Design Quality Control (TAB 3-C). Provide a description of a Design Quality Control Plan that includes (1) a design team, (2) a second set of disciplines for checking, and (3) furnishing of documentary evidence to the Corps that the DQCP is working.

d. Schedule Control (TAB 3-D). Provide a bar chart using days, not dates. Show all required design and construction phases, and indicate complete understanding of the design/build process. Include time for design reviews and resolution of comments. Show construction phases for sitework, utilities, foundations, structural, mechanical, electrical, building enclosure, finish work, and installation of workstations. Identify all fast tracking of design and construction. Show milestones for beneficial occupancy, substantial completion, turnover of project, and submittal of as-built drawings, and administrative closeout.

e. Self Performed Work (TAB 3-E). Identify what construction parts of the project will be self-performed by in-house forces and the related cost for each part. Submit in tabular format, not narrative format. Provide and illustrate the calculation for the 20% minimum of self-performed work required by Section 00800, Para. 15, concerning Performance of Work by Contractor.

Section 4: Price Proposal. Offerors shall provide a price proposal in a separate envelope. Use Standard Form 1442 and Section B, Proposal Bid Schedule.

Revised March 23,1999

a. MILCON Funds Cost Limit: The target ceiling for contract award for design and construction of the MILCON-funded work (base bid plus the parking lot and metal roof options) is **$11,600,000** based on the funds made available for this project. The Government cannot guarantee that additional funds can be made available for award. Offerers are under no obligation to approach this ceiling.

b. O&M Fund Cost Limit: The target ceiling for contract award for design and construction of the O&M-funded work (the CID option) is **$1,654,000** based on the funds made available for this project. The Government cannot guarantee that additional funds can be made available for award. Offerers are under no obligation to approach this ceiling.

Section 5: Performance Capability Information

a. Section 00610, Representations and Certifications
b. Proof of Financial Ability (Most recent financial statement covering assets and liabilities)
c. Other pro forma requirements indicated in Standard Form 1442 and this section
d. Number of years firm has been in business
e. Name, address and telephone of the firm's bank
f. Name, address and telephone of the firm's bonding company
g. Name, address and telephone of two credit/trade references

Section 6: Subcontracting Plan (NOT POINT SCORED). Submit a Subcontracting Plan in accordance with Section 00700, FAR 52.219-9 and DFAR 252.219-7004.

a. Past Performance on Utilization of Small, Small Disadvantaged and Women-Owned Small Businesses. Identify your efforts to comply with Clause 52.219-8, Utilization of Small, Small Disadvantaged and Women-Owned Small Business Concerns. If you are a large business, provide details of efforts on previous projects containing subcontracting plans that clearly represent your efforts to comply with FAR Clause 52.219-9, Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan. Information is to be limited to projects performed within the past five years.

b. Subcontracting Plan for Large Business. Large business offerors shall submit a subcontracting plan in accordance with the above numbered FAR clauses. To be acceptable, plans must adequately address the six required statutory elements and provide sufficient information to enable the Contracting Officer to answer affirmatively questions A through H of Appendix CC, Part 2, AFARS 19.705. You may use the attached sample subcontracting plan as a starting point. Percentage goals apply to the total amount being subcontracted. The current goals for the Louisville District are 61.2% to Small Business, 9.1% to Small Disadvantaged Business and 4.5% to Women-Owned Small Business.

* * * * * * * * * * END OF PROPPOSAL SUBMITTALS * * * * * * * * * * * *

1.6 Technical Quality Evaluation and Rating of Proposals. Offerors are advised that the technical evaluation and rating of proposals are conducted in strict confidence in that technical evaluation personnel review and rate each proposal without knowledge of the price offered. Offerors are required to segregate their cost and pricing information from the technical quality parts of the proposal.

1.7 General Proposal Submittal Information.

a. Offerors submitting proposals for this project should limit submissions to data essential for evaluation of proposals so that a minimum of time and monies will have been expended in preparing information required herein. Data submitted must clearly reflect the designer's interpretation of criteria furnished in the RFP or that he has obtained or developed by his own efforts. Material indicated in the design/construction criteria but not included in the offeror's specifications will be assumed to be included and a part of the proposal. All alternate proposals shall be specifically marked as such and separated in the submittal.

b. Offerors shall certify that all items submitted in proposals and final design documents (after contract award) comply with the requirements of the Description/Specification. The criteria specified in this RFP are binding contract criteria and in cases of any conflict, subsequent to award, between RFP criteria and contractor's submittals, the RFP criteria shall govern unless there is a written agreement between the Contracting Officer and the contractor on the waiving of a specific requirement.

c. Clarification of the Provisions of this Request for Proposal. Any explanation desired by an offeror regarding the meaning or interpretation of the RFP shall be requested in writing and received by the Contracting Officer not later than 14 days prior to the closing date of this solicitation. Any interpretation made will be in the form of an amendment to the RFP, and will be furnished to all prospective offerors. Receipt of all amendments must be acknowledged in the space provided on the proposal form or by letter or telegram received by the time set for receipt of proposals.

PRIME CONTRACTOR EXPERIENCE
(Use continuation sheets, if needed)

Name of Firm _____

Name of Project/Location _____

_____

General Scope of Project _____

_____

_____

_____

Role of Firm (prime, joint venture, subcontractor), and work that was self-performed:

_____

_____

_____

Construction Cost (initial/final)_____

Construction Time (contract/actual)_____

Extent and type of work you subcontracted out _____

_____

_____

Owner's contact for reference (name and company) _____

_____

Telephone number of reference contact _____

DESIGN FIRM EXPERIENCE

Firm name _____

Name of Project/Location _____

_____

General scope of project _____

_____

_____

Role of Firm (prime, joint venture, subcontractor) in the design, and the work self-performed _____

_____

_____

Estimated Construction Cost _____

Design Fee _____

Extent and type of design work that was subcontracted _____

_____

_____

Firm's performance evaluation _____

_____

Owner's point of contact for references (name and company) _____

_____

Telephone number of POC for reference _____

Revised March 23,1999

SUBCONTRACTOR EXPERIENCE

Name of Firm _____

Project Name/Location _____

_____

General Scope of Project _____

_____

Subcontract amount _____

Description of work subcontracted to others _____

_____

Firm’s performance evaluation by Owner _____

_____

Firm’s performance evaluation by Prime _____

_____

Owner’s point of contact for reference (name and company and telephone number)
_____

_____

Prime contractor’s point of contact for reference (name and company and telephone number) _____

_____

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RESUME OF KEY PERSONNEL

Name of Firm _____

Assignment on this project _____

Name and Title _____

Active Registration: No. _____ State _____ Year _____

No. of years: With this firm _____ With other firms _____

Education (Degree(s)/Year/Specialization): _____

_____

Specific experience and qualifications relevant to this project. Include a POC with phone no. for the two most recent projects described:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Revised March 23,1999

SMALL BUSINESS SUBCONTRACTING PLAN

DATE: _____

CONTRACTOR: _____

ADDRESS: _____

SOLICITATION OR CONTRACT NUMBER: _____

ITEM/SERVICE: _____

The following, together with any attachments, is hereby submitted as a Small Business Subcontracting Plan to satisfy the applicable requirements of Public Law 95-507.

1. (a) The following goals (expressed in terms of a percentage and dollar values of total planned subcontracting dollars) are applicable to the contract or solicitation cited above.

See page 1a

(b) The following principal products and/or services will be subcontracted under this contract, and the distribution among large business, small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns is as follows: **(Check all that apply)**

IDENTIFIED SUBCONTRACTING ITEMS/ SERVICES	**LARGE BUSINESS**	**SMALL BUSINESS**	**HUBZone SMALL BUSINESS**	**SMALL DISADVAN-TAGED BUSINESS**	**WOMEN-OWNED SMALL BUSINESS**

(ATTACHMENT MAY BE USED IF ADDITIONAL SPACE IS REQUIRED)

NOTE: If the contractor proposes zero (0) goals for HUBZone small business firms, the contractor should include a footnote in their subcontracting plan stating the reasons why and that every effort will be made during the life of the contract to identify and solicit certified HUBZone small business firms for subcontracting opportunities.

(c) The following method was used in developing subcontract goals (i.e., Statement explaining how the product and service areas to be subcontracted were established, how the areas to be subcontracted to small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns were determined, and how small business, HUBZone small business, small disadvantaged business and women-owned small business concerns' capabilities were determined, to include identification of source lists utilized in making those determinations).

_____

_____

_____

(d) Indirect and overhead costs (check one): ____ have been _____ have not been included in the goals specified in 1(a) and 1(b).

(e) If "have been" is checked, explain the method used in determining the proportionate share of indirect and overhead cost to be allocated as subcontracts to small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

_____

_____

_____

2. The following individual will administer the subcontracting program:

Name & Title: _____

Address & Telephone: _____

This individual's specific duties, as they relate to the firm's subcontracting program, are as follows: General overall responsibility for this company's Small Business Program, the development, preparation and execution of individual subcontracting plans and for monitoring performance relative to contractual subcontracting requirements contained in this plan, including but not limited to:

(a) Developing and maintaining offerors/bidders lists of small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns from all possible sources. Rely on a concern's representation of itself as a small business concern, or a woman-owned small business concern. However, concerning HUBZone small business and small disadvantaged business status, confirmation shall be made through the Small Business Administration's (SBA's) list of Small Disadvantaged Businesses and small HUBZone businesses by accessing the PRO-Net list at http://pro-net.sba.gov/pro-net/search.html and/or by contacting the SBA's office of Small Disadvantaged Business Certification and Eligibility.

(b) Ensuring that procurement packages are structured to permit small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns to participate to the maximum extent possible.

(c) Assuring inclusion of small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all solicitations for products or services that they are capable of providing.

(d) Reviewing solicitations to remove statements, clauses, etc., which may tend to restrict or prohibit small business, HUBZone small business, small disadvantaged business, and women-owned small business participation.

(e) Ensuring periodic rotation of potential subcontractors on bidders' lists.

(f) Ensuring that the bid proposal review board documents its reasons for not selecting low bids submitted by small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

(g) Ensuring the establishment and maintenance of records of solicitations and subcontract award activity.

(h) Attending or arranging for attendance of company counselors at Business Opportunity Workshops, Minority Business Enterprise Seminars, Trade Fairs, etc.

(i) Conducting or arranging for conduct of motivational training for purchasing personnel pursuant to the intent of Public Law 95-507.

(j) Monitoring attainment of proposed goals.

(k) Preparing and submitting periodic subcontracting reports required, which will include Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and SF 295, Summary Subcontract Report, in accordance with the instructions on the forms.

(l) Coordinating contractor's activities during the conduct of compliance reviews by Federal agencies.

(m) Coordinating the conduct of contractor's activities involving its small business, HUBZone small business, small disadvantaged business, and women-owned small business subcontracting program.

(n) Notifying the Contracting Officer or his representative in writing of any substitutions of firms that are not small business, HUBZone small business, small disadvantaged business, or women-owned small business for the firms listed in the subcontracting plan.

(o) Additions to (or deletions from) the duties specified above are as follows:

_____

_____

_____

3. The following efforts will be taken to assure that small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns will have an equitable opportunity to compete for subcontracts:

(a) Outreach efforts will be made by:

(i) Contacts with minority and small business trade associations such as the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce.

(ii) Contacts with business development organizations.

(iii) Attendance at small and minority business procurement conferences and trade fairs.

(iv) Sources will be requested from Small Business Administration's Procurement Marketing and Access Network (PRO-Net).

(b) The following internal efforts will be made to guide and encourage buyers:

(i) Workshops, seminars and training programs will be conducted.

(ii) Activities will be monitored to evaluate compliance with this subcontracting plan.

(c) Small business, HUBZone small business, small disadvantaged business, and women-owned small business concern source lists, guides and other data identifying small, small disadvantaged and women-owned small business concerns will be maintained and utilized by buyers in soliciting subcontracts.

(d) Additions to (or deletion from) the above listed efforts are as follows:

_____

_____

_____

4. The offeror (contractor) agrees that the clause entitled "Utilization of Small Business Concerns" at FAR 52.219-8 will be included in all subcontracts that offer further subcontracting opportunities, and all subcontractors (except small business concerns) who receive subcontracts in excess of $500,000 ($1,000,000 in construction) will be required to adopt and comply with a subcontracting plan similar to this one. Such plans will be reviewed by comparing them with the provisions of Public Law 95-507, and assuring that all minimum requirements of an acceptable subcontracting plan have been satisfied. The acceptability of percentage goals shall be determined on a case-by-case basis depending on the supplies/services involved, the availability of potential small businesses, HUBZone small businesses, small disadvantaged businesses and women-owned small business subcontractors, and prior experience. Once approved and implemented, plans will be monitored through the submission of periodic reports, and/or, as time and availability of funds permit, periodic visits to subcontractors facilities to review applicable records and subcontracting program progress.

5. The offeror (contractor) agrees to submit such periodic reports and cooperate in any studies or surveys as may be required by the contracting agency or the Small Business Administration in order to determine the extent of compliance by the offeror with the subcontracting plan and with the clause entitled "Utilization of Small Business Concerns," contained in the contract. The above reports will include Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and SF 295, Summary Subcontract Report, in accordance with the instructions on the forms.

The offeror (contractor) further agrees to ensure that its subcontractors agree to submit SF 294 and SF 295.

6. The offeror (contractor) agrees that he will maintain at least the following types of records to document compliance with this subcontracting plan:

(a) Small business, HUBZone small business, small disadvantaged business, and women-owned small business concern source lists, guides and other data identifying SB/SDB concerns.

(b) Organizations contacted for small, HUBZone small, small disadvantaged and women-owned small business sources.

(c) On a contract-by-contract basis, records on all subcontract solicitations over $100,000, indicating on each solicitation (i) whether small business concerns were solicited, and if not, why not; (ii) whether HUBZone small business concerns were solicited, and if not, why not; (iii) whether small disadvantaged business concerns were solicited, and if not, why not; (iv) whether women-owned small business concerns were solicited, and if not, why not; and (v) reasons for the failure of solicited small, small disadvantaged or women-owned small business concerns to receive the subcontract award.

(d) Records to support other outreach efforts: Contacts with Minority and Small Business Trade Associations, etc., and attendance at small and minority business procurement conferences and trade fairs.

(e) Records to support internal activities to guide and encourage buyers: Workshops, seminars, training programs, etc., monitoring activities to evaluate compliance.

(f) On a contract-by-contract basis, records to support subcontract award data to include name and address and business size of each subcontractor. Contractors having commercial plans need not comply with this requirement.

(g) Records to be maintained in addition to the above are as follows:

_____

_____

Signed: _____ Date: _____

Typed Name and Title:
_____

Plan Accepted by: _____ Date: _____

Revised March 23,1999

Contracting Officer

NOTE TO CONTRACTING OFFICER: Upon incorporation of a plan into the contract indicated herein, the estimated dollar value of contract $_____

CONTINUATION OF PARAGRAPH 1(a)

BASIC CONTRACT	**Dollars**	**Percents**
1. Total basic contract price	_____	
2. Total to be subcontracted (to all types of businesses)	_____	100%
a. To large business	_____	_____
b. To small business	_____	_____
i. To nondisadvantaged small business	_____	_____
ii To HUBZone small business	_____	_____
iii. To disadvantaged small business	_____	_____
iv. To women-owned small business	_____	_____

OPTIONS (if required)

NAME OF OPTION:_____

	Dollars	**Percents**
1. Total option price	_____	
2. Total to be subcontracted (to all types of businesses)	_____	100%
a. To large business	_____	_____
b. To small business	_____	_____
i. To nondisadvantaged small business	_____	_____
ii To HUBZone small business	_____	_____
iii. To disadvantaged small business	_____	_____
iv. To women-owned small business	_____	_____

1a

(SUBMIT ADDITIONAL OPTION PAGES FOR EACH OPTION)
OPTIONS (if required)

1. NAME OF OPTION:_____

	Dollars		**Percents**
1. Total option price	_____		
2. Total to be subcontracted (to all types of businesses)	_____	100%	
a. To large business	_____		_____
b. To small business	_____		_____
i. To nondisadvantaged small business	_____		_____
ii To HUBZone small business	_____		_____
iii. To disadvantaged small business	_____		_____
iv. To women-owned small business	_____		_____

2. NAME OF OPTION:_____

	Dollars		**Percents**
1. Total option price	_____		
2. Total to be subcontracted (to all types of businesses)	_____	100%	
a. To large business	_____		_____
b. To small business	_____		_____
i. To nondisadvantaged small business	_____		_____
ii To HUBZone small business	_____		_____
iii. To disadvantaged small business	_____		_____
iv. To women-owned small business	_____		_____

1b

SECTION 00130

PROPOSAL EVALUATION SYSTEM (1-PHASE)
(Avionics Lab Phase IIIA)

1. STATEMENT OF WORK. The contractor shall design and construct the Phase IIIA Addition to the Avionics Lab at Wright-Patterson Air Force Base in accordance with the provisions set forth in the Request for Proposal (RFP) and in the contractor's proposal thereto.

2. GENERAL.

2.1. Design Freedom. Requirements stated in this RFP are minimums. Innovative, creative or cost-saving proposals which meet or exceed these requirements are encouraged and will receive quality points accordingly. See Section 01011, Paragraph 1.6, concerning Mandatory Criteria. Deviations from any mandatory or non-mandatory requirements should be clearly noted and justified in the proposal.

2.2. Selection Procedure.

a. Advertisement. The RFP will be advertised in the Commerce Business Daily (CBD), giving a brief description of the design/build project and advising the availability of the solicitation package.

b. Solicitation. Firms responding to the CBD ad will be sent a solicitation which will include a complete project description and scope of work, and the evaluation factors for the selection process.

c. Submittal Format. Proposals will be submitted in the specified tabbed format, which presents responses to evaluation factors. Submittals will not be anonymous.

d. Evaluation. Proposals will be evaluated by an Evaluation Board using the evaluation criteria given in this section. The evaluation will identify quality issues, both positive and negative, that may be discussed between the Government and the offerors. Proposals will be evaluated on their own merit, in accordance with Section 00115. Most factors will be point scored, but some will be rated on a go,no-go basis.

e. Price. After the quality ratings of proposals have been determined, proposals will be evaluated against price. A price analysis will be performed on each proposal. Price as a factor has a value equal to all the other factors combined; however, it is not point-scored.

f. Competitive Range. The results of the evaluation, together with the cost proposal, become the basis for determining the competitive range, which is the grouping of offers that have a reasonable chance of being awarded a contract and therefore merit further consideration by the Government. If discussions are necessary, all offerors in the competitive range will be included in discussions. Upon conclusion of discussions, all offerors remaining in the competitive range will be invited to submit their Final Revised Proposal.

g. Award. Following receipt of the Final Revised Proposals, each received offer will be point-scored, and an award made to that offeror whose offer, conforming to the solicitation, will be most advantageous to the Government, price and other factors considered. Note that an award may be made on the basis of initial offers received, without discussion; therefore, the offeror should submit the best initial offer possible.

h. Notification. The Government will notify all offerors not selected, advising them of the proposal which was selected. Unsuccessful offerors are invited to request in writing a debriefing meeting with Louisville District Corps of Engineers staff.

3. LIST OF PROPOSAL EVALUATION CRITERIA. Proposals will be evaluated in accordance with the following criteria, listed with the relative importance of their score value in relation to other criteria on their same level:

Section 1 - Qualifications and experience

Prime contractor experience
- Similar projects
- Previous experience w/ M&E subs
- Orig/final dates and costs
- Points of contract (references)

Design firm experience
- Similar projects
- Points of contract (references)

Individual personnel experience
- Overall Proj Manager
- Design Proj Manager
- Constr Proj Manager
- Proj Superintendant
- QC Manager
- Architect
- Elect Engr
- Comm Engr
- Civil Engr
- Struct Engr
- Mech Engr
- Fire Prot Engr
- Interior Designer

M & E Subcontractor experience
- Similar projects
- Points of contract (references)

Section 2 - Design and engineering.

Conformance to RFP (narrative)
Alterations and additions (narrative)
Technical information
- Raised floor system
- Partition system
- Mech eq, controls, room

Light fixtures
Site design and engineering

Section 3 - Project management

Project organization
Roles, relationships
Org chart
Team approach
Design team involvement
Use of partnering
Design quality control
Schedule and cost control
Bar chart
Prev cost growth analysis
Self-performed work Go-NoGo
Subcontracting plan Go-NoGo

Section 4 - Price Price is equal to all other factors

4. DESCRIPTION OF PROPOSAL EVALUATION CRITERIA.

Section 1 - Qualifications and Experience.

(1) Prime Contractor Experience. The Evaluation Board will evaluate both the extent and quality (past performance) of recent experience. Experience will include the similarity, type and size of projects, the final cost and completion dates, references and awards. Experience prior to 5 years will not be given consideration unless key personnel proposed for this project played a significant role AND the project can be shown to be similar to this project considering changes in technology, materials, equipment, codes, etc. Documentation of successful completion of projects similar in nature and scope to this project will be favorably considered in the evaluation. Conversely, proposals that do not include substantial evidence that the offeror has experience, qualifications, and production capability to successful prosecute the proposed project will be unfavorably considered. Previous working relationship and experience with the Mechanical and Electrical subcontractors proposed for this Design/Build team will be evaluated favorably. No previous design-build experience is necessary to qualify for award; however, extra scoring consideration will be given for recent, successful design-build experience and/or design-build team experience.

(2) Design Firm(s) Experience. The Evaluation Board will evaluate both the extent and quality (past performance) of recent experience. Experience prior to 5 years will not be given consideration unless key personnel proposed for this project played a significant role AND the project can be shown to be similar to this project considering changes in technology, materials, equipment, codes, etc. Documentation of successful completion of projects similar in nature and scope to this project will be favorably considered in the evaluation. Conversely, proposals that do not include substantial evidence that the offeror has experience, qualifications, and production capability to successful prosecute the proposed project will be unfavorably considered. No previous design-build experience is necessary to qualify for award; however, bonus-scoring consideration will be given for

recent, successful design-build experience and/or design-build team experience.

(3) Individual Personnel Experience. Key personnel requirements are given in Section 00115. The Evaluation Board will evaluate the adequacy, strength and assured availability of the key personnel assignments to the design and construction staffing requirements. The Board will also evaluate for compliance with registration or other specified minimum requirements, degree of qualification and experience, familiarity with local conditions, building codes, etc. Personnel who are appropriate, qualified and specific to the project will be favorably considered. People included on the project team with unclear, unnecessary or duplicative roles will be unfavorably considered.

(4) Mech and Elect Subcontractor Experience. The Evaluation Board will evaluate both the extent and quality (past performance) of recent experience. Experience prior to 5 years will not be given consideration unless key personnel proposed for this project played a significant role AND the project can be shown to be similar to this project considering changes in technology, materials, equipment, codes, etc. Documentation of successful completion of projects similar in nature and scope to this project will be favorably considered in the evaluation. Conversely, proposals that do not include substantial evidence that the subcontractor has experience, qualifications, and production capability to successful prosecute the proposed project will be unfavorably considered. No previous design-build experience is necessary to qualify for award; however, extra scoring consideration will be given for recent, successful design-build experience and/or design-build team experience.

Section 2 – Technical Approach.

(1) Conformance with RFP. A clear, concise narrative indicating conformance with the RFP requirements, including a list of any proposed deviations or exceptions taken, as well as any betterments, will be favorably evaluated. The Evaluation Board will evaluate the offeror's understanding of the mandatory requirements and their effect on design. Mandatory requirements are listed in Section 01011.

(2) Alterations and Additions. A narrative that clearly describes the demolition, alterations and additions to adjacent Bldg 620 that are required by the proposal to complete this Phase IIIA Lab Addition, will be favorably evaluated. Proposals that do not describe this work adequately will indicate that the proposer has not resolved what may need to be done to connect circulation, systems and meet codes, and will be less favorably evaluated.

(3) Technical Information. The Board will evaluate the information submitted for the technical areas listed. Information that is complete, detailed, yet clear and to the point, and shows a good grasp of the problems and solutions, will be favorably evaluated.

(4) Site Design and Engineering. A clear, concise narrative limited to two pages or less, indicating conformance with the RFP requirements, including a list of any proposed deviations or exceptions taken, as well as any betterments, will be favorably evaluated. The narrative should describe the location and type of landscaping and lighting.

Section 3 - Project Management

(1) Project Organization. The Evaluation Board will evaluate the adequacy, capabilities, strengths and clarity of the offerer's organization for designing, construction and managing a successful project, as shown by an organization chart that is supported by the resumes. Indicate how the prime contractor and subcontractors interrelate, and show appropriate authority levels. Identify all personnel and subcontractors shown on the chart, and clearly delineate on-site from off-site personnel. A well organized design team, with a single point of contact and coordination within the team, will be evaluated higher than teams that are only led and coordinated by the D/B contractor.

(2) Team Approach. The Evaluation Board will evaluate this factor according to the level of participation of the design team throughout the design-build process, and the evidence of previous successful use of partnering in design and construction.

(3) Design Quality Control. The Evaluation Board will evaluate the completeness of the proposer's Design QC Plan, and whether it meets the requirements of Section 00115.

(4) Schedule and Cost Control. The Evaluation Board will evaluate the Schedule to assess the offeror's complete understanding of the Design/Build process, and their strength of understanding of events associated with coordinating design submittals and incorporating design comments, fast-tracking and completion requirements. The Board will also evaluate the offeror's capability to complete the schedule within the proposed contract duration, and whether the schedule is realistic. Schedules offering a duration less than that shown in Section 00800, Para. 1, will receive a higher score, if the schedule is shown to be realistic and achievable. The Government reserves the right to accept or decline a proposed shorter duration. The Board will look the Cost growth on the offeror's previous projects to evaluate the offeror's ability and willingness to work within cost limitations of the contract. Reasons for the cost growth will be considered.

(5) Self-performed Work. This factor will be rated on a "go, no-go" basis in accordance with the Section 00800 Para 15 requirement on Performance of Work by Contractor.

Section 4 - Price. Price as an evaluation factor is equal in weight to all the other evaluation factors combined. Price will be evaluated for fairness and reasonableness through use of price analysis. Prices will also be checked for unbalancing of line items. Offerors are cautioned to distribute cost appropriately.

Section 5 - Offeror Capability Information. Evaluated for completeness, not scored.

Section 6 - Subcontracting Plan.

(1) Subcontracting Plan for Large Business: The plan will not be scored, but will be evaluated for acceptability (go/no-go) in accordance with AFARS 19.705

(2) To be acceptable, subcontracting plans must by rated 71 percent or higher under the AFARS evaluation system. Any plan that is rated 70 percent or less under the AFARS

evaluation system will be carefully considered for acceptability. If discussions with Offerors are necessary, those areas where the plan is deficient will be reviewed with the Offeror with the goal of correcting deficiencies. Due to requirements for review of the successful Offerors subcontracting plan by other agencies, the Government reserves the right to negotiate the final plan with the successful Offeror before award.

SECTION 00150

THE DESIGN/BUILD PROCESS

PART I - GENERAL

1.1 DESIGN/BUILD (DB) PROCESS:

The facility shall be designed and built by a single firm or team of firms (referred to as the Contractor or Design-Build Contractor) that has registered Architects and Engineers employed by or subcontracted to their organization.

1.2 PROPOSAL PHASE:

The Proposal Phase includes the period from the time of issuance of the Request for Proposal (RFP) through the selection process and the final award of the contract to the successful Offeror. Submittals are to be sent to: Shirley Garvey, Contracting Specialist
ATTN: CELRL-CT (Garvey)
P.O. Box 59 Louisville, KY 40201-0059
(502) 582-5663
UPS/ FEDEX:
Romano Mazzoli Fed Bldg, Rm 866
600 Dr. MLK Jr. Place
Louisville, KY 40202

1.3 DESIGN PHASE:

During the Design Phase, the Contractor shall develop and submit for review and approval the Part 1 (60% Design) Submittal and Part 2 (100% Design) Submittal.

1.4 BUILD PHASE:

The Build Phase will be initiated by a letter of authorization.

1.5 PROJECT SCHEDULE:

	Calendar Days
Proposal Phase	Approximately 45 Days
Design Phase - Kick Off Meeting	7 days from Award of Contract
Part 1 (60% Design) Submittal Due	60 days from Award of Contract
SHPO Response	120 days from Award of Contract
60% Submittal Review Conference	140 days from Award of Contract

Part 2 (100% Design) Submittal Due	180 days from Award of Contract
100% Submittal Review Conference	200 days from Award of Contract
Incorporate Changes to Submittals	220 days from Award of Contract
Re-Submit for Review and Approval	
Build Phase	
Construction Completion	**See Section 00800 SPECIAL CONTRACT REQUIREMENTS

All days are in calendar days.

If for any reason the Government requires more time than the twenty (20) days notice given prior to either of the review conferences and that delay causes the Contractor to exceed the design schedule, the Contractor will be granted an extension of time equal to the number of calendar days of delay for that design phase only.

Conference and post conference action: Government personnel will present review comments for discussion and resolution. Copies of comments, annotated with comment action agreed on, will be made available to all parties from the Contractor within 7 days from the conference date. Unresolved problems will be resolved by immediate follow-on action at the end of conferences. Valid comments will be incorporated. On receipt of final corrected design documents, the Government will backcheck the design. Upon completion and acceptance by the Government of the design, the Louisville District will issue a construction Clearance to Proceed (CTP). The Government, however, reserves the right to disapprove design document submittals if comments are of too great a significance. In this case, every effort shall be made during follow-up action between the Contractor and the Government to resolve conflicts and problems such that documents can be fully approved.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION

OFFEROR: READ CAREFULLY - CHECK ALL APPLICABLE BOXES

SECTION 00610

REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF OFFEROR FOR NEGOTIATED CONSTRUCTION CONTRACTS

DATE OF OFFER: _____ DUNS NO. _____

SOLICITATION NO. _____ CAGE NO. _____

NAME AND ADDRESS OF OFFEROR: _____

_____

The offeror makes the following representations and certifications as part of the offer referenced above.

1. CERTIFICATE OF INDEPENDENT PRICE DETERMINATION (APR 1985) FAR 52.203-2

(a) The offeror certifies that--

(1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to (i) those prices, (ii) the intention to submit an offer, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory--

(1) Is the person in the offeror's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision _____ [*insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization*];

(ii) As an authorized agent, does certify that the principals name in subdivision (b)(2)(i) of this provision have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision.

(c) If the offeror deletes or modifies subparagraph (a)(2) of this provision, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

(End of provision)

2. CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (APR 1991) FAR 52.203-11

(a) The definitions and prohibitions contained in the clause, at FAR 52.203-12, Limitation on Payments to Influence Certain Federal Transactions, included in this solicitation, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that on or after December 23, 1989--

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan or cooperative agreement;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

(3) He or she will include the language of this certification in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of $100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than $10,000, and not more than $100,000, for each such failure.

(End of provision)

3. TAXPAYER IDENTIFICATION (OCT 1998) FAR 52.204-3

(a) **Definitions.**

"Common parent," as used in this provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

"Taxpayer Identification Number (TIN)," as used in this provision, means the number required by the Internal Revenue Service (IRS) to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(b) All offerors must submit the information required in paragraphs (d) through (f) of this provision to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M, and implementing regulations issued by the IRS. If the resulting contract is subject to the payment reporting requirements described in Federal Acquisition Regulation (FAR) 4.904, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C. 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(d) **Taxpayer Identification Number (TIN).**

[ ] TIN: _____
[ ] TIN has been applied for.
[ ] TIN is not required because:
- **[ ]** Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;
- **[ ]** Offeror is an agency or instrumentality of a foreign government;
- **[ ]** Offeror is an agency or instrumentality the Federal Government;

(e) **Type of Organization.**

[ ] Sole proprietorship;
[ ] Partnership;
[ ] Corporate entity (not tax-exempt);
[ ] Corporate entity (tax-exempt);
[ ] Government entity (Federal, State, or local);
[ ] Foreign government;
[ ] International organization per 26 CFR 1.6049-4;
[ ] Other _____

(f) **Common Parent.**

[ ] Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this provision.

[ ] Name and TIN of Common parent:

Name _____ TIN_____

(End of provision)

4. WOMEN-OWNED BUSINESS (OTHER THAN SMALL BUSINESS) (MAY 1999) FAR 52.204-5

(a) **Definition.** Women-owned business concern, as used in this provision, means a concern which is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and whose management and daily business operations are controlled by one or more women.

(b) **Representation.** [*Complete only if the offeror is a women-owned business concern and has not represented itself as a small business concern in paragraph (b)(1) of FAR 52.219-1, Small Business Program Representations, of this solicitation*.] The offeror represents that it **[ ]** is, **[ ]** is not a women-owned business concern.

(End of provision)

5. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (MAR 1996) FAR 52.209-5

(a) (1) The Offeror certifies, to the best of its knowledge and belief, that--

(i) The Offeror and/or any of its Principals--

(A) Are **[ ]** are not **[ ]** presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have **[ ]** have not **[ ]**, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are **[ ]** are not **[ ]** presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

(ii) The Offeror has **[ ]** has not **[ ]**, within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER SECTION 1001, TITLE 18, UNITED STATES CODE.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

6. DISCLOSURE OF OWNERSHIP OR CONTROL BY THE GOVERNMENT OF A TERRORIST COUNTRY (SEP 1994) DFARS 252.209-7001

(a) **Definitions.**

As used in this provision--

(1) "Government of a terrorist country" includes the state and the government of a terrorist country, as well as any political subdivision, agency, or instrumentality thereof.

(2) "Terrorist country" means a country determined by the Secretary of State, under section 6(j)(1)(A) of the Export Administration Act of 1979 (50 U.S.C. App. 2405 (j)(i)(A)), to be a country the government of which has repeatedly provided support for acts of international terrorism. As of the date of this provision, terrorist countries include: Cuba, Iran, Iraq, Libya, North Korea, Sudan, and Syria.

(3) "Significant interest" means--

(i) Ownership of or beneficial interest in 5 percent or more of the firm's or subsidiary's securities. Beneficial interest includes holding 5 percent or more of any class of the firm's securities in

"nominee shares," "street names," or some other method of holding securities that does not disclose the beneficial owner;

(ii) Holding a management position in the firm, such as a director or officer;

(iii) Ability to control or influence the election, appointment, or tenure of directors or officers in the firm;

(iv) Ownership of 10 percent or more of the assets of a firm such as equipment, buildings, real estate, or other tangible assets of the firm; or

(v) Holding 50 percent or more of the indebtedness of a firm.

(b) **Prohibition on award.** In accordance with 10 U.S.C. 2327, no contract may be awarded to a firm or a subsidiary of a firm if the government of a terrorist country has a significant interest in the firm or subsidiary, unless a waiver is granted by the Secretary of Defense.

(c) **Disclosure.** If the government of a terrorist country has a significant interest in the Offeror or a subsidiary of the Offeror, the Offeror shall disclose such interest in an attachment to its offer. If the Offeror is a subsidiary, it shall also disclose any significant interest the government of a terrorist country has in any firm that owns or controls the subsidiary. The disclosure shall include--

(1) Identification of each government holding a significant interest; and

(2) A description of the significant interest held by each government.

(End of provision)

7. COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS (MAR 1998) DFARS 52.209-7003

By submission of its offer, the offeror represents that, if it is subject to the reporting requirements of 38 U.S.C. 4212(d) (i.e., the VETS-100 report required by Federal Acquisition Regulation clause 52.222-37, Employment Reports on Disabled Veterans and Veterans of the Vietnam Era), it has submitted the most recent report required by 38 U.S.C. 4212(d).

(End of provision)

8. SMALL BUSINESS PROGRAM REPRESENTATIONS (MAY 1999) FAR 52.219-1 (ALTERNATE I) (OCT 1998)

(a) (1) The standard industrial classification (SIC) code for this acquisition is 1542.

(2) The small business size standard is $17.0 million.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) **Representations.** (1) The offeror represents as part of its offer that it **[ ]** is, **[ ]** is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it **[ ]** is **[ ]** is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it **[ ]** is, **[ ]** is not a women-owned small business concern.

(4) (Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision). [The offeror shall check the category in which its ownership falls];

_____ Black American

_____ Hispanic American

_____ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

_____ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

_____ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

_____ Individual/concern, other than one of the preceding.

(c) **Definitions.**

"Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

"Women-owned small business concern," as used in this provision, means a small business concern--

(1) Which is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) **Notice.** (1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under

the preference programs established pursuant to sections 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)

9. SMALL BUSINESS CONCERN REPRESENTATION FOR THE SMALL BUSINESS COMPETITIVENESS DEMONSTRATION PROGRAM (JAN 1997) FAR 52.219-19

(a) **Definition.** "Emerging small business" as used in this solicitation, means a small business concern whose size is no greater than 50 percent of the numerical size standard applicable to the standard industrial classification code assigned to a contracting opportunity.

(b) **(Complete only if the Offeror has represented itself under the provision at 52.219-1 as a small business concern under the size standards of this solicitation.)** The Offeror **[ ]** is, **[ ]** is not an emerging small business.

(c) **(Complete only if the Offeror is a small business or an emerging small business, indicating its size range.)** Offeror's number of employees for the past 12 months (check this column if size standard stated in solicitation is expressed in terms of number of employees) or Offeror's average annual gross revenue for the last 3 fiscal years (check this column if size standard stated in solicitation is expressed in terms of annual receipts - see Paragraph 11(a)(2) Small Business Program Representations).

Number of Employees	**(Construction Solicitations)** Avg. Annual Gross Revenues
_____ 50 or fewer	_____ $1 million or less
_____ 51 - 100	_____ $1,000,001 - $2 million
_____ 101 -250	_____ $2,000,001 - $3.5 million
_____ 251 - 500	_____ $3,500,001 - $5 million
_____ 501 - 750	_____ $5,000,001 - $10 million
_____ 751 - 1,000	_____ $10,000,001 - $17 million
_____ Over 1,000	_____ Over $17 million

(End of provision)

10. PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999) FAR 52.222-22

The offeror represents that--

(a) It **[ ]** has **[ ]** has not, participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;

(b) It **[ ]** has, **[ ]** has not, filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

11. CLEAN AIR AND WATER CERTIFICATION (APR 1984) FAR 52.223-1

The Offeror certifies that--

(a) Any facility to be used in the performance of this proposed contract **[ ]** is, **[ ]** is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities;

(b) The Offeror will immediately notify the Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the EPA, indicating that any facility that the Offeror proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and

(c) The Offeror will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

(End of provision)

12. RECOVERED MATERIAL CERTIFICATION (OCT 1997) FAR 52.223-4

As required by the Resource Conservation and Recovery Act of 1976 (42 U.S.C.6962(c)(3)(A)(i)), the offeror certifies, by signing this offer, that the percentage of recovered materials to be used in the performance of the contract will be at least the amount required by the applicable contract specifications.

(End of Provision)

13. CERTIFICATION OF TOXIC CHEMICAL RELEASE REPORTING (OCT 1996) FAR 52.223-13

(a) Submission of this certification is a prerequisite for making or entering into this contract imposed by Executive Order 12969, August 8,1995.

(b) By signing this offer, the offeror certifies that--

(1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

(2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facilities is exempt for at least one of the following reasons: *(Check each block that is applicable.)*

[ ] (i) The facility does not manufacture, process or otherwise use any toxic chemicals

listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

[ ] (ii) The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C. 11023(b)(1)(A);

[ ] (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

[ ] (iv) The facility does not fall within the Standard Industrial Classification Code (SIC) designations 20 through 39 as set forth in section 19.102 of the Federal Acquisition Regulation; or

[ ] (v) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

(End of provision)
(End of Section 00610)

SECTION 00700

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Issued by: Department of the Army, Corps of Engineers
Louisville District

Edition of 28 JUN 1999

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1. CONTRACTING OFFICER'S REPRESENTATIVE (DEC 1991) DFARS 252.201-7000

(a) *Definition*. "Contracting officer's representative" means an individual designated in accordance with subsection 201.602-2 of the Defense Federal Acquisition Regulation Supplement and authorized in writing by the Contracting Officer to perform specific technical or administrative functions.

(b) If the Contracting Officer designates a Contracting Officer's Representative (COR), the Contractor will receive a copy of the written designation. It will specify the extent of the COR's authority to act on behalf of the Contracting Officer. The COR is not authorized to make any commitments or changes that will affect price, quality, quantity, delivery, or any other term or condition of the contract.

(End of clause)

2. DEFINITIONS (OCT 1995)--ALTERNATE I (APR 1984) FAR 52.202-1 I

(a) "Head of the agency" (also called "agency head") or "Secretary" means the Secretary (or Attorney General, Administrator, Governor, Chairperson, or other chief official, as appropriate) of the agency, including any deputy or assistant chief official of the agency; and the term "authorized representative" means any person, persons, or board (other than the Contracting Officer) authorized to act for the head of the agency or Secretary.

(b) "Commercial component" means any component that is a commercial item.

(c) "Component" means any item supplied to the Federal Government as part of an end item or of another component.

(d) "Nondevelopmental item" means--

(1) Any previously developed item of supply used exclusively for governmental purposes by a Federal agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;

(2) Any item described in paragraph (d)(1) of this definition that requires only minor modification or modifications of a type customarily available in the commercial marketplace in order to meet the requirements of the procuring department or agency; or

(3) Any item of supply being produced that does not meet the requirements of paragraph (d)(1) or (d)(2) solely because the item is not yet in use.

(e) "Contracting Officer" means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(f) Except as otherwise provided in this contract, the term "subcontracts" includes, but is not limited to, purchase orders and changes and modifications to purchase orders under this contract.

(End of clause)

3. GRATUITIES (APR 1984) FAR 52.203-3

(a) The right of the Contractor to proceed may be terminated by written notice if, after notice and hearing, the agency head or a designee determines that the Contractor, its agent, or another representative--

(1) Offered or gave a gratuity (e.g., an entertainment or gift) to an officer, official, or employee of the Government; and

(2) Intended, by the gratuity, to obtain a contract or favorable treatment under a contract.

(b) The facts supporting this determination may be reviewed by any court having lawful jurisdiction.

(c) If this contract is terminated under paragraph (a) of this clause, the Government is entitled--

(1) To pursue the same remedies as in a breach of the contract; and

(2) In addition to any other damages provided by law, to exemplary damages of not less than 3 nor more than 10 times the cost incurred by the Contractor in giving gratuities to the person concerned, as determined by the agency head or a designee. (This subparagraph (c)(2) is applicable only if this contract uses money appropriated to the Department of Defense.)

(d) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

4. COVENANT AGAINST CONTINGENT FEES (APR 1984) FAR 52.203-5

(a) The Contractor warrants that no person or agency has been employed or retained to solicit or obtain this contract upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the Government shall have the right to annual this contract without liability or, in its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of the contingent fee.

(b) "Bona fide agency," as used in this clause, means an established commercial or selling agency, maintained by a contractor for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds itself out as being able to obtain any Government contract or contracts through improper influence.

"Bona fide employee," as used in this clause, means a person, employed by a contractor and subject to the contractor's supervision and control as to time, place, and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds out as being able to obtain any Government contract or contracts through improper influence.

"Contingent fee," as used in this clause, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a Government contract.

"Improper influence," as used in this clause, means any influence that induces or tends to induce a Government employee or officer to give consideration or to act regarding a Government contract or any basis other than the merits of the matter.

(End of clause)

5. ANTI-KICKBACK PROCEDURES (JUL 1995) FAR 52.203-7

(a) *Definitions*.

"Kickback," as used in this clause, means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided, directly or indirectly, to any prime Contractor, prime Contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a subcontract relating to a prime contract.

"Person," as used in this clause, means a corporation, partnership, business association of any kind, trust, joint-stock company, or individual.

"Prime contract," as used in this clause, means a contract or contractual action entered into by the United States for the purpose of obtaining supplies, materials, equipment or services of any kind.

"Prime Contractor" as used in this clause, means a person who has entered into a prime contract with the United States.

"Prime Contractor employee," as used in this clause, means any officer, partner, employee, or agent of a prime Contractor.

"Subcontract," as used in this clause, means a contract or contractual action entered into by a prime Contractor or subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind under a prime contract.

"Subcontractor," as used in this clause, (1) means any person, other than the prime Contractor, who offers to furnish or furnishes any supplies, materials, equipment, or services of any kind under a prime contract or a subcontract entered into in connection with such prime contract, and (2) includes any person who offers to furnish or furnishes general supplies to the prime Contractor or a higher tier subcontractor.

"Subcontractor employee," as used in this clause, means any officer, partner, employee, or agent of a subcontractor.

(b) The Anti-Kickback Act of 1986 (41 U.S.C. 51-58) (the Act), prohibits any person from--

(1) Providing or attempting to provide or offering to provide any kickback;

(2) Soliciting, accepting, or attempting to accept any kickback; or

(3) Including, directly or indirectly, the amount of any kickback in the contract price charged by a prime Contractor to the United States or in the contract price charged by a subcontractor to a prime Contractor or higher tier subcontractor.

(c)(1) The Contractor shall have in place and follow reasonable procedures designed to prevent and detect possible violations described in paragraph (b) of this clause in its own operations and direct business relationships.

(2) When the Contractor has reasonable grounds to believe that a violation described in paragraph (b) of this clause may have occurred, the Contractor shall promptly report in writing the possible violation. Such reports shall be made to the inspector general of the contracting agency, the head of the contracting agency if the agency does not have an inspector general, or the Department of Justice.

(3) The Contractor shall cooperate fully with any Federal agency investigating a possible violation described in paragraph (b) of this clause.

(4) The Contracting Officer may (i) offset the amount of the kickback against any monies owed by the United States under the prime contract and/or (ii) direct that the Prime Contractor withhold from sums owed a subcontractor under the prime contract the amount of the kickback. The Contracting Officer may order that monies withheld under subdivision (c)(4)(ii) of this clause be paid to the Government unless the Government has already offset those monies under subdivision (c)(4)(i) of this clause. In either case, the Prime Contractor shall notify the Contracting Officer when the monies are withheld.

(5) The Contractor agrees to incorporate the substance of this clause, including subparagraph (c)(5) but excepting subparagraph (c)(1), in all subcontracts under this contract which exceed $100,000.

(End of clause)

6. CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997) FAR 52.203-8

(a) If the Government receives information that a contractor or a person has engaged in conduct constituting a violation of subsection (a), (b), (c), or (d) of Section 27 of the Office of Federal Procurement Policy Act (41 U.S.C. 423) (the Act), as amended by section 4304 of the 1996 National Defense Authorization Act for Fiscal Year 1996 (Pub.L. 104-106), the Government may--

(1) Cancel the solicitation, if the contract has not yet been awarded or issued; or

(2) Rescind the contract with respect to which--

(i) The Contractor or someone acting for the Contractor has been convicted for an offense where the conduct constitutes a violation of subsection 27 (a) or (b) of the Act for the purpose of either--

(A) Exchanging the information covered by such subsections for anything of value; or

(B) Obtaining or giving anyone a competitive advantage in the award of a Federal agency procurement contract; or

(ii) The head of the contracting activity has determined, based upon a preponderance of the evidence, that the Contractor or someone acting for the Contractor has engaged in conduct constituting an offense punishable under subsections 27(e) (1) of the Act.

(b) If the Government rescinds the contract under paragraph (a) of this clause, the Government is entitled to recover, in addition to any penalty prescribed by law, the amount expended under the contract.

(c) The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law, regulation, or under this contract.

(End of clause)

7. PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997) FAR 52.203-10

(a) The Government, at its election, may reduce the price of a fixed-price type contract and the total cost and fee under a cost-type contract by the amount of profit or fee determined as set forth in paragraph (b) of this clause if the head of the contracting activity or designee determines that there was a violation of subsection 27(a), (b), or (c) of the Office of Federal Procurement Policy Act, as amended (41 U.S.C. 423), as implemented in section 3.104 of the Federal Acquisition Regulation. In the case of a contract modification, the fee subject to reduction is the fee specified in the particular contract modification at the time of execution, except as provided in subparagraph (b)(5) of this clause.

(b) The price or fee reduction referred to in paragraph (a) of this clause shall be--

(1) For cost-plus-fixed-fee contracts, the amount of the fee specified in the contract at the time of award;

(2) For cost-plus-incentive-fee contracts, the target fee specified in the contract at the time of award, notwithstanding any minimum fee or “fee floor” specified in the contract;

(3) For cost-plus-award-fee contracts--

(i) For base fee established in the contract at the time of contract award;

(ii) If no base fee is specified in the contract, 30 percent of the amount of each award fee otherwise payable to the Contractor for each award fee evaluation period or at each award fee determination point.

(4) For fixed-price-incentive contracts, the Government may--

(i) Reduce the contract target price and contract target profit both by an amount equal to the initial target profit specified in the contract at the time of contract award; or

(ii) If an immediate adjustment to the contract target price and contract target profit would have a significant adverse impact on the incentive price revision relationship under the contract, or adversely affect the contract financing provisions, the Contracting Officer may defer such adjustment until establishment of the total final price of the contract.

The total final price established in accordance with the incentive price revision provisions of the contract shall be reduced by an amount equal to the initial target profit specified in the contract at the time of contract award and such reduced price shall be the total final contract price.

(5) For firm-fixed price contracts, by 10 percent of the initial contract price or a profit amount determined by the Contracting Officer from records or documents in existence prior to the date of the contract award.

(c) The Government may, at its election, reduce a prime contractor's price or fee in accordance with the procedures of paragraph (b) of this clause for violations of the Act by its subcontractors by an amount not to exceed the amount of profit or fee reflected in the subcontract at the time the subcontract was first definitively priced.

(d) In addition to the remedies in paragraphs (a) and (c) of this clause, the Government may terminate this contract for default. The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

8. LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (JUN 1997) FAR 52.203-12

(a) *Definitions.*

"Agency," as used in this clause, means executive agency as defined in 2.101.

"Covered Federal action," as used in this clause, means any of the following Federal actions:

(1) The awarding of any Federal contract.

(2) The making of any Federal grant.

(3) The making of any Federal loan.

(4) The entering into of any cooperative agreement.

(5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

"Indian tribe" and "tribal organization," as used in this clause, have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) and include Alaskan Natives.

"Influencing or attempting to influence," as used in this clause, means making, with the intent to influence, any communication to or appearance before an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

"Local government," as used in this clause, means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency," as used in this clause, includes the following individuals who are employed by an agency:

(1) An individual who is appointed to a position in the Government under title 5, United States Code, including a position under a temporary appointment.

(2) A member of the uniformed services, as defined in subsection 101(3), title 37, United States Code.

(3) A special Government employee, as defined in section 202, title 18, United States Code.

(4) An individual who is a member of a Federal advisory committee, as defined by the Federal advisory Committee Act, title 5, United States Code, appendix 2.

"Person," as used in this clause, means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit, or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable compensation," as used in this clause, means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable payment," as used in this clause, means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient," as used in this clause, includes the Contractor and all subcontractors. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly employed," as used in this clause, means, with respect to an officer or employee of a person requesting or receiving a Federal contract, an officer or employee who is employed by such person for at least 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

"State," as used in this clause, means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and multi-State, regional, or interstate entity having governmental duties and powers.

(b) *Prohibitions*.

(1) Section 1352 of title 31, United States Code, among other things, prohibits a recipient of a Federal contract, grant, loan, or cooperative agreement from using appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan or cooperative agreement.

(2) The Act also requires Contractors to furnish a disclosure if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

(3) The prohibitions of the Act do not apply under the following conditions:

(i) *Agency and legislative liaison by own employees*.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.

(B) For purposes of subdivision (b)(3)(i)(A) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.

(C) The following agency and legislative liaison activities are permitted at any time where they are not related to a specific solicitation for any covered Federal action:

(1) Discussing with an agency the qualities and characteristics (including individual demonstrations) of the person's products or services, conditions or terms of sale, and service capabilities.

(2) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(D) The following agency and legislative liaison activities are permitted where they are prior to formal solicitation of any covered Federal action--

(1) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(2) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(3) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Pub. L. 95-507, and subsequent amendments.

(E) Only those services expressly authorized by subdivision (b)(3)(i)(A) of this clause are permitted under this clause.

(ii) *Professional and technical services*.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of--

(1) A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal

action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action.

(2) Any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(B) For purposes of subdivision (b)(3)(ii)(A) of this clause, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance of operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of this or her client's proposal, but generally advocate one proposal over another are not allowable under this section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(C) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation and any other requirements in the actual award documents.

(D) Only those services expressly authorized by subdivisions (b)(3)(ii)(A)(1) and (2) of this clause are permitted under this clause.

(E) The reporting requirements of FAR 3.803(a) shall not apply with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

(c) *Disclosure*.

(1) The Contractor who requests or receives from an agency a Federal contract shall file with that agency a disclosure form, OMB standard form LLL, Disclosure of Lobbying Activities, if such person has made or has agreed to make any payment using nonappropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph (b)(1) of this clause, if paid for with appropriated funds.

(2) The Contractor shall file a disclosure form at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph (c)(1) of this clause. An event that materially affects the accuracy of the information reported includes--

(i) A cumulative increase of $25,000 or more in the amount paid or expected to be paid for influencing are attempting to influence a covered Federal action; or

(ii) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(iii) A change in the officer(s), employee(s), or Member(s) contacted to influence or attempting to influence a covered Federal action.

(3) The Contractor shall require the submittal of a certification, and if required, a disclosure form by any person who requests or receives any subcontract exceeding $100,000 under the Federal contract.

(4) All subcontractor disclosure forms (but not certifications) shall be forwarded from tier to tier until received by the prime Contractor. The prime Contractor shall submit all disclosures to the Contracting Officer at the end of the

calendar quarter in which the disclosure form is submitted by the subcontractor. Each subcontractor certification shall be retained in the subcontract file of the awarding Contractor.

(d) *Agreement*. The Contractor agrees not to make any payment prohibited by this clause.

(e) *Penalties*.

(1) Any person who makes an expenditure prohibited under paragraph (a) of this clause or who fails to file or amend the disclosure form to be filed or amended by paragraph (b) of this clause shall be subject to civil penalties as provided for by 31 U.S.C. 1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.

(2) Contractors may rely without liability on the representation made by their subcontractors in the certification and disclosure form.

(f) *Cost allowability*. Nothing in this clause makes allowable or reasonable any costs which would otherwise be unallowable or unreasonable. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any other provision.

(End of clause)

9. **PROHIBITION ON PERSONS CONVICTED OF FRAUD OR OTHER DEFENSE-CONTRACT-RELATED FELONIES (MAR 1999) DFARS 252.203-7001**

(a) *Definitions*. As used in this clause--

(1) "Arising out of a contract with the DoD" means any act in connection with--

(i) Attempting to obtain;

(ii) Obtaining; or

(iii) Performing a contract or first-tier subcontract of any agency, department, or component of the Department of Defense (DoD).

(2) "Conviction of fraud or any other felony" means any conviction for fraud or a felony in violation of state or Federal criminal statutes, whether entered on a verdict or plea, including a plea of *nolo contendere*, for which sentence has been imposed.

(3) "Date of conviction" means the date judgment was entered against the individual.

(b) Any individual who is convicted after September 29, 1988, of fraud or any other felony arising out of a contract with the DoD is prohibited from serving-

(1) In a management or supervisory capacity on any DoD contract or first-tier subcontract;

(2) On the board of directors of any DoD contractor or first-tier subcontractor;

(3) As a consultant, agent, or representative for any DoD contractor or first-tier subcontractor; or

(4) In any other capacity with the authority to influence, advise, or control the decisions of any DoD contractor or subcontractor with regard to any DoD contract or first-tier subcontract.

(c) Unless waived, the prohibition in paragraph (b) of this clause applies for not less than 5 years from the date of conviction.

(d) 10 U.S.C. 2408 further provides that a defense contractor or first-tier subcontractor shall be subject to a criminal penalty of not more than $500,000 if convicted of knowingly--

(1) Employing a person under a prohibition specified in paragraph (b) of this clause; or

(2) Allowing such a person to serve on the board of directors of the contractor or first-tier subcontractor.

(c) In addition to the criminal penalties contained in 10 U.S.C. 2408, the Government may consider other available remedies, such as--

(1) Suspension or debarment;

(2) Cancellation of the contract at no cost to the Government; or

(3) Termination of the contract for default.

(f) The Contractor may submit written requests for waiver of the prohibition in paragraph (b) of this clause to the Contracting Officer. Requests shall clearly identify--

(1) The person involved;

(2) The nature of the conviction and resultant sentence or punishment imposed;

(3) The reasons for the requested waiver, and

(4) An explanation of why a waiver is in the interest of national security.

(g) The Contractor agrees to include the substance of this clause, appropriately modified to reflect the identify and relationship of the parties, in all first-tier subcontracts exceeding the simplified acquisition threshold in part 12 of the Federal Acquisition Regulation, except those for commercial items or components.

(h) Pursuant to 10 U.S.C. 2408(c), defense contractors and subcontractors may obtain information as to whether a particular person has been convicted of fraud or any other felony arising out of a contract with the DoD by contacting The Office of Justice Programs, The Denial of Federal Benefits Office, U.S. Department of Justice, telephone (202) 616-3507.

(End of clause)

10. DISPLAY OF DOD HOTLINE POSTER (DEC 1991) DFARS 252.203-7002

(a) The Contractor shall display prominently in common work areas within business segments performing work under Department of Defense (DoD) contracts, DoD Hotline Posters prepared by the DoD Office of the Inspector General.

(b) DoD Hotline Posters may be obtained from the DoD Inspector General, ATTN: Defense Hotline, 400 Army Navy Drive, Washington, DC 22202-2884.

(c) The Contractor need not comply with paragraph (a) of this clause if it has established a mechanism, such as a hotline, by which employees may report suspected instances of improper conduct, and instructions that encourage employees to make such reports.

(End of clause)

11. PRINTING/COPYING DOUBLE-SIDED ON RECYCLED PAPER (JUN 1996) FAR 52.204-4

(a) In accordance with Executive Order 12873, dated October 20, 1993, as amended by Executive Order 12995, dated March 25, 1996, the Offeror/Contractor is encouraged to submit paper documents, such as offers, letters, or reports, that are printed/copied double-sided on recycled paper that has at least 20 percent postconsumer material.

(b) The 20 percent standard applies to high-speed copier paper offset paper, forms bond, computer printout paper, carbonless paper, file folders, white woven envelopes, and other uncoated printed and writing paper such as writing and office paper, book paper, cotton fiber paper, and cover stock. An alternative to meeting the 20 percent postconsumer material standards is 50 percent recovered material content of certain industrial by-products.

(End of clause)

12. REQUIRED CENTRAL CONTRACTOR REGISTRATION (MAR 1998) DFARS 52.204-7004

(a) Definitions. As used in this clause—

(1) Central Contractor Registration (CCR) database means the primary DoD repository for contractor information required for the conduct of business with DoD.

(2) Data Universal Numbering System (DUNS) number means the 9-digit number assigned by Dun and Bradstreet Information Services to identify unique business entities.

(3) Data Universal Numbering System+4 (DUNS+4) number means the DUNS number assigned by Dun and Bradstreet plus a 4-digit suffix that may be assigned by a parent (controlling) business concern. This 4-digit suffix may be assigned at the discretion of the parent business concern for such purposes as identifying subunits or affiliates of the parent business concern.

(4) Registered in the CCR database means that all mandatory information including the DUNS number or the DUNS+4 number, if applicable, and the corresponding Commercial and Government Entity (CAGE) code, is in the CCR database; the DUNS number and the CAGE code have been validated; and all edits have been successfully completed.

(b) (1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee must be registered in the CCR database prior to award, during the performance, and through final payment of any contract resulting from this solicitation, except for awards to foreign vendors for work to be performed outside the United States.

(2) The offeror shall provide its DUNS or, if applicable, its DUNS+4 number with its offer, which will be used by the Contracting Officer to verify that the offeror is registered in the CCR database.

(3) Lack of registration in the CCR database will make an offer ineligible for award.

(4) DoD has established a goal of registering an applicant in the CCR database within 48 hours after receipt of a complete and accurate application via the Internet. However, registration of an applicant submitting an application through a method other than the Internet may take up to 30 days. Therefore, offerors that are not registered should consider applying for registration immediately upon receipt of this solicitation.

(c) The Contractor is responsible for the accuracy and completeness of the data within the CCR and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the CCR database after

initial registration, the Contractor is required to confirm on an annual basis that its information in the CCR database is accurate and complete.

(d) Offerors and contractors may obtain information on registration and annual confirmation requirements by calling 1-888-227-2423, or via the Internet at http://ccr.edi.disa.mil.

(End of clause)

13. PROVISION OF INFORMATION TO COOPERATIVE AGREEMENT HOLDERS (DEC 1991) DFARS 252.205-7000

(a) *Definition*.

"Cooperative agreement holder" means a State or local government; a private, nonprofit organization; a tribal organization (as defined in section 4(c) of the Indian Self-Determination and Education Assistance Act (Pub. L. 93-268; 25 U.S.C. 450(c)); or an economic enterprise (as defined in section 3(e) of the Indian Financing Act of 1974 (Pub. L. 93-362; 25 U.S.C. 1452(e)) whether such economic enterprise is organized for profit or nonprofit purposes; which has an agreement with the Defense Logistics Agency to furnish procurement technical assistance to business entities.

(b) The Contractor shall provide cooperative agreement holders, upon their request, with a list of those appropriate employees or offices responsible for entering into subcontracts under defense contracts. The list shall include the business address, telephone number, and area of responsibility of each employee or office.

(c) The Contractor need not provide the listing to a particular cooperative agreement holder more frequently than once a year.

(End of clause)

14. PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (JUL 1995) FAR 52.209-6

(a) The Government suspends or debars Contractors to protect the Government's interests. The Contractor shall not enter into any subcontract in excess of $25,000 with a Contractor that is debarred, suspended, or proposed for debarment unless there is a compelling reason to do so.

(b) The Contractor shall require each proposed first-tier subcontractor, whose subcontract will exceed $25,000, to disclose to the Contractor, in writing, whether as of the time of award of the subcontract, the subcontractor, or its principals, is or is not debarred, suspended, or proposed for debarment by the Federal Government.

(c) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is debarred, suspended, or proposed for debarment (see FAR 9.404 for information on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs). The notice must include the following:

(1) The name of the subcontractor.

(2) The Contractor's knowledge of the reasons for the subcontractor being on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(3) The compelling reasons(s) for doing business with the subcontractor notwithstanding its inclusion on the List of Parties Excluded From Federal Procurement and Nonprocurement Programs.

(4) The systems and procedures the Contractor has established to ensure that it is fully protecting the Government's interest when dealing with such subcontractor in view of the specific basis for the party's debarment, suspension, or proposed debarment.

(End of clause)

15. DEFENSE PRIORITY AND ALLOCATION REQUIREMENTS (SEP 1990) FAR 52.211-15

NOTE: This clause applies only to military contracts.

This is a rated order certified for national defense use, and the contractor shall follow all the requirements of the Defense Priorities and Allocations System regulation (15 CFR 700).

(End of clause)

16. VARIATION IN ESTIMATED QUANTITY (APR 1984) FAR 52.211-18

If the quantity of a unit-priced item in this contract is an estimated quantity and the actual quantity of the unit-priced item varies more than 15 percent above or below the estimated quantity, an equitable adjustment in the contract price shall be made upon demand of either party. The equitable adjustment shall be based upon any increase or decrease in costs due solely to the variation above 115 percent or below 85 percent of the estimated quantity. If the quantity variation is such as to cause an increase in the time necessary for completion, the Contractor may request, in writing, an extension of time, to be received by the Contracting Officer within 10 days from the beginning of the delay, or within such further period as may be granted by the Contracting Officer before the date of final settlement of the contract. Upon the receipt of a written request for an extension, the Contracting Officer shall ascertain the facts and make an adjustment for extending the completion date as, in the judgment of the Contracting Officer, is justified.

(End of clause)

17. AUDIT AND RECORDS--SEALED BIDDING (OCT 1997) FAR 52.214-26

NOTE: This clause applies only to sealed bid contracts.

(a) As used in this clause, "records" includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form.

(b) *Cost or pricing data*. If the Contractor has been required to submit cost or pricing data in connection with the pricing of any modification to this contract, the Contracting Officer, or an authorized representative of the Contracting Officer, in order to evaluate the accuracy, completeness, and currency of the cost or pricing data, shall have the right to examine and audit all of the Contractor's records, including computations and projections, related to--

(1) The proposal for the modification;

(2) The discussions conducted on the proposal(s), including those related to negotiating;

(3) Pricing of the modification; or

(4) Performance of the modification.

(c) *Comptroller General*. In the case of pricing any modification, the Comptroller General of the United States, or an authorized representative, shall have the same rights as specified in paragraph (b) of this clause.

(d) *Availability*. The Contractor shall make available at its office at all reasonable times the materials described in paragraph (b) of this clause, for examination, audit, or reproduction, until 3 years after final payment under this contract, or for any other period specified in Subpart 4.7 of the Federal Acquisition Regulation (FAR). FAR Subpart 4.7, Contractor Records Retention, in effect on the date of this contract, is incorporated by reference in its entirety and made a part of this contract.

(1) If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement.

(2) Records pertaining to appeals under the Disputes clause or to litigation or the settlement of claims arising under or relating to the performance of this contract shall be made available until disposition of such appeals, litigation, or claims.

(e) The Contractor shall insert a clause containing all the provisions of this clause, including this paragraph (e), in all subcontracts expected to exceed the threshold in FAR 15.403-4(a)(1) for submission of cost or pricing data.

(End of clause)

18. PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA--MODIFICATIONS--SEALED BIDDING (OCT 1997) FAR 52.214-27

NOTE: This clause applies only to sealed bid contracts

(a) This clause shall become operative only for any modification to this contract involving aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed the threshold for the submission of cost or pricing data at FAR 15.403-4(a)(1), except that this clause does not apply to a modification if an exception under FAR 15.403-1(b) applies.

(b) If any price, including profit, negotiated in connection with any modification under this clause, was increased by any significant amount because (1) the Contractor or a subcontractor furnished cost or pricing data that were not complete, accurate, and current as certified in its Certificate of Current Cost or Pricing Data, (2) a subcontractor or prospective subcontractor furnished the Contractor cost or pricing data that were not complete, accurate, and current as certified in the

Contractor's Certificate of Current Cost or Pricing Data, or (3) any of these parties furnished data of any description that were not accurate, the price shall be reduced accordingly and the contract shall be modified to reflect the reduction. This right to a price reduction is limited to that resulting from defects in data relating to modifications for which this clause becomes operative under paragraph (a) of this clause.

(c) Any reduction in the contract price under paragraph (b) of this clause due to defective data from a prospective subcontractor that was not subsequently awarded the subcontract shall be limited to the amount, plus applicable overhead and profit markup, by which (1) the actual subcontract or (2) the actual cost to the Contractor, if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor; provided, that the actual subcontract price was not itself affected by defective cost or pricing data.

(d)(1) If the Contracting Officer determines under paragraph (b) of this clause that a price or cost reduction should be made, the Contractor agrees not to raise the following matters as a defense:

(i) The Contractor or subcontractor was a sole source supplier or otherwise was in a superior bargaining position and thus the price of the contract would not have been modified even if accurate, complete, and current cost or pricing data had been submitted.

(ii) The Contracting Officer should have known that the cost or pricing data in issue were defective even though the Contractor or subcontractor took no affirmative action to bring the character of the data to the attention of the Contracting Officer.

(iii) The contract was based on an agreement about the total cost of the contract and there was no agreement about the cost of each item procured under the contract.

(iv) The Contractor or subcontractor did not submit a Certificate of Current Cost or Pricing Data.

(2)(i) Except as prohibited by subdivision (d)(2)(ii) of this clause, an offset in an amount determined appropriate by the Contracting Officer based upon the facts shall be allowed against the amount of a contract price reduction if--

(A) The Contractor certifies to the Contracting Officer that, to the best of the Contractor's knowledge and belief, the Contractor is entitled to the offset in the amount requested; and

(B) The Contractor proves that the cost or pricing data were available before the date of agreement on the price of the contract (or price of the modification) and that the data were not submitted before such date.

(ii) An offset shall not be allowed if--

(A) The understated data was known by the Contractor to be understated when the Certificate of Current Cost or Pricing Data was signed; or

(B) The Government proves that the facts demonstrate that the contract price would not have increased in the amount to be offset even if the available data has been submitted before the date of agreement on price.

(e) If any reduction in the contract price under this clause reduces the price of items for which payment was made prior to the date of the modification reflecting the price reduction, the Contractor shall be liable to and shall pay the United States at the time such overpayment is repaid--

(1) Simple interest on the amount of such overpayment to be computed from the date(s) of overpayment to the Contractor to the date the Government is repaid by the Contractor at the applicable underpayment rate effective for each quarter prescribed by the Secretary of the Treasury under 26 U.S.C. 6621 (a)(2); and

(2) A penalty equal to the amount of the overpayment, if the Contractor or subcontractor knowingly submitted cost or pricing data which were incomplete, inaccurate, or noncurrent.

(End of clause)

19. SUBCONTRACTOR COST OR PRICING DATA--MODIFICATIONS-SEALED BIDDING (OCT 1997) FAR 52.214-28

NOTE: This clause applies only to sealed bid contracts.

(a) The requirements of paragraphs (b) and (c) of this clause shall (1) become operative only for any modification to this contract involving aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4(a)(1), and (2) be limited to such modifications.

(b) Before awarding any subcontract expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4(a)(1), on the date of agreement on price or the date of award, whichever is later; or before pricing any subcontract modifications involving aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4(a)(1), the Contractor shall require the subcontractor to submit cost or pricing data (actually or by specified identification in writing), unless an exception under FAR 15.403-1(b) applies.

(c) The Contractor shall require the subcontractor to certify in substantially the form prescribed in subsection FAR 15.406-2 that, to the best of its knowledge and belief, the data submitted under paragraph (b) of this clause were accurate, complete, and current as of the date of agreement on the negotiated price of the subcontract or subcontract modification.

(d) The Contractor shall insert the substance of this clause, including this paragraph (d), in each subcontract that, when entered into, exceeds the threshold for submission of cost or pricing data at FAR 15.403-4(a)(1).

(End of clause)

20. AUDIT AND RECORDS--NEGOTIATION (JUN 1999) FAR 52.215-2

NOTE: This clause applies only to negotiated contracts.

(a) As used in this clause, "records" includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form.

(b) *Examination of costs*. If this is a cost-reimbursement, incentive, time-and-materials, labor-hour, or price redeterminable contract, or any combination of these, the Contractor shall maintain and the Contracting Officer, or an authorized representative of the Contracting Officer, shall have the right to examine and audit all records and other evidence sufficient to reflect properly all costs claimed to have been incurred or anticipated to be incurred directly or indirectly in performance of this contract. This right of examination shall include inspection at all reasonable times of the Contractor's plants, or parts of them, engaged in performing the contract.

(c) *Cost or pricing data*. If the Contractor has been required to submit cost or pricing data in connection with any pricing action relating to this contract, the Contracting Officer, or an authorized representative of the Contracting Officer, in order to evaluate the accuracy, completeness, and currency of the cost or pricing data, shall have the right to examine and audit all of the Contractor's records, including computations and projections, related to--

(1) The proposal for the contract, subcontract, or modification;

(2) The discussions conducted on the proposal(s), including those related to negotiating;

(3) Pricing of the contract, subcontract, or modification; or

(4) Performance of the contract, subcontract or modification.

(d) *Comptroller General*.--(1) The Comptroller General of the United States, or an authorized representative, shall have access to and the right to examine any of the Contractor's directly pertinent records involving transactions related to this contract or a subcontract hereunder.

(2) This paragraph may not be construed to require the Contractor or subcontractor to create or maintain any record that the Contractor or subcontractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e) *Reports*. If the Contractor is required to furnish cost, funding, or performance reports, the Contracting Officer or an authorized representative of the Contracting Officer shall have the right to examine and audit the supporting records and materials, for the purpose of evaluating (1) the effectiveness of the Contractor's policies and procedures to produce data compatible with the objectives of these reports and (2) the data reported.

(f) *Availability*. The Contractor shall make available at its office at all reasonable times the records, materials, and other evidence described in paragraphs (a), (b), (c), (d), and (e) of this clause, for examination, audit, or reproduction, until 3 years after final payment under this contract, or for any shorter period specified in Subpart 4.7, Contractor Records Retention, of the Federal Acquisition Regulation (FAR), or for any longer period required by statute or by other clauses of this contract. In addition--

(1) If this contract is completely or partially terminated, the Contractor shall make available the records relating to the work terminated until 3 years after any resulting final termination settlement; and

(2) The Contractor shall make available records relating to appeals under the Disputes clause or to litigation or the settlement of claims arising under or relating to this contract until such appeals, litigation, or claims are finally resolved.

(g) The Contractor shall insert a clause containing all the terms of this clause, including this paragraph (g), in all subcontracts under this contract that exceed the simplified acquisition threshold, and--

(1) That are cost-reimbursement, incentive, time-and-materials, labor-hour, or price-redeterminable type or any combination of these;

(2) For which cost or pricing data are required; or

(3) That require the subcontractor to furnish reports as discussed in paragraph (c) of this clause.

The clause may be altered only as necessary to identify properly the contracting parties and the Contracting Officer under the Government prime contract.

(End of clause)

21. PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA (OCT 1997) FAR 52.215-10

NOTE: This clause applies only to negotiated contracts.

(a) If any price, including profit or fee, negotiated in connection with this contract, or any cost reimbursable under this contract, was increased by any significant amount because --(1) The Contractor or a subcontractor furnished cost or pricing data that were not complete, accurate, and current as certified in its Certificate of Current Cost or Pricing Data; (2) A subcontractor or prospective subcontractor furnished the Contractor cost or pricing data that were not complete, accurate, and current as certified in the Contractor's Certificate of Current Cost or Pricing Data, or (3) Any of these parties furnished data of any description that were not accurate, the price or cost shall be reduced accordingly and the contract shall be modified to reflect the reduction.

(b) Any reduction in the contract price under paragraph (a) of this clause due to defective data from a prospective subcontractor that was not subsequently awarded the subcontract shall be limited to the amount, plus applicable overhead and profit markup, by which (1) The actual subcontract; or (2) The actual cost to the Contractor, if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor; provided, that the actual subcontract price was not itself affected by defective cost or pricing data.

(c)(1) If the Contracting Officer determines under paragraph (a) of this clause that a price or cost reduction should be made, the Contractor agrees not to raise the following matters as a defense:

(i) The Contractor or subcontractor was a sole source supplier or otherwise was in a superior bargaining position and thus the price of the contract would not have been modified even if accurate, complete, and current cost or pricing data had been submitted.

(ii) The Contracting Officer should have known that the cost or pricing data in issue were defective even though the Contractor or subcontractor took no affirmative action to bring the character of the data to the attention of the Contracting Officer.

(iii) The contract was based on an agreement about the total cost of the contract and there was no agreement about the cost of each item procured under the contract.

(iv) The Contractor or subcontractor did not submit a Certificate of Current Cost or Pricing Data.

(2)(i) Except as prohibited by subdivision (c)(2)(ii) of this clause, an offset in an amount determined appropriate by the Contracting Officer based upon the facts shall be allowed against the amount of a contract price reduction if--

(A) The Contractor certifies to the Contracting Officer that, to the best of the Contractor's knowledge and belief, the Contractor is entitled to the offset in the amount requested; and

(B) The Contractor proves that the cost or pricing data were available before the "as of" date specified on its Certificate of Current Cost or Pricing Data, and that the data were not submitted before such date

(ii) An offset shall not be allowed if--

(A) The understated data was known by the Contractor to be understated before the "as of" date specified on its Certificate of Current Cost or Pricing Data; or

(B) The Government proves that the facts demonstrate that the contract price would not have increased in the amount to be offset even if the available data has been submitted before the "as of" date specified on its Certificate of Current Cost or Pricing Data.

(d) If any reduction in the contract price under this clause reduces the price of items for which payment was made prior to the date of the modification reflecting the price reduction, the Contractor shall be liable to and shall pay the United States at the time such overpayment is repaid--

(1) Simple interest on the amount of such overpayment to be computed from the date(s) of overpayment to the Contractor to the date the Government is repaid by the Contractor at the applicable under payment rate effective for each quarter prescribed by the Secretary of the Treasury under 26 U.S.C. 6621(a)(2); and

(2) A penalty equal to the amount of the overpayment, if the Contractor or subcontractor knowingly submitted cost or pricing data which were incomplete, inaccurate, or noncurrent.

(End of clause)

22. SUBCONTRACTOR COST OR PRICING DATA (OCT 1997) FAR 52.215-12

NOTE: This clause applies only to negotiated contracts.

(a) Before awarding any subcontract expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4, on the date of agreement on price or the date of award, whichever is later; or before pricing any subcontract modification involving a pricing adjustment expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4, the Contractor shall require the subcontractor to submit cost or pricing data (actually or by specific identification in writing), unless an exception under FAR 15.403-1 applies.

(b) The Contractor shall require the subcontractor to certify in substantially the form prescribed in subsection 15.406-2 that, to the best of its knowledge and belief, the data submitted under paragraph (a) of this clause were accurate, complete, and current as of the date of agreement on the negotiated price of the subcontract or subcontract modification.

(c) In each subcontract that exceeds the threshold for submission of cost or pricing data at FAR 15.403-4, when entered into, the Contractor shall insert either--

(1) The substance of this clause, including this paragraph (c), if paragraph (a) of this clause requires submission of cost or pricing data for the subcontract; or

(2) The substance of the clause at FAR 52.215-13, Subcontractor Cost or Pricing Data--Modifications.

(End of clause)

23. PENSION ADJUSTMENTS AND ASSET REVERSIONS (DEC 1998) FAR 52.215-15

NOTE: This clause applies only to negotiated contracts.

(a) The Contractor shall promptly notify the Contracting Officer in writing when it determines that it will terminate a defined-benefit pension plan or otherwise recapture such pension fund assets.

(b) For segment closings, pension plan terminations, or curtailment of benefits, the adjustment amount shall be the amount measured, assigned, and allocated in accordance with 48 CFR 9904.413-50(c)(12) for contracts and subcontracts that are subject to Cost Accounting Standards (CAS) Board rules and regulations (48 CFR Chapter 99). For contracts and subcontracts that are not subject to CAS, the adjustment amount shall be the amount measured, assigned, and allocated in accordance with 48 CFR 9904.413-50(c)(12), except the numerator of the fraction at 48 CFR 9904.413- 50(c)(12)(vi) shall be the sum of the pension plan costs allocated to all non-CAS-covered contracts and subcontracts that are subject to Federal Acquisition Regulation (FAR) Subpart 31.2 or for which cost or pricing data were submitted.

(c) For all other situations where assets revert to the Contractor, or such assets are constructively received by it for any reason, the Contractor shall, at the Government's option, make a refund or give a credit to the Government for its equitable share of the gross amount withdrawn. The Government's equitable share shall reflect the Government's participation in pension costs through those contracts for which cost or pricing data were submitted or that are subject to FAR Subpart 31.2.

(d) The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(g).

(End of clause)

24. REVERSION OR ADJUSTMENT OF PLANS FOR POSTRETIREMENT BENEFITS (PRB) OTHER THAN PENSIONS (OCT 1997) FAR 52.215-18

NOTE: This clause applies only to negotiated contracts.

The Contractor shall promptly notify the Contracting Officer in writing when it determines that it will terminate or reduce a PRB plan. If PRB fund assets revert, or inure, to the Contractor or are constructively received by it under a plan termination or otherwise, the Contractor shall make a refund or give a credit to the Government for its equitable share as required by FAR 31.205-6(o)(6). The Contractor shall include the substance of this clause in all subcontracts under this contract which meet the applicability requirements of FAR 15.408(j)

(End of clause)

25. NOTIFICATION OF OWNERSHIP CHANGES (OCT 1997) FAR 52.215-19

NOTE: This clause applies only to negotiated contracts.

(a) The Contractor shall make the following notifications in writing:

(1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, which could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.

(2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.

(b) The Contractor shall-- (1) Maintain current, accurate, and complete inventory records of assets and their costs; (2) Provide the ACO or designated representative ready access to the records upon request; (3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and (4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.

(c) The Contractor shall include the substance of this clause in all subcontracts under this contract which meet the applicability requirement of FAR 15.408(k).

(End of clause)

26. PRICING ADJUSTMENTS (DEC 1991) DFARS 252.215-7000

NOTE: This clause applies only to negotiated contracts.

The term "pricing adjustment," as used in paragraph (a) of the clauses entitled "Price Reduction for Defective Cost or Pricing Data - Modifications," "Subcontractor Cost or Pricing Data," and "Subcontractor Cost or Pricing Data - Modifications," means the aggregate increases and/or decreases in cost plus applicable profits.

(End of clause)

27. UTILIZATION OF SMALL BUSINESS CONCERNS (JUN 1999) FAR 52.219-8

(a) It is the policy of the United States that small business concerns, HUBZone small business concerns, small business concerns owned and controlled by socially and economically disadvantaged individuals and small business concerns owned and controlled by women shall have the maximum practicable opportunity to participate in performing contracts let by any Federal agency, including contracts and subcontracts for subsystems, assemblies, components, and related services for major systems. It is further the policy of the United States that its prime contractors establish procedures to ensure the timely payment of amounts due pursuant to the terms of their subcontracts with small business concerns, HUBZone small business concerns, small business concerns owned and controlled by socially and economically disadvantaged individuals and small business concerns owned and controlled by women.

(b) The Contractor hereby agrees to carry out this policy in the awarding of subcontracts to the fullest extent consistent with efficient contract performance. The Contractor further agrees to cooperate in any studies or surveys as may be conducted by the United States Small Business Administration or the awarding agency of the United States as may be necessary to determine the extent of the Contractor's compliance with this clause.

(c) Definitions. As used in this contract—

(1) "Small business concern" means a small business as defined pursuant to section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto.

(2) HUBZone small business concern means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

(3) Small business concerns owned and controlled by socially and economically disadvantaged individuals means a small business concern that represents as part of its offer, that it meets the definition of a small disadvantaged business concern in 13 CFR 124.1002.

(4) "Small business concern owned and controlled by women" means a small business concern –

(i) Which is at least 51 percent owned by one or more women, or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(ii) Whose management and daily business operations are controlled by one or more women.

(d)Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as a small business concern, a HUBZone small business concern, a small business concern owned and controlled by socially and economically disadvantaged individuals or a small business concern owned and controlled by women.

(End of clause)

28. SMALL BUSINES SUBCONTRACTING PLAN (JAN 1999) FAR 52.219-9

NOTE: This clause applies to negotiated solicitations over $1,000,000.00. See also FAR 52.219-9 II below

(a) This clause does not apply to small business concerns.

(b) Definitions. As used in this clause—

"Commercial item" means a product or service that satisfies the definition of commercial item in section 2.101 of the Federal Acquisition Regulation.

"Commercial plan" means a subcontracting plan (including goals) that covers the offeror's fiscal year and that applies to the entire production of commercial items sold by either the entire company or a portion thereof (e.g., division, plant, or product line).

"Individual contract plan" means a subcontracting plan that covers the entire contract period (including option periods), applies to a specific contract, and has goals that are based on the offeror's planned subcontracting in support of the specific contract, except that indirect costs incurred for common or joint purposes may be allocated on a prorated basis to the contract.

"Master plan" means a subcontracting plan that contains all the required elements of an individual contract plan, except goals, and may be incorporated into individual contract plans, provided the master plan has been approved.

"Subcontract" means any agreement (other than one involving an employer-employee relationship) entered into by a Federal Government prime Contractor or subcontractor calling for supplies or services required for performance of the contract or subcontract.

(c) The offeror, upon request by the Contracting Officer, shall submit and negotiate a subcontracting plan, where applicable, which separately addresses subcontracting with small business, HUBZone small business, with small disadvantaged business, and with women-owned small business concerns. If the offeror is submitting an individual contract plan, the plan must separately address subcontracting with small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be negotiated within the time specified by the Contracting Officer. Failure to submit and negotiate the subcontracting plan shall make the offeror ineligible for award of a contract.

(d) The offeror's subcontracting plan shall include the following:

(1) Goals, expressed in terms of percentages of total planned subcontracting dollars, for the use of small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns as subcontractors. The offeror shall include all subcontracts that contribute to contract performance, and may include a proportionate share of products and services that are normally allocated as indirect costs.

(2) A statement of--

(i) Total dollars planned to be subcontracted for an individual contract plan; or the offeror's total projected sales, expressed in dollars, and the total value of projected subcontracts to support the sales for a commercial plan;

(ii) Total dollars planned to be subcontracted to small business concerns;

(iii) Total dollars planned to be subcontracted to HUBZone small business concerns;

(iv) Total dollars planned to be subcontracted to small disadvantaged business concerns; and

(v) Total dollars planned to be subcontracted to women-owned small business concerns.

(3) A description of the principal types of supplies and services to be subcontracted, and an identification of the types planned for subcontracting to—

(i) Small business concerns;

(ii) HUBZone small business concerns;

(iii) Small disadvantaged business concerns; and

(iv) Women-owned small business concerns.

(4) A description of the method used to develop the subcontracting goals in paragraph (d)(1) of this clause.

(5) A description of the method used to identify potential sources for solicitation purposes (e.g., existing company source lists, the Procurement Marketing and Access Network (PRO-Net) of the Small Business Administration (SBA), the list of certified small disadvantaged business concerns of the SBA, the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce, or small, HUBZone small, small disadvantaged and women-owned small business concerns trade associations). A firm may rely on the information contained in PRO-Net as an accurate representation of a concern's size and ownership characteristics for purposes of maintaining a small and women-owned small business source list. A firm shall rely on the information contained in SBA's list of small disadvantaged business concerns as an accurate representation of a concern's size and ownership characteristics for the purpose of maintaining a small disadvantaged business source list. Use of PRO-Net and/or the SBA list of small disadvantaged business concerns as its source lists does

not relieve a firm of its responsibilities (e.g., outreach, assistance, counseling, publicizing subcontracting opportunities) in this clause.

(6) A statement as to whether or not the offeror included indirect costs in establishing subcontracting goals, and a description of the method used to determine the proportionate share of indirect costs to be incurred with—

(i) Small business concerns;

(ii) HUBZone small business concerns;

(iii) Small disadvantaged business concerns; and

(iv) Women-owned small business concerns.

(7) The name of the individual employed by the offeror who will administer the offeror's subcontracting program, and a description of the duties of the individual.

(8) A description of the efforts the offeror will make to assure that small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns have an equitable opportunity to compete for subcontracts.

(9) Assurances that the offeror will include the clause of this contract entitled "Utilization of Small Business Concerns" in all subcontracts that offer further subcontracting opportunities, and that the offeror will require all subcontractors (except small business concerns) who receive subcontracts in excess of $500,000 ($1,000,000 for construction of any public facility) to adopt a subcontracting plan that complies with the requirements of this clause.

(10) Assurances that the offeror will—

(i) Cooperate in any studies or surveys as may be required;

(ii) Submit periodic reports so that the Government can determine the extent of compliance by the offeror with the subcontracting plan;

(iii) Submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or SF 295, Summary Subcontract Report, in accordance with the instructions on the forms or as provided in agency regulations and in paragraph (j) of this clause; and

(iv) Ensure that its subcontractors agree to submit SF 294 and 295.

(11) A description of the types of records that will be maintained concerning procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of the offeror's efforts to locate small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns and award subcontracts to them. The records shall include at least the following (on a plant-wide or company-wide basis, unless otherwise indicated):

(i) Source lists (e.g., PRO-Net), guides, and other data that identify small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

(ii) Organizations contacted in an attempt to locate sources that are small business, HUBZone small business, small disadvantaged business, or women-owned small business concerns.

(iii) Records on each subcontract solicitation resulting in an award of more than $100,000, indicating—

(A) Whether small business concerns were solicited and if not, why not;

(B) Whether HUBZone small business concerns were solicited and, if not why not;

(C) Whether small disadvantaged business concerns were solicited and if not, why not,

(D) Whether women-owned small business concerns were solicited and if not, why not; and

(E) If applicable, the reason award was not made to a small business concern.

(iv) Records of any outreach efforts to contact –

(A) Trade associations;

(B) Business development organizations; and

(C) Conferences and trade fairs to locate small, HUBZone small, small disadvantaged and women-owned small business sources.

(v) Records of internal guidance and encouragement provided to buyers through—

(A) Workshops, seminars, training, etc., and

(B) Monitoring performance to evaluate compliance with the program's requirements.

(vi) On a contract-by-contract basis, records to support award data submitted by the offeror to the Government, including the name, address, and business size of each subcontractor. Contractors having commercial plans need to comply with this requirement.

(e) In order to effectively implement this plan to the extent consistent with efficient contract performance, the Contractor shall perform the following functions:

(1) Assist small business, HUBZone small business, small disadvantaged business and women-owned small business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation by such concerns. Where the Contractor's lists of potential small business,

HUBZone small business, small disadvantaged business, and women-owned small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

(2) Provide adequate and timely consideration of the potentialities of small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all "make-or-buy" decisions.

(3) Counsel and discuss subcontracting opportunities with representative of small business, HUBZone small business, small disadvantaged business, and women-owned small business firms.

(4) Provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small business, HUBZone small business, small disadvantaged business, or women-owned small business for the purpose of obtaining a subcontract that is to be included as part or all of a goal contained in the Contractor's subcontracting plan.

(f) A master plan on a plant or division-wide basis that contains all the elements required by paragraph (d) of this clause, except goals, may be incorporated by reference as a part of the subcontracting plan required of the offeror by this clause; provided—

(1) The master plan has been approved

(2) The offeror ensures that the master plan is updated as necessary and provides copies of the approved master plan, including evidence of its approval, to the Contracting Officer; and

(3) Goals and any deviations from the master plan deemed necessary by the Contacting Officer to satisfy the requirements of this contract are set forth in the individual subcontracting plan.

(g) A commercial plan is the preferred type of subcontracting plan for contractors furnishing commercial items. The commercial shall plan relate to the offeror's planned subcontracting generally, for both commercial and Government business, rather than solely to the Government contract. Commercial plans are also preferred for subcontractors that provide commercial items under a prime contract, whether or not the prime contractor is supplying a commercial item.

(h) Prior compliance of the offeror with other such subcontracting plans under previous contracts will be considered by the Contracting Officer in determining the responsibility of the offeror for award of the contract.

(i) The failure of the Contractor or subcontractor to comply in good faith with –

(1) The clause of this contract entitled "Utilization of Small Business Concerns;" or

(2) An approved plan required by this clause, shall be a material breach of the contract.

(j) The Contractor shall submit the following reports:

(1) Standard Form 294, Subcontracting Report for Individual Contracts. This report shall be submitted to the Contracting Officer semiannually and at contract completion. The report covers subcontract award data related to this contract. This report is not required for commercial plans.

(2) Standard Form 295, Summary Subcontract Report. This report encompasses all the contracts with the awarding agency. It must be submitted semi-annually for contracts with the Department of Defense and annually for contracts with civilian agencies. If the reporting activity is covered by a commercial plan, the reporting activity must report annually all subcontract awards under that plan. All reports submitted at the close of each fiscal year (both individual and commercial plans) shall include a breakout, in the Contractor's format, of subcontract awards, in whole dollars, to small disadvantaged business concerns by Standard Industrial Classification (SIC) Major Group. For a commercial plan, the Contractor may obtain from each of its subcontractors a predominant SIC Major Group and report all awards to that subcontractor under its predominant SIC Major Group.

(End of clause)

29. SMALL BUSINESS SUBCONTRACTING PLAN (JAN 1999) ALTERNATE I (JAN 1999) FAR 52.219-9 I

NOTE: This clause applies only to sealed-bid solicitations over $1,000,000.00.

(a) This clause does not apply to small business concerns.

(b) Definitions. As used in this clause—

"Commercial item" means a product or service that satisfies the definition of commercial item in section 2.101 of the Federal Acquisition Regulation.

"Commercial plan" means a subcontracting plan (including goals) that covers the offeror's fiscal year and that applies to the entire production of commercial items sold by either the entire company or a portion thereof (e.g., division, plant, or product line).

"Individual contract plan" means a subcontracting plan that covers the entire contract period (including option periods), applies to a specific contract, and has goals that are based on the offeror's planned subcontracting in support of

the specific contract, except that indirect costs incurred for common or joint purposes may be allocated on a prorated basis to the contract.

"Master plan" means a subcontracting plan that contains all the required elements of an individual contract plan, except goals, and may be incorporated into individual contract plans, provided the master plan has been approved.

"Subcontract" means any agreement (other than one involving an employer-employee relationship) entered into by a Federal Government prime Contractor or subcontractor calling for supplies or services required for performance of the contract or subcontract.

(c) The apparent low bidder, upon request by the Contracting Officer, shall submit a subcontracting plan, where applicable, which separately addresses subcontracting with small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns. If the bidder is submitting an individual contract plan, the plan must separately address subcontracting with small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns, with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be submitted within the time specified by the Contracting Officer. Failure to submit the subcontracting plan shall make the bidder ineligible for the award of a contract.

(d) The offeror's subcontracting plan shall include the following:

(1) Goals, expressed in terms of percentages of total planned subcontracting dollars, for the use of small business, HUBZone small business, small disadvantaged business and women-owned small business concerns as subcontractors. The offeror shall include all subcontracts that contribute to contract performance, and may include a proportionate share of products and services that are normally allocated as indirect costs.

(2) A statement of--

(i) Total dollars planned to be subcontracted for an individual contract plan; or the offeror's total projected sales, expressed in dollars, and the total value of projected subcontractor to support the sales for a commercial plan;

(ii) Total dollars planned to be subcontracted to small business concerns;

(iii) Total dollars planned to be subcontracted to HUBZone small business concerns;

(iv) Total dollars planned to be subcontracted to small disadvantaged business concerns; and

(v) Total dollars planned to be subcontracted to women-owned small business concerns.

(3) A description of the principal types of supplies and services to be subcontracted, and an identification of the types planned for subcontracting to—

(i) Small business concerns;

(ii) HUBZone small business concerns;

(iii) Small disadvantaged business concerns; and

(iv) Women-owned small business concerns.

(4) A description of the method used to develop the subcontracting goals in paragraph (d)(1) of this clause.

(5) A description of the method used to identify potential sources for solicitation purposes (e.g., existing company source lists, the Procurement Marketing and Access Network (PRO-Net) of the Small Business Administration (SBA), the list of certified small disadvantaged business concerns of the SBA, the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce, or small, HUBZone small, small disadvantaged and women-owned small business concerns trade associations). A firm may rely on the information contained in PRO-Net as an accurate representation of a concern's size and ownership characteristics for purposes of maintaining a small and women-owned small business source list. A firm shall rely on the information contained in SBA's list of small disadvantaged business concerns as an accurate representation of a concern's size and ownership characteristics for the purpose of maintaining a small disadvantaged business source list. Use of PRO-Net and/or the SBA list of small disadvantaged business concerns as its source lists does not relieve a firm of its responsibilities (e.g., outreach, assistance, counseling, publicizing subcontracting opportunities) in this clause.

(6) A statement as to whether or not the offeror included indirect costs in establishing subcontracting goals, and a description of the method used to determine the proportionate share of indirect costs to be incurred with—

(i) Small business concerns;

(ii) HUBZone small business concerns;

(iii) Small disadvantaged business concerns; and

(iv) Women-owned small business concerns.

(7) The name of the individual employed by the offeror who will administer the offeror's subcontracting program, and a description of the duties of the individual.

(8) A description of the efforts the offeror will make to assure that small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns have an equitable opportunity to compete for subcontracts.

(9) Assurances that the offeror will include the clause of this contract entitled "Utilization of Small Business Concerns" in all subcontracts that offer further subcontracting opportunities, and that the offeror will require all subcontractors (except small business concerns) who receive subcontracts in excess of $500,000 ($1,000,000 for construction of any public facility) to adopt a subcontracting plan that complies with the requirements of this clause.

(10) Assurances that the offeror will—

(i) Cooperate in any studies or surveys as may be required;

(ii) Submit periodic reports so that the Government can determine the extent of compliance by the offeror with the subcontracting plan;

(iii) Submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or SF 295, Summary Subcontract Report, in accordance with the instructions on the forms or as provided in agency regulations and in paragraph (j) of this clause; and

(iv) Ensure that its subcontractors agree to submit SF 294 and 295.

(11) A description of the types of records that will be maintained concerning procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of the offeror's efforts to locate small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns and award subcontracts to them. The records shall include at least the following (on a plant-wide or company-wide basis, unless otherwise indicated):

(i) Source lists (e.g., PRO-Net), guides, and other data that identify small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

(ii) Organizations contacted in an attempt to locate sources that are small business, HUBZone small business, small disadvantaged business, or women-owned small business concerns.

(iii) Records on each subcontract solicitation resulting in an award of more than $100,000, indicating –

(A) Whether small business concerns were solicited and if not, why not;

(B) Whether HUBZone small business concerns were solicited and, if not, why not;

(C) Whether small disadvantaged business concerns were solicited and if not, why not;

(D) Whether women-owned small business concerns were solicited and if not, why not; and

(E) If applicable, the reason award was not made to a small business concern.

(iv) Records of any outreach efforts to contact –

(A) Trade associations;

(B) Business development organizations; and

(C) Conferences and trade fairs to locate small, HUBZone small, small disadvantaged and women-owned small business sources.

(v) Records of internal guidance and encouragement provided to buyers through –

(A)Workshops, seminars, training, etc., and

(B) Monitoring performance to evaluate compliance with the program's requirements.

(vi) On a contract-by-contract basis, records to support award data submitted by the offeror to the Government, including the name, address, and business size of each subcontractor. Contractors having commercial plans need not comply with this requirement.

(e) In order to effectively implement this plan to the extent consistent with efficient contract performance, the Contractor shall perform the following functions:

(1) Assist small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation by such concerns. Where the Contractor's lists of potential small business, HUBZone small business, small disadvantaged business, and women-owned small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

(2) Provide adequate and timely consideration of the potentialities of small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all "make-or-buy" decisions.

(3) Counsel and discuss subcontracting opportunities with representative of small business, HUBZone small business, small disadvantaged business, and women-owned small business firms.

(4) Provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small business, HUBZone small business, small disadvantaged business, or women-owned small business for the

purpose of obtaining a subcontract that is to be included as part or all of a goal contained in the Contractor's subcontracting plan.

(f) A master plan on a plant or division-wide basis that contains all the elements required by paragraph (d) of this clause, except goals, may be incorporated by reference as a part of the subcontracting plan required of the offeror by this clause; provided—

(1) The master plan has been approved

(2) The offeror ensures that the master plan is updated as necessary and provides copies of the approved master plan, including evidence of its approval, to the Contracting Officer; and

(3) Goals and any deviations from the master plan deemed necessary by the Contacting Officer to satisfy the requirements of this contract are set forth in the individual subcontracting plan.

(g) A commercial plan is the preferred type of subcontracting plan for contractors furnishing commercial items. The commercial shall plan relate to the offeror's planned subcontracting generally, for both commercial and Government business, rather than solely to the Government contract. Commercial plans are also preferred for subcontractors that provide commercial items under a prime contract, whether or not the prime contractor is supplying a commercial item.

(h) Prior compliance of the offeror with other such subcontracting plans under previous contracts will be considered by the Contracting Officer in determining the responsibility of the offeror for award of the contract.

(i) The failure of the Contractor or subcontractor to comply in good faith with –

(1) The clause of this contract entitled "Utilization of Small Business Concerns," or

(2) An approved plan required by this clause, shall be a material breach of the contract.

(j) The Contractor shall submit the following reports:

(1) Standard Form 294, Subcontracting Report for Individual Contracts. This report shall be submitted to the Contracting Officer semiannually and at contract completion. The report covers subcontract award data related to this contract. This report is not required for commercial plans.

(2) Standard Form 295, Summary Subcontract Report. This report encompasses all the contracts with the awarding agency. It must be submitted semi-annually for contracts with the Department of Defense and annually for contracts with civilian agencies. If the reporting activity is covered by a commercial plan, the reporting activity must report annually all subcontract awards under that plan. All reports submitted at the close of each fiscal year (both individual and commercial plans) shall include a breakout, in the Contractor's format, of subcontract awards, in whole dollars, to small disadvantaged business concerns by Standard Industrial Classification (SIC) Major Group. For a commercial plan, the Contractor may obtain from each of its subcontractors a predominant SIC Major Group and report all awards to that subcontractor under its predominant SIC Major Group.

(End of clause)

30. SMALL BUSINESS SUBCONTRACTING PLAN (JAN 1999) ALTERNATE II (JAN 1999) FAR 52.219-9 II

NOTE: This clause applies only to negotiated solicitations over $1,000,000, when a subcontracting plan is required with the initial proposal as described in Sections 00110 & 00115.

(a) This clause does not apply to small business concerns.

(b) Definitions. As used in this clause—

"Commercial item" means a product or service that satisfies the definition of commercial item in section 2.101 of the Federal Acquisition Regulation.

"Commercial plan" means a subcontracting plan (including goals) that covers the offeror's fiscal year and that applies to the entire production of commercial items sold by either the entire company or a portion thereof (e.g., division, plant, or product line).

"Individual contract plan" means a subcontracting plan that covers the entire contract period (including option periods), applies to a specific contract, and has goals that are based on the offeror's planned subcontracting in support of the specific contract, except that indirect costs incurred for common or joint purposes may be allocated on a prorated basis to the contract.

"Master plan" means a subcontracting plan that contains all the required elements of an individual contract plan, except goals, and may be incorporated into individual contract plans, provided the master plan has been approved.

"Subcontract" means any agreement (other than one involving an employer-employee relationship) entered into by a Federal Government prime Contractor or subcontractor calling for supplies or services required for performance of the contract or subcontract.

(c) Proposals submitted in response to this solicitation shall include a subcontracting plan, which separately addresses subcontracting with small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns. If the offeror is submitting an individual contract plan, the plan must separately address subcontracting with small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be negotiated within the time specified by the Contracting Officer. Failure to submit and negotiate a subcontracting plan shall make the offeror ineligible for award of a contract.

(d) The offeror's subcontracting plan shall include the following:

(1) Goals, expressed in terms of percentages of total planned subcontracting dollars, for the use of small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns as subcontractors. The offeror shall include all subcontracts that contribute to contract performance, and may include a proportionate share of products and services that are normally allocated as indirect costs.

(2) A statement of--

(i) Total dollars planned to be subcontracted for an individual contract plan; or the offeror's total projected sales, expressed in dollars, and the total value of projected subcontracts to support the sales for a commercial plan;

(ii) Total dollars planned to be subcontracted to small business concerns;

(iii) Total dollars planned to be subcontracted to HUBZone small business concerns;

(iv) Total dollars planned to be subcontracted to small disadvantaged business concerns; and

(v) Total dollars planned to be subcontracted to women-owned small business concerns.

(3) A description of the principal types of supplies and services to be subcontracted, and an identification of the types planned for subcontracting to—

(i) Small business concerns;

(ii) HUBZone small business concerns;

(iii) Small disadvantaged business concerns; and

(iv) Women-owned small business concerns.

(4) A description of the method used to develop the subcontracting goals in paragraph (d)(1) of this clause.

(5) A description of the method used to identify potential sources for solicitation purposes (e.g., existing company source lists, the Procurement Marketing and Access Network (PRO-Net of the Small Business Administration (SBA), the list of certified small disadvantaged business concerns of the SBA, the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce, or small business, HUBZone small, small disadvantaged, and women-owned small business concerns trade associations). A firm may rely on the information contained in PRO-Net as an accurate representation of a concern's size and ownership characteristics for purposes of maintaining a small and women-owned small business source list. A firm shall rely on the information contained in SBA's list of small disadvantaged business concerns as an accurate representation of a concern's size and ownership characteristics for the purpose of maintaining a small disadvantaged business source list. Use of PRO-Net and/or the SBA list of small disadvantaged business concerns as its source lists does not relieve a firm of its responsibilities (e.g., outreach, assistance, counseling, publicizing subcontracting opportunities) in this clause.

(6) A statement as to whether or not the offeror included indirect costs in establishing subcontracting goals, and a description of the method used to determine the proportionate share of indirect costs to be incurred with –

(i) Small business concerns,

(ii) HUBZone small business concerns;

(iii) Small disadvantaged business concerns, and

(iv) women-owned small business concerns.

(7) The name of the individual employed by the offeror who will administer the offeror's subcontracting program, and a description of the duties of the individual.

(8) A description of the efforts the offeror will make to assure that small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns have an equitable opportunity to compete for subcontracts.

(9) Assurances that the offeror will include the clause of this contract entitled "Utilization of Small Business Concerns" in all subcontracts that offer further subcontracting opportunities, and that the offeror will require all subcontractors (except small business concerns) who receive subcontracts in excess of $500,000 ($1,000,000 for construction of any public facility) to adopt a subcontracting plan that complies with the requirements of this clause.

(10) Assurances that the offeror will—

(i) Cooperate in any studies or surveys as may be required;

(ii) Submit periodic reports so that the Government can determine the extent of compliance by the offeror with the subcontracting plan;

(iii) Submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or SF 295, Summary Subcontract Report, in accordance with the instructions on the forms or as provided in agency regulations and in paragraph (j) of this clause; and

(iv) Ensure that its subcontractors agree to submit SF 294 and 295.

(11) A description of the types of records that will be maintained concerning procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of the offeror's efforts to locate small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns and award subcontracts to them. The records shall include at least the following (on a plant-wide or company-wide basis, unless otherwise indicated):

(i) Source lists (e.g., PRO-Net), guides, and other data that identify small business, HUBZone small business, small disadvantaged business, d and women-owned small business concerns.

(ii) Organizations contacted in an attempt to locate sources that small business, HUBZone small business, small disadvantaged business, or women-owned small business concerns.

(iii) Records on each subcontract solicitation resulting in an award of more than $100,000, indicating—

(A) Whether small business concerns were solicited and if not, why not,

(B) Whether HUBZone small business concerns were solicited and, if not, why not;

(C) Whether small disadvantaged business concerns were solicited and if not, why not,

(D) Whether women-owned small business concerns were solicited and if not, why not, and

(E) If applicable, the reason award was not made to a small business concern.

(iv) Records of any outreach efforts to contact—

(A) Trade associations,

(B) Business development organizations, and

(C) conferences and trade fairs to locate small business, HUBZone small business, small disadvantaged business, and women-owned small business sources.

(v) Records of internal guidance and encouragement provided to buyers through –

(A) Workshops, seminars, training, etc., and

(B) Monitoring performance to evaluate compliance with the program's requirements.

(vi) On a contract-by-contract basis, records to support award data submitted by the offeror to the Government, including the name, address, and business size of each subcontractor. Contractors having commercial plans need not comply with this requirement.

(e) In order to effectively implement this plan to the extent consistent with efficient contract performance, the Contractor shall perform the following functions:

(1) Assist small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation by such concerns. Where the Contractor's lists of potential small business, HUBZone small business, small disadvantaged business, and women-owned small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

(2) Provide adequate and timely consideration of the potentialities of small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all "make-or-buy" decisions.

(3) Counsel and discuss subcontracting opportunities with representative of small business, HUBZone small business, small disadvantaged business, and women-owned small business firms.

(4) Provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small business, HUBZone small business, small disadvantaged business, or women-owned small business for the purpose of obtaining a subcontract that is to be included as part or all of a goal contained in the Contractor's subcontracting plan.

(f) A master plan on a plant or division-wide basis that contains all the elements required by paragraph (d) of this clause, except goals may be incorporated by reference as a part of the subcontracting plan required of the offeror by this clause; provided—

(1) The master plan has been approved;

(2) The offeror ensures that the master plan is updated as necessary and provides copies of the approved master plan, including evidence of its approval, to the Contracting Officer; and

(3) Goals and any deviations from the master plan deemed necessary by the Contacting Officer to satisfy the requirements of this contract are set forth in the individual subcontracting plan.

(g) A commercial plan is the preferred type of subcontracting plan for contractors furnishing commercial items. The commercial shall plan relate to the offeror's planned subcontracting generally, for both commercial and Government business, rather than solely to the Government contract. Commercial plans are also preferred for subcontractors that provide commercial items under a prime contract, whether or not the prime contractor is supplying a commercial item.

(h) Prior compliance of the offeror with other such subcontracting plans under previous contracts will be considered by the Contracting Officer in determining the responsibility of the offeror for award of the contract.

(i) The failure of the Contractor or subcontractor to comply in good faith with –

(1) The clause of this contract entitled "Utilization of Small Business Concerns," or

(2) An approved plan required by this clause, shall be a material breach of the contract.

(j) The Contractor shall submit the following reports:

(1) Standard Form 294, Subcontracting Report for Individual Contracts. This report shall be submitted to the Contracting Officer semiannually and at contract completion. The report covers subcontract award data related to this contract. This report is not required for commercial plans.

(2) Standard Form 295, Summary Subcontract Report. This report encompasses all the contracts with the awarding agency. It must be submitted semi-annually for contracts with the Department of Defense and annually for contracts with civilian agencies. If the reporting activity is covered by a commercial plan, the reporting activity must report annually all subcontract awards under that plan. All reports submitted at the close of each fiscal year (both individual and commercial plans) shall include a breakout, in the Contractor's format, of subcontract awards, in whole dollars, to small disadvantaged business concerns by Standard Industrial Classification (SIC) Major Group. For a commercial plan, the Contractor may obtain from each of its subcontractors a predominant SIC Major Group and report all awards to that subcontractor under its predominant SIC Major Group.

(End of clause)

31. LIMITATIONS ON SUBCONTRACTING (DEC 1996) FAR 52.219-14

NOTE: This clause applies only if the contract, or any portion of the contract is set-aside for small business or set-aside for the 8(a) program.

(a) This clause does not apply to the unrestricted portion of a partial set-aside.

(b) By submission of an offer and execution of a contract, the Offeror/Contractor agrees that in performance of the contract in the case of a contract for--

(1) *Services (except construction)*. At least 50 percent of the cost of contract performance incurred for personnel shall be expended for employees of the concern.

(2) *Supplies (other than procurement from a nonmanufacturer of such supplies)*. The concern shall perform work for at least 50 percent of the cost of manufacturing the supplies, not including the cost of materials.

(3) *General construction*. The concern will perform at least 15 percent of the cost of the contract, not including the cost of materials, with its own employees.

(4) *Construction by special trade contractors*. The concern will perform at least 25 percent of the cost of the contract, not including the cost of materials, with its own employees.

(End of clause)

32. LIQUIDATED DAMAGES--SUBCONTRACTING PLAN (JAN 1999) FAR 52.219-16

(a) "Failure to make a good faith effort to comply with the subcontracting plan", as used in this clause, means a willful or intentional failure to perform in accordance with the requirements of the subcontracting plan approved under the clause in this contract entitled "Small Business Subcontracting Plan," or willful or intentional action to frustrate the plan.

(b) Performance shall be measured by applying the percentage goals to the total actual subcontracting dollars or, if a commercial plan is involved, to the pro rata share of actual subcontracting dollars attributable to Government contracts covered by the commercial plan. If, at contract completion, or in the case of a commercial product plan, at the close of the fiscal year for which the plan is applicable, the Contractor has failed to meet its subcontracting goals and the Contracting Officer decides in accordance with paragraph (c) of this clause that the Contractor failed to make a good faith effort to comply with its subcontracting plan, established in accordance with the clause in this contract entitled "Small Business Subcontracting Plan," the Contractor shall pay the Government liquidated damages in an amount stated. The amount of probable damages attributable to the Contractor's failure to comply, shall be an amount equal to the actual dollar amount by which the Contractor failed to achieve each subcontract goal or, in the case of a commercial products plan, that portion of the dollar amount allocable to Government contracts by which the Contractor failed to achieve each subcontract goal.

(c) Before the Contracting Officer makes a final decision that the Contractor has failed to make such good faith effort, the Contracting Officer shall give the Contractor written notice specifying the failure and permitting the Contractor to demonstrate what good faith efforts have been made and to discuss the matter. Failure to respond to the notice may be taken as an admission that no valid explanation exists. If, after consideration of all pertinent data, the Contracting Officer finds that the Contractor failed to make a good faith effort to comply with the subcontracting plan, the Contracting Officer shall issue a final decision to that effect and require that the Contractor pay the Government liquidated damages as provided in paragraph (b) of this clause.

(d) With respect to commercial plans, the Contracting Officer approved the plan will perform the functions of the Contracting Officer under this clause on behalf of all agencies that awarded contracts covered by that commercial product plan.

(e) The Contractor shall have the right of appeal, under the clause in this contract entitled, Disputes, from any final decision of the Contracting Officer.

(f) Liquidated damages shall be in addition to any other remedies that the Government may have.

(End of clause)

33. SMALL, SMALL DISADVANTAGED AND WOMEN-OWNED SMALL BUSINESS SUBCONTRACTING PLAN (DoD CONTRACTS) (APR 1996) DFARS 252.219-7003

This clause supplements the Federal Acquisition Regulation 52.219-9, Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan, clause of this contract.

(a) *Definitions*.

"Historically black colleges and universities," as used in this clause, means institutions determined by the Secretary of Education to meet the requirements of 34 CFR Section 608.2. The term also means any nonprofit research institution that was an integral part of such a college or university before November 14, 1986.

"Minority institutions," as used in this clause, means institutions meeting the requirement of Section 1046(3) of the Higher Education Act of 1965 (20 U.S.C. 1135d-5(3)). The term also includes Hispanic-serving institutions as defined in Section 316(b)(1) of such Act (20 U.S.C. 1059c(b)(1)).

(b) Except for company or division-wide commercial items subcontracting plans, the term "small disadvantaged business," when used in the FAR 52.219-9 clause, includes historically black colleges and universities and minority institutions, in addition to small disadvantaged business concerns.

(c) Work under the contract or its subcontracts shall be credited toward meeting the small disadvantaged business concern goal required by paragraph (d) of the FAR 52.219-9 clause when:

(1) It is performed on Indian lands or in joint venture with an Indian tribe or a tribally-owned corporation, and

(2) It meets the requirements of 10 U.S.C. 2323a.

(d) Subcontracts awarded to workshops approved by the Committee for Purchase from People Who are Blind or Severely Disabled (41 U.S.C. 46-48), may be counted toward the Contractor's small business subcontracting goal.

(e) A mentor firm, under the Pilot Mentor-Protégé Program established under Section 831 of Pub. L. 101-510, as amended, may count toward its small disadvantaged business goal, subcontracts awarded--

(1) Protégé firms which are qualified organizations employing the severely handicapped; and

(2) Former protégé firms that meet the criteria in Section 831(g)(4) of Pub. L. 101-510.

(f) The master plan approval referred to in paragraph (f) of the FAR 52.219-9 clause is approval by the Contractor's cognizant contract administration activity.

(g) In those subcontracting plans which specifically identify small, small disadvantaged, and women-owned small businesses, the Contractor shall notify the Administrative Contracting Officer of any substitutions of firms that are not small, small disadvantaged, or women-owned small businesses for the firms listed in the subcontracting plan. Notifications shall be in writing and shall occur within a reasonable period of time after award of the subcontract. Contractor-specified formats shall be acceptable.

(End of clause)

34. NOTICE TO THE GOVERNMENT OF LABOR DISPUTES (FEB 1997) FAR 52.222-1

If the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediate give notice, including all relevant information, to the Contracting Officer.

(End of clause)

35 CONVICT LABOR (AUG 1996) FAR 52.222-3

The Contractor agrees not to employ in the performance of this contract any person undergoing a sentence of imprisonment which has been imposed by any court of a State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or the Trust Territory of the Pacific Islands. This limitation, however, shall not prohibit the employment by the Contractor in the performance of this contract of persons on parole or probation to work at paid employment during the term of their sentence or persons who have been pardoned or who have served their terms. Nor shall it prohibit the employment by the Contractor in the performance of this contract of persons confined for violation of the laws of any of the States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or the Trust Territory of the Pacific Islands who are authorized to work at paid employment in the community under the laws of such jurisdiction, if--

(a) (1) The worker is paid or is in an approved work training program on a voluntary basis;

(2) Representatives of local union central bodies or similar labor union organizations have been consulted;

(3) Such paid employment will not result in the displacement of employed workers, or be applied in skills, crafts, or trades in which there is a surplus of available gainful labor in the locality, or impair existing contracts for services;

(4) The rates of pay and other conditions of employment will not be less than those paid or provided for work of a similar nature in the locality in which the work is being performed; and

(b) The Attorney General of the United States has certified that the work-release laws or regulations of the jurisdiction involved are in conformity with the requirements of Executive Order 11755, as amended by Executive Orders 12608 and 12943.

(End of clause)

36. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT--OVERTIME COMPENSATION (JUL 1995) FAR 52.222-4

(a) *Overtime requirements*. No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics (see Federal Acquisition Regulation (FAR) 22.300) shall require or permit any such laborers or mechanics in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than 1-1/2 times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(b) *Violation; liability for unpaid wages; liquidated damages*. In the event of any violation of the provisions set forth in paragraph (a) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanical employed in violation of the provisions set forth in paragraph (a) of this clause in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in paragraph (a) of this clause.

(c) *Withholding for unpaid wages and liquidated damages*. The Contracting Officer shall upon his or her own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same Prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same Prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in paragraph (b) of this clause.

(d) *Payrolls and basic records*. (1) The Contractor or subcontractor shall maintain payrolls and basic payroll records during the course of contract work and shall preserve them for a period of 3 years from the completion of the contract for all laborers and mechanics working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Nothing in this paragraph shall require the duplication of records required to be maintained for construction work by Department of Labor regulations at 29 CFR 5.5(a)(3) implementing the Davis-Bacon Act.

(2) The records to be maintained under paragraph (d)(1) of this clause shall be made available by the Contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the Contracting Officer or the

Department of Labor. The Contractor or subcontractor shall permit such representatives to interview employees during working hours on the job.

(e) *Subcontracts*. The Contractor or subcontractor shall insert in any subcontracts exceeding $100,000 the provisions set forth in paragraphs (a) through (e) of this clause and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the provisions set forth in paragraphs (a) through (e) of this clause.

(End of clause)

37. DAVIS-BACON ACT (FEB 1995) FAR 52.222-6

(a) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (d) of this clause; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such period. Such laborers and mechanics shall be paid not less than the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in the clause entitled Apprentices and Trainees. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (b) of this clause) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(b)(1) The Contracting Officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The Contracting Officer shall approved an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination.

(ii) The classification is utilized in the area by the construction industry.

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator or an authorized representative will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(3) In the event the Contractor, the laborers or mechanics to be employed in the classification, or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions, including the views of all interested parties and the recommendation of the Contracting Officer, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits, where appropriate) determined pursuant to subparagraphs (b)(2) and (b)(3) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(c) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(d) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(End of clause)

38. WITHHOLDING OF FUNDS (FEB 1988) FAR 52.222-7

The Contracting Officer shall, upon his or her own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same Prime Contractor, or any other Federally assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same Prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(End of clause)

39. PAYROLLS AND BASIC RECORDS (FEB 1988) FAR 52.222-8

(a) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of 3 years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under paragraph (d) of the clause entitled Davis-Bacon Act, that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(b)(1) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph (a) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents. U.S. Government Printing Office, Washington, DC 20402. The Prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify--

(i) That the payroll for the payroll period contains the information required to be maintained under paragraph (a) of this clause and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR Part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (b)(2) of this clause.

(4) The falsification of any of the certifications in this clause may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(c) The Contractor or subcontractor shall make the records required under paragraph (a) of this clause available for inspection, copying, or transcription by the Contracting Officer or authorized representatives of the Contracting Officer or the Department of Labor. The Contractor or subcontractor shall permit the Contracting Officer or representatives of the Contracting Officer or the Department of Labor to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit required records or to make them available, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(End of clause)

40. APPRENTICES AND TRAINEES (FEB 1988) FAR 52.222-9

(a) *Apprentices*. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rates) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(b) *Trainees*. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training

Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(c) *Equal employment opportunity*. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(End of clause)

41. COMPLIANCE WITH COPELAND ACT REQUIREMENTS (FEB 1988) FAR 52.222-10

The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

(End of clause)

42. SUBCONTRACTS (LABOR STANDARDS) (FEB 1988) FAR 52.222-11

(a) The Contractor or subcontractor shall insert in any subcontracts the clauses entitled *Davis-Bacon Act, Contract Work Hours and Safety Standards Act--Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Withholding of Funds, Subcontracts (Labor Standards), Contract Termination--Debarment, Disputes Concerning Labor Standards, Compliance with Davis-Bacon and Related Act Regulations, and Certification of Eligibility,* and such other clauses as the Contracting Officer may, by appropriate instructions, require, and also a clause requiring subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with all the contract clauses cited in this paragraph.

(b)(1) Within 14 days after award of the contract, the Contractor shall delivery to the Contracting Officer a completed Statement and Acknowledgment Form (SF 1413) for each subcontract, including the subcontractor's signed and dated acknowledgment that the clauses set forth in paragraph (a) of this clause have been included in the subcontract.

(2) Within 14 days after the award of any subsequently awarded subcontract the Contractor shall delivery to the Contracting Officer an updated completed SF 1413 for such additional subcontract.

(End of clause)

43. CONTRACT TERMINATION--DEBARMENT (FEB 1988) FAR 52.222-12

A breach of the contract clauses entitled *Davis-Bacon Act, Contract Work Hours and Safety Standards Act--Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Subcontracts (Labor Standards), Compliance with Davis-Bacon and Related Act Regulations, or Certification of Eligibility*, may be grounds for termination of the contract, and for debarment as a Contractor and subcontractor as provided in 29 CFR 5.12.

(End of clause)

44. COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REGULATIONS (FEB 1988) FAR 52.222-13

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are hereby incorporated by reference in this contract.

(End of clause)

45. DISPUTES CONCERNING LABOR STANDARDS (FEB 1988) FAR 52.222-14

The United States Department of Labor has set forth in 29 CFR Parts 5, 6, and 7 procedures for resolving disputes concerning labor standards requirements. Such disputes shall be resolved in accordance with those procedures and not the Disputes clause of this contract. Disputes within the meaning of this clause include disputes between the Contractor (or

any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(End of clause)

46. CERTIFICATION OF ELIGIBILITY (FEB 1988) FAR 52.222-15

(a) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(End of clause)

47. PROHIBITION OF SEGREGATED FACILITIES (FEB 1999) FAR 52.222-21

(a) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex or national origin because of written or oral policies, or employee custom. The term does not include separate or single-user rest rooms and necessary dressing or sleeping areas, which shall be provided to assure privacy between the sexes.

(b) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

(End of clause)

48. EQUAL OPPORTUNITY (FEB 1999) FAR 52.222-26

(a) If, during any 12-month period (including the 12 months preceding the award of this contract), the Contractor has been or is awarded nonexempt Federal contracts and/or subcontracts that have an aggregate value in excess of $10,000, the Contractor shall comply with subparagraphs (b)(1) through (11) of this clause. Upon request, the Contractor all provide information necessary to determine the applicability of this clause.

(b) During performance of this contract, the Contractor agrees as follows:

(1) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. However, it shall not be a violation of this clause for the Contractor to extend a publicly announced preference in employment to Indians living on or near an Indian reservation, in connection with employment opportunities on or near an Indian reservation, as permitted by 41 CFR 60-1.5.

(2) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. This shall include, but not be limited to, (i) employment, (ii) upgrading, (iii) demotion, (iv) transfer, (v) recruitment or recruitment advertising, (vi) layoff or termination, (vii) rates of pay or other forms of compensation, and (viii) selection for training, including apprenticeship.

(3) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(4) The Contractor shall, in all solicitations or advertisement for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(5) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(6) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(7) The Contractor shall furnish to the contracting agency all information required by Executive Order 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor. The Contractor shall also file Standard Form 100 (EEO-1), or any successor form, as prescribed in 41 CFR part 60-1. Unless the contractor has filed within the 12 months preceding the date of contract award, the Contractor shall within 30 days after contract award, apply to either the regional Office of Federal Contract Compliance Programs (OFCCP) or the local office of the Equal Employment Opportunity Commission for the necessary forms.

(8) The Contractor shall permit access to its premises during normal business hours, by the contracting agency or the OFCCP for the purpose of conducting on-site compliance evaluations and complaint investigations. The Contractor shall permit the Government to inspect and copy any books, accounts, records (including computerized records), and other material that may be relevant to the matter under investigation and pertinent to compliance with Executive Order 11246, as amended, and rules and regulations that implement the Executive Order.

(9) If the OFCCP determines that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts, under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246; as amended; in the rules, regulations, and orders of the Secretary of Labor; or as otherwise provided by law.

(10) The Contractor shall include the terms and conditions of subparagraphs (b)(1) through (11) of this clause in every subcontract or purchase order that is not exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontract or vendor.

(11) The Contractor shall take such action with respect to any subcontract or purchase order as the Contracting Officer may direct as a means of enforcing these terms and conditions, including sanctions for noncompliance; provided, that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of any direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

(c) Notwithstanding any other clause in this contract, disputes relative to this clause will be governed by the procedures in 41 CFR 60-1.1.

(End of clause)

49. AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION (FEB 1999) FAR 52.222-27

(a) *Definitions*.

"Covered area," as used in this clause, means the geographical area described in the solicitation for this contract.

"Deputy Assistant Secretary," as used in this clause, means Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor or a designee.

"Employer's identification number," as used in this clause, means the Federal Social Security number used on the employer's quarterly federal tax return, U.S. Treasury Department Form 941.

"Minority," as used in this clause, means--

(1) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(2) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(3) Black (all persons having origins in any of the black African racial groups not of Hispanic origin);

(4) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);

(b) If the Contractor, or a subcontractor at any tier, subcontracts a portion of the work involving any construction trade, each such subcontract in excess of $10,000 shall include this clause and the Notice containing the goals for minority and female participation stated in the solicitation for this contract.

(c) If the Contractor is participating in a Hometown Plan (41 CFR 60-4) approved by the U.S. Department of Labor in a covered area, either individually or through an association, its affirmative action obligations on all work in the plan area (including goals) shall comply with the plan for those trades that have unions participating in the plan. Contractors

must be able to demonstrate participation in, and compliance with, the provisions of the plan. Each Contractor or subcontractor participating in an approved plan is also required to comply with its obligations under the Equal Opportunity clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good-faith performance by other Contractors or subcontractors toward a goal in an approved plan does not excuse any Contractor's or subcontractor's failure to make good-faith efforts to achieve the plan's goals.

(d) The Contractor shall implement the affirmative action procedures in subparagraphs (g)(1) through (16) of this clause. The goals stated in the solicitation for this contract are expressed as percentages of the total hours of employment and training of minority and female utilization that the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where that work is actually performed. The Contractor is expected to make substantially uniform progress toward its goals in each craft.

(e) Neither the terms and conditions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer minorities or women shall excuse the Contractor's obligations under this clause, Executive Order 11246, as amended, or the regulations thereunder.

(f) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

(g) The Contractor shall take affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with this clause shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and implement affirmative action steps at least as extensive as the following:

(1) Ensure a working environment free of harassment, intimidation, and coercion at all sites and in all facilities where the Contractor's employees are assigned to work. The Contractor, if possible, will assign two or more women to each construction project. The Contractor shall ensure that foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at these sites or facilities.

(2) Establish and maintain a current list of sources for minority and female recruitment. Provide written notification to minority and female recruitment sources and community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Establish and maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant, referrals of minorities or females from unions, recruitment sources, or community organizations and the action taken with respect to each individual. If an individual was sent to the union hiring hall for referral and not referred back to the Contractor by the union or, if referred back, not employed by the Contractor, this shall be documented in the file, along with whatever additional actions the Contractor may have taken.

(4) Immediately notify the Deputy Assistant Secretary when the union or unions with which the Contractor has a collective bargaining agreement has not referred back to the Contractor a minority or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area that expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under subparagraph (g)(2) of this clause.

(6) Disseminate the Contractor's equal employment policy by--

(i) Providing notice of the policy to unions and to training, recruitment, and outreach programs, and requesting their cooperation in assisting the Contractor in meeting its contract obligations;

(ii) Including the policy in any policy manual and in collective bargaining agreements;

(iii) Publicizing the policy in the company newspaper, annual report, etc.;

(iv) Reviewing the policy with all management personnel and with all minority and female employees at least once a year; and

(v) Posting the policy on bulletin boards accessible to employees at each location where construction work is performed.

(7) Review, at least annually, the Contractor's equal employment policy and affirmative action obligations with all employees having responsibility for hiring, assignment, layoff, termination, or other employment decisions. Conduct review of this policy with all on-site supervisory personnel before initiating construction work at a job site. A written

record shall be made an maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's equal employment policy externally by including it in any advertising in the news media, specifically including minority and female news media. Provide written notification to, and discuss this policy with, other Contractors and subcontractors with which the Contractor does or anticipates doing business.

(9) Direct recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students, and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than 1 month before the date for acceptance of applications for apprenticeship or training by any recruitment source, send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit minority persons and women. Where reasonable, provide after-school, summer, and vacation employment to minority and female youth both on the site and in other areas of the Contractor's workforce.

(11) Validate all tests and other selection requirements where required under 41 CFR 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities. Encourage these employees to seek or to prepare for through appropriate training, etc., opportunities for promotion.

(13) Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the Contractor's obligations under this contract are being carried out.

(14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user restrooms and necessary dressing or sleeping areas shall be provided to assure privacy between sexes.

(15) Maintain a record of solicitations for subcontracts for minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's equal employment policy and affirmative action obligations.

(h) The Contractor is encouraged to participate in voluntary associations that may assist in fulfilling one or more of the affirmative actions obligations contained in subparagraphs (g)(1) through (16) of this clause. The efforts of a contractor association, joint contractor-union, contractor-community, or similar group of which the contractor is a member and participate may be asserted as fulfilling one or more of its obligations under subparagraphs (g)(1) through (16) of this clause, provided the Contractor--

(1) Actively participates in the group;

(2) Makes every effort to ensure that the group has a positive impact on the employment of minorities and women in the industry;

(3) Ensures that concrete benefits of the program are reflected in the Contractor's minority and female workforce participation;

(4) Make a good-faith effort to meet its individual goals and timetables; and

(5) Can provide access to documentation that demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

(i) A single goal for minorities and a separate single goal for women shall be established. The Contractor is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of Executive Order 11246, as amended, if a particular group is employed in a substantially disparate manner.

(j) The Contractor shall not use goals or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

(k) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts under Executive Order 11246, as amended.

(l) The Contractor shall carry out such sanctions and penalties for violation of this clause and of the Equal Opportunity clause, including suspension, termination, and cancellation of existing subcontracts, as may be imposed or ordered under Executive Order 11246, as amended, and its implementing regulations, by the OFCCP. Any failure to carry out these sanctions and penalties as ordered shall be a violation of this clause and Executive Order 11246, as amended.

(m) The Contractor in fulfilling its obligations under this clause shall implement affirmative action procedures at least as extensive as those prescribed in paragraph (g) of this clause, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of Executive Order 11246, as

amended, the implementing regulations, or this clause, the Deputy Assistant Secretary shall take action as prescribed in 41 CFR 60-4.8.

(n) The Contractor shall designate a responsible official to--

(1) Monitor all employment-related activity to ensure that the Contractor's equal employment policy is being carried out;

(2) Submit reports as may be required by the Government; and

(3) Keep records that shall at least include for each employee the name, address, telephone number, construction trade, union affiliation (if any), employee identification number, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, separate records are not required to be maintained.

(o) Nothing contained herein shall be construed as a limitation upon the application of other laws that establish different standards of compliance or upon the requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

(End of clause)

50. AFFIRMATIVE ACTION FOR DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA (APR 1998) FAR 52.222-35

(a) *Definition.* As used in this clause--.

All employment openings includes all positions except executive and top management, those positions that will be filled from within the contractor's organization, and positions lasting 3 days or less. This term includes full-time employment, temporary employment of more than 3 days' duration, and part-time employment.

Appropriate office of the State employment service system, means the local office of the Federal-State national system of public employment offices with assigned responsibility to serve the area where the employment opening is to be filled including the District of Columbia, Guam, the Commonwealth of Puerto Rico, and the Virgin Islands.

Positions that will be filled from within the Contractor's organization means employment openings for which no considered will be given to persons outside the Contractor's organization (including affiliates, subsidiaries, and parent companies) and includes any openings that the Contractor proposes to fill from regularly established "recall" lists. The exception does not apply to a particular opening once an employee decides to consider applicants outside of its organization.

Veteran of the Vietnam era means a person who--

(1) Served on active duty for a period of more than 180 days, any part of which occurred between August 5, 1964, and May 7, 1975, and was discharged or released therefrom with other than a dishonorable discharge; or

(2) Was discharged or released from active duty for a service-connected disability if any part of such active duty was performed between August 5, 1964, and May 7, 1975.

(b) *General*. (1) Regarding any position for which the employee or applicant for employment is qualified, the Contractor shall not discriminate against the individual because the individual is a disabled veteran or a veteran of the Vietnam era. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified disabled veterans and veterans of the Vietnam era without discrimination based upon their disability or veterans' status in all employment practices such as--

(i) Employment;
(ii) Upgrading;
(iii) Demotion or transfer;
(iv) Recruitment;
(v) Advertising;
(vi) Layoff or termination;
(vii) Rates of pay or other forms of compensation; and
(viii) Selection for training, including apprenticeship.

(2) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor (Secretary) issued under the Vietnam Era Veterans' Readjustment Assistance Act of 1972 (the Act), as amended.

(c) *Listing openings*. (1) The Contractor agrees to list all employment openings existing at contract award or occurring during contract performance, at an appropriate office of the State employment service system in the locality where the opening occurs. These openings include those occurring at any Contractor facility, including one not connected with performing this contract. An independent corporate affiliate is exempt from this requirement.

(2) State and local government agencies holding Federal contracts of $10,000 or more shall also list all employment openings with the appropriate office of the State employment service.

(3) The listing of employment openings with the State employment service system is required at least concurrently with using any other recruitment source or effort and involves the obligations of placing a bona fide job order, including accepting referrals of veterans and nonveterans. This listing does not require hiring any particular job applicant or hiring from any particular group of job applicants and is not intended to relieve the Contractor from any requirements of Executive orders or regulations concerning nondiscrimination in employment.

(4) Whenever the Contractor becomes contractually bound to the listing terms of this clause, it shall advise the State employment service system, in each State where it has establishments, of the name and location of each hiring location in the State. As long as the Contractor is contractually bound to these terms and has so advised the State system, it need not advise the State system of subsequent contracts. The Contractor may advise the State system when it is no longer bound by this contract clause.

(d) *Applicability*. This clause does not apply to the listing of employment openings which occur and are filled outside the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, and the Virgin Islands.

(e) *Postings*. (1) The Contractor agrees to post employment notices stating (i) the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified disabled veterans and veterans of the Vietnam era, and (ii) the rights of applicants and employees.

(2) These notices shall be posted in conspicuous places that are available to employees and applicants for employment. They shall be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance Programs, Department of Labor (Deputy Assistant Secretary), and provided by or through the Contracting Officer.

(3) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of the Act, and is committed to take affirmative action to employ, and advance in employment, qualified disabled veterans and veterans of the Vietnam Era.

(f) *Noncompliance*. If the Contractor does not comply with the requirements of this clause, appropriate actions may be taken under the rules, regulations, and relevant orders of the Secretary issued pursuant to the Act.

(g) *Subcontracts*. The Contractor shall include the terms of this clause in every subcontract or purchase order of $10,000 or more unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Deputy Assistant Secretary to enforce the terms, including action for noncompliance.

(End of clause)

51. AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES (JUN 1998)
FAR 52.222-36

(a) General. (1) Regarding any position for which the employee or applicant for employment is qualified, the Contractor shall not discriminate against any employee or applicant because of physical or mental disability. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified individuals with disabilities without discrimination based upon their physical or mental disability in all employment practices such as—

(i) Recruitment, advertising, and job application procedures;

(ii) Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff, and rehiring;

(iii) Rates of pay or any other form of compensation and changes in compensation;

(iv) Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;

(v) Leaves of absence, sick leave, or any other leave;

(vi) Fringe benefits available by virtue of employment, whether or not administered by the Contractor;

(vii) Selection and financial support for training, including apprenticeships, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;

(viii) Activities sponsored by the Contractor, including social or recreational programs; and

(ix) Any other term, condition, or privilege of employment.

(2) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor (Secretary) issued under the Rehabilitation Act of 1973 (29 U.S.C. 793) (the Act), as amended.

(b) Postings. (1) The Contractor agrees to post employment notices stating—

(i) The Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified individuals with disabilities; and

(ii) The rights of applicants and employees.

(2) These notices shall be posted in conspicuous places that are available to employees and applicants for employment. The Contractor shall ensure that applicants and employees with disabilities are informed of the contents of the notice (*e.g.*, the Contractor may have the notice read to a visually disabled individual, or may lower the posted notice so that it might be read by a person in a wheelchair). The notices shall be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance of the U.S. Department of Labor (Deputy Assistant Secretary) and shall be provided by or through the Contracting Officer.

(3) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Act and is committed to take affirmative action to employ, and advance in employment, qualified individuals with physical and mental disabilities.

(c) Noncompliance. If the Contractor does not comply with the requirements of this clause, appropriate actions may be taken under the rules, regulations, and relevant orders of the Secretary issued pursuant to the Act.

(d) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order in excess of $10,000 unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Deputy Assistant Secretary to enforce the terms, including action for noncompliance.

(End of clause)

52. EMPLOYMENT REPORTS ON DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA (JAN 1999) FAR 52.222-37

(a) Unless the Contractor is a State or local government agency, the contractor shall report at least annually, as required by the Secretary of Labor, on--

(1) The number of disabled veterans and the number of veterans of the Vietnam era in the workplace of the contractor by job category and hiring location; and

(2) The total number of new employees hired during the period covered by the report, and of that total, the number of disabled veterans, and the number of veterans of the Vietnam era.

(b) The above items shall be reported by completing the form entitled “Federal Contractor Veterans’ Employment Report VETS-100.”

(c) Reports shall be submitted no later than September 30 of each year beginning September 30, 1988.

(d) The employment activity report required by paragraph (a)(2) of this clause shall reflect total hires during the most recent 12-month period as of the ending data selected for the employment profile report required by paragraph (a)(1) of this clause. Contractors may select an ending date: (1) As of the end of any pay period during the period January through March 1 of the year the report is due, or (2) as of December 31, if the contractor has previous written approval from the Equal Employment Opportunity Commission to do so for purposes of submitting the Employer Information Report EEO-1 (Standard Form 100).

(e) The count of veterans reported according to paragraph (a) of this clause shall be based on voluntary disclosure. Each contractor subject to the reporting requirements at 38 U.S.C.4212 shall invite all disabled veterans and veterans of the Vietnam era who wish to benefit under the affirmative action program at 38 U.S.C. 4212 to identify themselves to the contractor. The invitation shall state that the information is voluntarily provided; that the information will be kept confidential; that disclosure or refusal to provide the information will not subject the applicant or employee to any adverse treatment; and that the information will be used only in accordance with the regulations promulgated under 38 U.S.C. 4212.

(f) *Subcontracts*. The Contractor shall include the terms of this clause in every subcontract or purchase order of $10,000 or more unless exempted by rules, regulations, or orders of the Secretary.

(End of clause)

53. CLEAN AIR AND WATER (APR 1984) FAR 52.223-2

(a) “Air Act,” as used in this clause, means the Clean Air Act (42 U.S.C. 7401 et seq.).

“Clean air standards,” as used in this clause, means--

(1) Any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, work practices, or other requirements contained in, issued under, or otherwise adopted under the Air Act or Executive Order 11738;

(2) An applicable implementation plan as described in section 110(d) of the Air Act (42 U.S.C. 7410(d));

(3) An approved implementation procedure or plan under section 111(c) or section 111(d) of the Air Act (42 U.S.C. 7411(c) or (d)); or

(4) An approved implementation procedure under section 112(d) of the Air Act (42 U.S.C. 7412(d)).

"Clean water standards," as used in this clause, means any enforceable limitation, control, condition, prohibition, standard, or other requirement promulgated under the Water Act or contained in a permit issued to a discharger by the EPA or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by local government to ensure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. 1317).

"Compliance," as used in this clause, means compliance with--

(1) Clean air or water standards; or

(2) A schedule or plan ordered or approved by a court of competent jurisdiction, the EPA, or an air or water pollution control agency under the requirements of the Air Act or Water Act and related regulations.

"Facility," as used in this clause, means any building, plant, installation, structure, mine, vessel or other floating craft, location, or site of operations, owned, leased, or supervised by a Contractor or subcontractor, used in the performance of a contract or subcontract. When a location or site of operations includes more than one building, plant, installation, or structure, the entire location or site shall be deemed a facility except when the Administrator, or a designee, of the EPA determines that independent facilities are collocated in one geographical area.

"Water Act," as used in this clause, means Clean Water Act (33 U.S.C. 1251 et seq.).

(b) The Contractor agrees--

(1) To comply with the requirements of section 114 of the Clean Air Act (42 U.S.C. 7414) and section 308 of the Clean Water Act (33 U.S.C. 1318) relating to inspection, monitoring, entry, reports, and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, and all regulations and guidelines issued to implement those acts before the award of this contract;

(2) That no portion of the work required by this prime contract will be performed in a facility listed on the EPA List of Violating Facilities on the date when this contract was awarded unless and until the EPA eliminates the name of the facility from the listing;

(3) To use best efforts to comply with clean air standards and clean water standards at the facility in which the contract is being performed; and

(4) To insert the substance of this clause into any nonexempt subcontract, including this subparagraph (b)(4).

(End of clause)

54. POLLUTION PREVENTION AND RIGHT-TO-KNOW INFORMATION (APR 1998) FAR 52.223-5

(a) Executive Order 12856 of August 3, 1993, requires Federal facilities to comply with the provisions of the Emergency Planning and Community Right-to-know Act of 1986 (EPCRA) (42 U.S.C. 11001-11050) and the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13101-13109).

(b) The Contractor shall provide all information needed by the Federal facility to comply with the emergency planning reporting requirements of Section 302 of EPCRA; the emergency notice requirements of Section 304 of EPCRA; the list of Material Data Safety Sheets required by Section 311 of EPCRA; the emergency and hazardous chemical inventory forms of Section 312 of EPCRA; the toxic chemical release inventory of Section 313 of EPCRA, which includes the reduction and recycling information required by Section 6607 of PPA; and the toxic chemical reduction goals requirements of Section 3-302 of Executive Order 12856.

(End of clause)

55. DRUG-FREE WORKPLACE (JAN 1997) FAR 52.223-6

(a) Definitions. As used in this clause--

"Controlled substance" means a controlled substance in schedules I through V of section 202 of the Controlled Substances Act (21 U.S.C. 812) and as further defined in regulation at 21 CFR 1308.11-1308.15.

"Conviction" means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the Federal or State criminal drug statutes.

"Criminal drug statute" means a Federal or non-Federal criminal statute involving the manufacture, distribution, dispensing, possession or use of any controlled substance.

"Drug-free workplace" means the site(s) for the performance of work done by the Contractor in connection with a specific contract at which employees of the Contractor are prohibited from engaging in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance.

"Employee" means an employee of a Contractor directly engaged in the performance of work under a Government contract. "Directly engaged" is defined to include all direct cost employees and any other Contractor employee who has other than a minimal impact or involvement in contract performance.

"Individual" means an offeror/contractor that has no more than one employee including the offeror/contractor.

(b) The Contractor, if other than an individual, shall--within 30 days after award (unless a longer period is agreed to in writing for contracts of 30 days or more performance duration), or as soon as possible for contracts of less than 30 days performance duration--

(1) Publish a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;

(2) Establish an ongoing drug-free awareness program to inform such employees about--

(i) The dangers of drug abuse in the workplace;

(ii) The Contractor's policy of maintaining a drug-free workplace;

(iii) Any available drug counseling, rehabilitation, and employee assistance programs; and

(iv) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;.

(3) Provide all employees engaged in performance of the contract with a copy of the statement required by subparagraph (b)(1) of this clause;

(4) Notify such employees in writing in the statement required by subparagraph (b)(1) of this clause that, as a condition of continued employment on this contract, the employee will--

(i) Abide by the terms of the statement; and

(ii) Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than 5 days after such conviction.

(5) Notify the Contracting Officer in writing within 10 days after receiving notice under subdivision (b)(4)(ii) of this clause, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee;

(6) Within 30 days after receiving notice under subdivision (b)(4)(ii) of this clause of a conviction, take one of the following actions with respect to any employee who is convicted of a drug abuse violation occurring in the workplace:

(i) Taking appropriate personnel action against such employee, up to and including termination; or

(ii) Require such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency; and

(7) Make a good faith effort to maintain a drug-free workplace through implementation of subparagraphs (b)(1) through (b)(6) of this clause.

(c) The Contractor, if an individual, agrees by award of the contract or acceptance of a purchase order, not to engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance while performing this contract.

(d) In addition to other remedies available to the Government, the Contractor's failure to comply with the requirements of paragraph (b) or (c) of this clause may, pursuant to FAR 23.506, render the Contractor subject to suspension of contract payments, termination of the contract for default, and suspension or debarment.

(End of clause)

56. CERTIFICATION AND ESTIMATE OF PERCENTAGE OF RECOVERED MATERIAL CONTENT FOR EPA DESIGNATED ITEMS (OCT 1997) FAR 52.223-9

(a) As required by the Resource Conservation and Recovery Act of 1976 (42 U.S.C.6962(j)(2)(C)), the Contractor shall execute the following certification:

CERTIFICATION

I, _____ (name of certifier), am an officer or employee responsible for the performance of this contract and hereby certify that the percentage of recovered material content for EPA Designated Items was at least the amount required by the applicable contract specifications.

_____

[Signature of the Officer or Employee

_____
[Typed Name of the Officer or Employee

_____
[Title]

_____
[Name of Company, Firm, or Organization]

_____
[Date]

(End of certification)

(b) The Contractor also shall estimate the percentage of recovered materials actually used in the performance of this contract. The estimate is in addition to the certification in paragraph (a) of this clause.

ESTIMATE

EPA DESIGNATED ITEM	TOTAL DOLLAR VALUE OF EPA DESIGNATED ITEM	PERCENTAGE OF RECOVERED MATERIAL CONTENT
_____	_____	_____
_____	_____	_____
_____	_____	_____

* Where applicable, also include the percent-age of postconsumer material content.

(c) The Contractor shall submit this certification and estimate upon completion of the contract to the Contract Administrator.

(End of Clause)

57. OZONE-DEPLETING SUBSTANCES (JUN 1996) FAR 52.223-11

(a) *Definition*. "Ozone-depleting substance", as used in this clause, means any substance designated as Class I by the Environmental Protection Agency (EPA) (40 CFR Part 82), including but not limited to chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or any substance designated as Class II by EPA (40 CFR Part 82), including but not limited to hydrochlorofluorocarbons.

(b) The Contractor shall label products which contain or are manufactured with ozone-depleting substances in the manner and to the extent required by 42 U.S.C. 7671j (b), (c), and (d) and 40 CFR Part 82, Subpart E, as follows:

> ''WARNING: Contains (or manufactured with, if applicable) ____*_____, a substance(s) which harm(s) public health and environment by destroying ozone in the upper atmosphere."
>
> *The Contractor shall insert the name of the substance(s).

(End of clause)

58. TOXIC CHEMICAL RELEASE REPORTING (OCT 1996) FAR 52.223-14

(a) Unless otherwise exempt, the Contractor , as owner or operator of a facility used in the performance of this contract, shall file by July 1 for the prior calendar year an annual Toxic Chemical Release Form (Form R) as described in sections 313(a) and (g) of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023(a) and (g)), and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106). The Contractor

shall file, for each facility subject to the Form R filing and reporting requirements, the annual Form R throughout the life of the contract.

(b) A Contractor owned or operated facility used in the performance of this contract is exempt from the requirement to file an annual Form R if--

(1) The facility does not manufacture, process or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

(2) The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C. 11023 (b)(1)(A);

(3) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been file with EPA);

(4) The facility does not fall within the Standard Industrial Classification Code (SIC) designations 20 through 39 as set forth in section 19.102 of the Federal Acquisition Regulation (FAR); or

(5) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

(c) If the Contractor has certified to an exemption in accordance with one or more of the criteria in paragraph (b) of this clause, and after award of the contract circumstances change so that any one of its owned or operated facilities used in the performance of this contract is no longer exempt--

(1) The Contractor shall notify the Contracting Officer; and

(2) The Contractor as owner or operator of a facility used in the performance of this contract that is no longer exempt, shall (I) submit a Toxic Chemical Release Inventory Form (Form R) on or before July 1 for the prior calendar year during which the facility becomes eligible; and (ii) continue to file the annual Form R for the life of the contract for such facility.

(d) The Contracting Officer may terminate this contract or take other action as appropriate, if the Contractor fails to comply accurately and fully with the EPCRA and PPA toxic chemical release filing and reporting requirements.

(e) Except for acquisitions of commercial items as defined in FAR Part 2, the Contractor shall--

(1) For competitive subcontracts expected to exceed $100,000 (including all options), include a solicitation provision substantially the same as the provision at FAR 52.223-13, Certification of Toxic Chemical Release Reporting; and

(2) Include in any resultant subcontract exceeding $100,000 (including all options), the substance of this clause, except this paragraph (e).

(End of clause)

59. BUY AMERICAN ACT--CONSTRUCTION MATERIALS (JUN 1997) FAR 52.225-5

NOTE: This clause applies only to contracts less than $6,500,000.

(a) *Definitions*. As used in this clause--

The Buy American Act (41 U.S.C. 10) provides that the Government give preference to domestic construction material.

"Components" means those articles, materials, and supplies incorporated directly into construction materials.

"Construction material" means an article, material, or supply brought to the construction site for incorporation into the building or work. Construction material also includes an item brought to the site pre-assembled from articles, materials or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, which are discrete systems incorporated into a public building or work and which are produced as a complete system, shall be evaluated as a single and distinct construction material regardless of when or how the individual parts or components of such systems are delivered to the construction site.

"Domestic construction material" means (1) an unmanufactured construction material mined or produced in the United States, or (2) a construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as the construction materials determined to be unavailable pursuant to subparagraph 25.202(a)(2) of the Federal Acquisition Regulation (FAR) shall be treated as domestic.

(b) (1) The Buy American Act (41 U.S.C. 10a-10d) requires that only domestic construction material be used in performing this contract, except as provided in paragraphs (b)(2) and (b)(3) of this clause.

(2) This requirement does not apply to the excepted construction material or components listed by the Government as follows: (List will appear in Section H if required.)

(3) Other foreign construction material may be added to the list in paragraph (b)(2) of this clause if the Government determines that--

(i) The cost would be unreasonable (the cost of a particular domestic construction material shall be determined to be unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent, unless the agency head determines a higher percentage to be appropriate);

(ii) The application of he restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(4) The Contractor agrees that only domestic construction material will be used by the Contractor, subcontractors, material men, and suppliers in the performance of this contract, except for foreign construction materials, if any, listed in paragraph (b)(2) of this clause.

(c) *Request for determination*. (1) Contractors requesting to use foreign construction material under paragraph (b)(3) of this clause shall provide adequate information for Government evaluation of the request for a determination regarding the inapplicability of the Buy American Act. Each submission shall include a description of the foreign and domestic construction materials, including unit of measure, quantity, price, time of delivery or availability, location of the construction project, name and address of the proposed contractor, and a detailed justification of the reason for use of foreign materials cited in accordance with paragraph (b)(3) of this clause. A submission based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause. The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(2) If the Government determines after contract award that an exception to the Buy American Act applies, the contract shall be modified to allow use of the foreign construction material, and adequate consideration shall be negotiated. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration shall not be less than the differential established in paragraph (b)(3)(i) of this clause.

(3) If the Government does not determine that an exception of the Buy American Act applies, the use of that particular foreign construction material will be a failure to comply with the Act.

(d) For evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the following information any applicable supporting data based on the survey of suppliers shall be included in the request:

FOREIGN AND DOMESTIC CONSTRUCTION MATERIALS PRICE COMPARISON

Construction material description	Unit of measure	Quantity	Price (dollars) *
Item 1:			
Foreign construction material			
Domestic construction material			
Item 2:			
Foreign construction material			
Domestic construction material			

List name, address, telephone number, and contract for suppliers surveyed. Attach copy of response; if oral, attach summary. Include other applicable supporting information.

*Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued.

(End of clause)

60. RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (AUG 1998) FAR 52.225-11

(a) Unless advance written approval of the Contracting Officer is obtained, the Contractor shall not acquire for use in the performance of this contract, any supplies or services originating from sources within, or that were located in or transported from or through, countries whose products are banned from importation into the United States by Executive order or regulations of the Office of Foreign Assets Control, Department of the Treasury. Those countries include Cuba, Iran, Iraq, Libya, and North Korea, and Sudan.

(b) The Contractor shall not acquire for use in the performance of this contract any supplies or services from entities controlled by the Government of Iraq.

(c) The Contractor agrees to insert the provisions of this clause, including this paragraph (c), in all subcontracts hereunder.

(End of clause)

61. BUY AMERICAN ACT--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS ACT AND NORTH AMERICAN FREE TRADE AGREEMENT (JUN 1997) FAR 52.225-15

NOTE: This clause applies only to acquisitions with an acquisition value of $7,311,000 or more.

(a) *Definitions*. As used in the clause--

"Components" means those articles, materials, and supplies incorporate directly into construction materials.

"Construction material" means an article, material, or supply brought to the construction site for incorporation into the building or work. Construction material also includes an item brought to the site pre-assembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, which are discrete systems incorporated into a public building or work and which are produced as a complete system, shall be evaluated as a single and distinct construction material regardless of when or how the individual parts or components of such systems are delivered to the construction site.

"Designated country construction material" means a construction material that—

(1) Is wholly the growth, product, or manufacture of a designated country (as defined at FAR 25.401), or

(2) In the case of a construction material which consists in whole or in part of materials from another country or instrumentality, has been substantially transformed in a designated country into a new and different construction material distinct from the materials from which it was transformed.

"Domestic construction material" means (1) an unmanufactured construction material mined or produced in the United States, or (2) a construction material manufactured in the U.S., if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as the construction materials determined to be unavailable pursuant to subparagraph 25.202(a)(2) of the Federal Acquisition Regulation (FAR) shall be treated as domestic.

"North American Free Trade Agreement (NAFTA) country" means Canada or Mexico.

"NAFTA country construction material" means a construction material that—

(1) Is wholly the growth, product, or manufacture of a NAFTA country, or

(2) In the case of a construction material which consists in whole or in part of materials from another country or instrumentality, has been substantially transformed in a NAFTA country into a new and different construction material distinct from the materials from which it was transformed.

(b) (1) The Buy American Act (41 U.S.C. 10a-10d) requires that only domestic construction material be used in performing this contract, except as provided in paragraphs (b)(2), (b)(3), and (b)(4) of this clause.

(2) The Trade Agreements Act and the North American Free Trade Agreement (NAFTA) provide that designated country and NAFTA country construction materials are exempted from application of the Buy American Act.

(3) The requirement in paragraph (b)(1) of this clause does not apply to the excepted construction material or components listed by the Government as follows:

(*If applicable this listing will be placed in Section 00800*)

(4) Other foreign construction material may be added to the list in paragraph (b)(3) of this clause if the Government determines that--

(i) The cost would be unreasonable (the cost of a particular domestic construction material shall be determined to be unreasonable when the cost of such material exceeds the cost of foreign material exceeds the cost of foreign material by more than 6 percent, unless the agency head determines a higher percentage to be appropriate);

(ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(5) The Contractor agrees that only domestic construction materials, NAFTA country construction materials, or designated country construction materials will be used by the Contractor, subcontractors, material men, and suppliers in the performance of this contract, except for foreign construction materials if any, listed in paragraph (b)(3) of this clause.

(c) *Request for* determination. (1) Contractors requesting to use foreign construction material under paragraph (b)(4) of this clause shall provide adequate information for Government evaluation of the request for a determination regarding the inapplicability of the Buy American Act. Each submission shall include a description of the foreign and domestic construction materials, including unit of measure, quantity, price, time of delivery or availability, location of the construction project, name and address of the proposed contractor, and a detailed justification of the reason for use of foreign materials cited in accordance with paragraph (b)(4) of this clause. A submission based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause. The price of construction materials shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(2) If the Government determines after contract award that an exception to the Buy American Act applies, the contract shall be modified to allow use of the foreign construction material, and adequate consideration all be negotiated. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration all not be less than the differential established in paragraph (b)(4)(i) of this clause.

(3) If the Government does not determine that an exception to the Buy American Act applies, the use of that particular foreign construction material will be a failure to comply with the Act.

(d) For evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the following information and any applicable supporting data based on the survey of suppliers shall be included in the request:

FOREIGN AND DOMESTIC CONSTRUCTION MATERIALS PRICE COMPARISON

Construction Material Description	Unit of Measure	Quantity	Price (dollars) *
Item 1:			
Foreign construction material	_____	_____	_____
Domestic construction material	_____	_____	_____
Item 2:			
Foreign construction material	_____	_____	_____
Domestic construction material	_____	_____	_____

[List name, address, telephone number, and contract for suppliers surveyed. Attach copy of response; if oral, attach summary.]
[Include other applicable supporting information.]
*[*Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate is issued).]*

(End of clause)

62. BUY AMERICAN ACT--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS ACT AND NORTH AMERICAN FREE TRADE AGREEMENT (JUN 1997) ALTERNATE I (MAY 1997) FAR 52.225-15 I

NOTE: This clause applies only to acquisitions with an acquisition value from $6,500,000 to $7,311,000.

(a) *Definitions*. As used in the clause--

"Components" means those articles, materials, and supplies incorporate directly into construction materials.

"Construction material" means an article, material, or supply brought to the construction site for incorporation into the building or work. Construction material also includes an item brought to the site pre-assembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, which are discrete systems incorporated into a public building or work and which are produced as a complete system, shall be evaluated as a single and distinct construction material regardless of when or how the individual parts or components of such systems are delivered to the construction site.

"Designated country construction material" means a construction material that—

(1) Is wholly the growth, product, or manufacture of a designated country (as defined at FAR 25.401), or

(2) In the case of a construction material which consists in whole or in part of materials from another country or instrumentality, has been substantially transformed in a designated country into a new and different construction material distinct from the materials from which it was transformed.

"Domestic construction material" means (1) an unmanufactured construction material mined or produced in the United States, or (2) a construction material manufactured in the U.S., if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as the construction materials determined to be unavailable pursuant to subparagraph 25.202(a)(2) of the Federal Acquisition Regulation (FAR) shall be treated as domestic.

"North American Free Trade Agreement (NAFTA) country" means Canada or Mexico.

"NAFTA country construction material" means a construction material that

(1) Is wholly the growth, product, or manufacture of a NAFTA country, or

(2) In the case of a construction material which consists in whole or in part of materials from another country or instrumentality, has been substantially transformed in a NAFTA country into a new and different construction material distinct from the materials from which it was transformed.

(b) (1) The Buy American Act (41 U.S.C. 10a-10d) requires that only domestic construction material be used in performing this contract, except as provided in paragraphs (b)(2), (b)(3), and (b)(4) of this clause.

(2) The Trade Agreement Act and the North American Free Trade Agreement (NAFTA) provide that designated country and NAFTA country construction materials are exempted from application of the Buy American Act.

(3) The requirement in paragraph (b)(1) of this clause does not apply to the excepted construction material or components listed by the Government as follows:

(*If applicable this listing will be placed in Section 00800*)

(4) Other foreign construction material may be added to the list in paragraph (b)(3) of this clause if the Government determines that--

(i) The cost would be unreasonable (the cost of a particular domestic construction material shall be determined to be unreasonable when the cost of such material exceeds the cost of foreign material exceeds the cost of foreign material by more than 6 percent, unless the agency head determines a higher percentage to be appropriate);

(ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(5) The Contractor agrees that only domestic construction materials, or NAFTA country construction materials, will be used by the Contractor, subcontractors, material men, and suppliers in the performance of this contract, except for foreign construction materials, if any, listed in paragraph (b)(3) of this clause.

(c) *Request for* determination. (1) Contractors requesting to use foreign construction material under paragraph (b)(4) of this clause shall provide adequate information for Government evaluation of the request for a determination regarding the inapplicability of the Buy American Act. Each submission shall include a description of the foreign and domestic construction materials, including unit of measure, quantity, price, time of delivery or availability, location of the construction project, name and address of the proposed contractor, and a detailed justification of the reason for use of foreign materials cited in accordance with paragraph (b)(4) of this clause. A submission based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause. The price of construction materials shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(2) If the Government determines after contract award that an exception to the Buy American Act applies, the contract shall be modified to allow use of the foreign construction material, and adequate consideration all be negotiated. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration all not be less than the differential established in paragraph (b)(4)(i) of this clause.

(3) If the Government does not determine that an exception to the Buy American Act applies, the use of that particular foreign construction material will be a failure to comply with the Act.

(d) For evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the following information and any applicable supporting data based on the survey of suppliers shall be included in the request:

included in the request:

FOREIGN AND DOMESTIC CONSTRUCTION MATERIALS PRICE COMPARISON

Construction Material Description	Unit of Measure	Quantity	Price (dollars) *
Item 1:			
Foreign construction material	_____	_____	_____
Domestic construction material	_____	_____	_____
Item 2:			
Foreign construction material	_____	_____	_____
Domestic construction material	_____	_____	_____

[List name, address, telephone number, and contract for suppliers surveyed. Attach copy of response; if oral, attach summary.]
[Include other applicable supporting information.]
*[*Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate is issued).]*

(End of clause)

63. SECONDARY ARAB BOYCOTT OF ISRAEL (JUN 1992) DFARS 252.225-7031

(a) *Definitions*. As used in this clause--

(1) "Foreign person" means any person other than a United States person as defined in Section 16(2) of the Export Administration Act of 1979 (50 U.S.C. App. Sec 2415).

(2) "United States person" is defined in Section 16(2) of the Export Administration Act of 1979 and means any United States resident or national (other than an individual resident outside the United States and employed by other than a United States person), any domestic concern (including any permanent domestic establishment of any foreign concern), and any foreign concern), and any foreign subsidiary or affiliate (including any permanent foreign establishment) of any domestic concern which is controlled in fact by such domestic concern, as determined under regulations of the President.

(b) *Certification*. By submitting this offer, the Offeror, if a foreign person, company or entity, certifies that it--

(1) Does not comply with the Secondary Arab Boycott of Israel; and

(2) Is not taking or knowingly agreeing to take any action, with respect to the Secondary Boycott of Israel of Arab countries, which 50 U.S.C. App. Sec. 2407(a) prohibits a United States person from taking.

(End of clause)

64. UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES (MAY 1999) FAR 52.226-1

(a) For Department of Defense contracts, this clause applies only if the contract includes a subcontracting plan incorporated under the terms of the clause at FAR 52.219-9, Small Business Subcontracting Plan. It does not apply to contracts awarded based on a subcontracting plan submitted and approved under paragraph (g) of the clause at 52.219-9.

(b) *Definitions*. As used in this clause:

"Indian" means any person who is a member of any Indian tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs (BIA) in accordance with 25 U.S.C. 1452(c) and any "Native" as defined in the Alaska Native Claims Settlement Act (43 U.S.C. 1601).

"Indian-organization" means the governing body of any Indian tribe or entity established or recognized by the governing body of an Indiana tribe for the purposes of 25 U.S.C., chapter 17.

"Indian-owned economic enterprise" means any Indian-owned (as determined by the Secretary of the Interior) commercial, industrial, or business activity established or organized for the purpose of profit, provided that Indian ownership shall constitute not less than 51 percent of the enterprise.

"Indian tribe" means any Indian tribe, band, group, pueblo, or community, including native villages and native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from BIA in accordance with 25 U.S.C. 1452(c).

"Interested party" means a prime contractor or an actual or prospective offeror whose direct economic interest would be affected by the award of a subcontract or by the failure to award a subcontract.

(c) The Contractor agrees to use its best efforts to give Indian organizations and Indian-owned economic enterprises (25 U.S.C. 1544) the maximum practicable opportunity to participate in the subcontracts it awards to the fullest extent consistent with efficient performance of its contract.

(1) The Contracting Officer and the Contractor, acting in good faith, may rely on the representation of an Indian organization or Indian-owned economic enterprise as to its eligibility, unless an interested party challenges its status or the Contracting Officer has independent reason to question that status. In the event of a challenge to the representation of a subcontractor, the Contracting Officer shall refer the matter to the –

U.S. Department of the Interior
Bureau of Indian Affairs (BIA)
Attn: Chief, Division of Contracting and Grants Administration
1849 C Street, NW, MS-334A-SIB
Washington, DC 20245.

The BIA will determine the eligibility and notify the Contracting Officer. The 5 percent incentive payment will not be made within 50 workings days of subcontract award or while a challenge is pending. If a subcontractor is determined to be an ineligible participant, no incentive payment will be made under the Indian Incentive Program.

(2) The Contractor may request an adjustment under the Indian Incentive Program to the following:

(i) The estimated cost of a cost-type contract;

(ii) The target cost of a cost-plus-incentive-fee prime contract;

(iii) The target cost and ceiling price of a fixed price incentive prime contract.

(iv) The price of a firm-fixed-price prime contract.

(3) The amount of the equitable adjustment to the prime contract shall be 5 percent of the estimated cost, target cost, or firm-fixed-price included in the subcontract initially awarded to the Indian organization or Indian-owned economic enterprise.

(4) The Contractor has the burden of proving the amount claimed and must assert its request for an adjustment prior to completion of contract performance.

(d) The Contracting Officer, subject to the terms and conditions of the contract and the availability of funds, shall authorize an incentive payment of 5 percent of the amount paid to the subcontractor. The Contracting Officer shall seek funding in accordance with agency procedures. The Contracting Officer's decision is final and not subject to the Dispute clause of this contract.

(End of clause)

65. AUTHORIZATION AND CONSENT (JUL 1995) FAR 52.227-1

(a) The Government authorizes and consents to all use and manufacture, in performing any contract or any subcontract at any tier, of any invention described in and covered by a United States patent (1) embodied in the structure or composition of any article the delivery of which is accepted by the Government under this contract or (2) used in machinery, tools, or methods whose use necessarily results from compliance by the Contractor or a subcontractor with (i) specifications or written provisions forming a part of this contract or (ii) specific written instructions given by the Contracting Officer directing the manner of performance. The entire liability to the Government for infringement of a patent of the United States shall be determined solely by the provisions of the indemnity clause, if any, included in this contract or any subcontract hereunder (including any lower-tier subcontract), and the Government assumes liability for all other infringement to the extent of the authorization and consent hereinabove granted.

(b) The Contractor agrees to include, and require inclusion of, this clause, suitably modified to identify the parties, in all subcontracts at any tier for supplies or services (including construction, architect-engineer services, and materials, supplies, models, samples, and design or testing services expected to exceed the simplified acquisition threshold); however, omission of this clause from any subcontract, including those at or below the simplified acquisition threshold, does not affect this authorization and consent.

(End of clause)

66. PATENT INDEMNITY--CONSTRUCTION CONTRACTS (APR 1984) FAR 52.227-4

Except as otherwise provided, the Contractor agrees to indemnify the Government and its officers, agents, and employees against liability, including costs and expenses, for infringement upon any United States patent (except a patent issued upon an application that is now or may hereafter be withheld from issue pursuant to a Secrecy Order under 35 U.S.C. 181) arising out of performing this contract or out of the use or disposal by or for the account of the Government of supplies furnished or work performed under this contract.

(End of clause)

67. RIGHTS IN SHOP DRAWINGS (APR 1966) DFARS 252.227-7033

(a) Shop drawings for construction means drawings, submitted to the Government by the Construction Contractor, subcontractor or any lower-tier subcontractor pursuant to a construction contract, showing in detail(i) the proposed fabrication and assembly of structural elements and (ii) the installation (i.e., form, fit, and attachment details) of materials or equipment. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(b) This clause, including this paragraph (b), shall be included in all subcontracts hereunder at any tier.

(End of clause)

68. ADDITIONAL BOND SECURITY (OCT 1997) FAR 52.228-2

The Contractor shall promptly furnish additional security required to protect the Government and persons supplying labor or materials under this contract if--

(a) Any surety upon any bond, or issuing financial institution for other security, furnished with this contract becomes unacceptable to the Government;

(b) Any surety fails to furnish reports on its financial condition as required by the Government;

(c) The contract price is increased so that the penal sum of any bond becomes inadequate in the opinion of the Contracting Officer; or

(d) An irrevocable letter of credit (ILC) used as security will expire before the end of the period of required security. If the Contractor does not furnish an acceptable extension or replacement ILC, or other acceptable substitute, at least 30 days before an ILC's scheduled expiration, the Contracting Officer has the right to immediately draw on the ILC.

(End of clause)

69. INSURANCE--WORK ON A GOVERNMENT INSTALLATION (JAN 1997) FAR 52.228-5

(a) The Contractor shall, at its own expense, provide and maintain during the entire performance of this contract, at least the kinds and minimum amounts of insurance required in the Schedule or elsewhere in the contract.

(b) Before commencing work under this contract, the Contractor shall notify the Contracting Officer in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the

effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective (1) for such period as the laws of the State in which this contract is to be performed prescribed or (2) until 30 days after the insurer or the Contractor gives written notice to the Contracting Officer, whichever period is longer.

(c) The Contractor shall insert the substance of this clause, including this paragraph (c), in subcontracts under this contract that require work on a Government installation and shall require subcontractors to provide and maintain the insurance required in the Schedule or elsewhere in the contract. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the Contracting Officer upon request.

(End of clause)

70. PLEDGES OF ASSETS (FEB 1992) FAR 52.228-11

(a) Offerors shall obtain from each person acting as an individual surety on a bid guarantee, a performance bond, or a payment bond--

(1) Pledge of assets; and

(2) Standard Form 28, Affidavit of Individual Surety.

(b) Pledges of assets from each person acting as an individual surety shall be in the form of--

(1) Evidence of an escrow account containing cash, certificates of deposit, commercial or Government securities, or other assets described in FAR 28.203-2 (except see 28.203-2(b)(2) with respect to Government securities held in book entry form) and/or;

(2) A recorded lien on real estate. The offeror will be required to provide--

(i) Evidence of title in the form of a certificate of title prepared by a title insurance company approved by the United States Department of Justice. This title evidence must show fee simple title vested in the surety along with any concurrent owner; whether any real estate taxes are due and payable; and any recorded encumbrances against the property, including the lien filed in favor of the Government as required by FAR 28.203-3(d);

(ii) Evidence of the amount due under any encumbrance shown in the evidence of title;

(iii) A copy of the current real estate tax assessment of the property or a current appraisal dated no earlier than 6 months prior to the date of the bond, prepared by a professional appraiser who certifies that the appraisal has been conducted in accordance with the generally accepted appraisal standards as reflected in the Uniform Standards of Professional Appraisal Practice, as promulgated by the Appraisal Foundation.

(End of clause)

71. PROSPECTIVE SUBCONTRACTOR REQUESTS FOR BONDS (OCT 1995) FAR 52.228-12

In accordance with Section 806(a)(3) of Pub. L. 102-190, as amended by Sections 2091 and 8105 of Pub. L. 103-355, upon the request of a prospective subcontractor or supplier offering to furnish labor or material for the performance of this contract for which a payment bond has been furnished to the Government pursuant to the Miller Act, the Contractor shall promptly provide a copy of such payment bond to the requester.

(End of clause)

72. FEDERAL, STATE, AND LOCAL TAXES (JAN 1991) FAR 52.229-3

(a) "Contract date," as used in this clause, means the date set for bid opening or, if this is a negotiated contract or a modification, the effective date of this contract or modification

"All applicable Federal, State, and local taxes and duties," as used in this clause, means all taxes and duties, in effect on the contract date, that the taxing authority is imposing and collecting on the transactions or property covered by this contract.

"After-imposed Federal tax," as used in this clause, means any new or increased Federal excise tax or duty, or tax that was exempted or excluded on the contract date but whose exemption was later revoked or reduced during the contract period, on the transactions or property covered by this contract that the Contractor is required to pay or bear as the result of legislative, judicial, or administrative action taking effect after the contract date. It does not include social security tax or other employment taxes.

"After-relieved Federal tax," as used in this clause, means any amount of Federal excise tax or duty, except social security or other employment taxes, that would otherwise have been payable, on the transactions or property covered by this contract, but which the Contractor is not required to pay or bear, or for which the Contractor obtains a refund or drawback, as the result of legislative, judicial, or administrative action taking effect after the contract date.

(b) The contract price includes all applicable Federal, State, and local taxes and duties.

(c) The contract price shall be increased by the amount of any after-imposed Federal tax, provided the Contractor warrants in writing that no amount for such newly imposed Federal excise tax or duty or rate increase was included in the contract price, as a contingency reserve or otherwise.

(d) The contract price shall be decreased by the amount of any after-relieved Federal tax.

(e) The contract price shall be decreased by the amount of any Federal excise tax or duty, except social security or other employment taxes, that the Contractor is required to pay or bear, or does not obtain a refund of, through the Contractor's fault, negligence, or failure to follow instructions of the Contracting Officer.

(f) No adjustment shall be made in the contract price under this clause unless the amount of the adjustment exceed $250.

(g) The Contractor shall promptly notify the Contracting Officer of all matters relating to any Federal excise tax or duty that reasonably may be expected to result in either an increase or decrease in the contract price and shall take appropriate action as the Contracting Officer directs.

(h) The Government shall, without liability, furnish evidence appropriate to establish exemption from any Federal, State, or local tax when the Contractor requests such evidence and a reasonable basis exists to sustain the exemption.

(End of clause)

73. SUPPLEMENTAL COST PRINCIPLES (DEC 1991) DFARS 52.231-7000

When the allowability of costs under this contract is determined in accordance with Part 31 of the Federal Acquisition Regulation (FAR), allowability shall also be determined in accordance with Part 231 of the Defense FAR Supplement, in effect on the date of this contract.

(End of clause)

74. PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS (MAY 1997) FAR 52.232-5

(a) *Payment of price*. The Government shall pay the Contractor the contract price as provided in this contract.

(b) *Progress payments*. The Government shall make progress payments monthly as the work proceeds, or at more frequent intervals as determined by the Contracting Officer, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer.

(1) The Contractor's request for progress payments shall include the following substantiation:

(i) An itemization of the amounts requested, related to the various elements of work required by the contract covered by the payment requested.

(ii) A listing of the amount included for work performed by each subcontractor under the contract.

(iii) A listing of the amount included for work performed by each subcontract under the contract.

(iv) A listing of the amounts previously paid to each such subcontractor under the contract.

(v) Additional supporting data in a form and detail required by the Contracting Officer.

(2) In the preparation of estimates, the Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the site also may be taken into consideration if--

(i) Consideration is specifically authorized by this contract; and

(ii) The Contractor furnishes satisfactory evidence that it has acquired title to such material and that the material will be used to perform this contract.

(c) *Contractor certification*. Along with each request for progress payments, the Contractor shall furnish the following certification, or payment shall not be made: (However, if the Contractor elects to delete paragraph (c)(4) from the certification, the certification is still acceptable.)

I hereby certify, to the best of my knowledge and belief, that--

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and the requirements of chapter 39 of Title 31, United States Code; and

(3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract; and

(4) This certification is not to be construed as final acceptance of a subcontractor's performance.

_____
(Name)

_____
(Title)

_____
(Date)

(d) *Refund of unearned amounts*. If the Contractor, after making a certified request for progress payments, discovers that a portion or all of such request constitutes a payment for performance by the Contractor that fails to conform to the specifications, terms, and conditions of this contract (hereinafter referred to as the "unearned amount"), the Contractor shall--

(1) Notify the Contracting Officer of such performance deficiency; and

(2) Be obligated to pay the Government an amount (computed by the Contracting Officer in the manner provided in paragraph (j) of this clause) equal to interest on the unearned amount from the date of receipt of the unearned amount until--

(i) The date the Contractor notifies the Contracting Officer that the performance deficiency has been corrected; or

(ii) The date the Contractor reduces the amount of any subsequent certified request for progress payments by an amount equal to the unearned amount.

(e) *Retainage*. If the Contracting Officer finds that satisfactory progress was achieved during any period for which a progress payment is to be made, the Contracting Officer shall authorize payment to be made in full. However, if satisfactory progress has not been made, the Contracting Officer may retain a maximum of 10 percent of the amount of the payment until satisfactory progress is achieved. When the work is substantially complete, the Contracting Officer may retain from previously withheld funds and future progress payments that amount the Contracting Officer considers adequate for protection of the Government and shall release to the Contractor all the remaining withheld funds. Also, on completion and acceptance of each separate building, public work, or other division of the contract, for which the price is stated separately in the contract, payment shall be made for the completed work without retention of a percentage.

(f) *Title, liability, and reservation of rights*. All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Government, but this shall not be construed as--

(1) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or

(2) Waiving the right of the Government to require the fulfillment of all of the terms of the contract.

(g) *Reimbursement for bond premiums.* In making these progress payments, the Government shall, upon request, reimburse the Contractor for the amount of premiums paid for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor has furnished evidence of full payment to the surety. The retainage provisions in paragraph (e) of this clause shall not apply to that portion of progress payments attributable to bond premiums.

(h) *Final payment.* The Government shall pay the amount due the Contractor under this contract after--

(1) Completion and acceptance of all work;

(2) Presentation of a properly executed voucher; and

(3) Presentation of release of all claims against the Government arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned under the Assignment of Claims Act of 1940 (31 U.S.C. 3727 and 41 U.S.C. 15).

(i) *Limitation because of undefinitized work.* Notwithstanding any provision of this contract, progress payments shall not exceed 80 percent on work accomplished on undefinitized contract actions. A "contract action" is any action resulting in a contract, as defined in FAR Subpart 2.1, including contract modifications for additional supplies or services, but not including contract modifications that are within the scope and under the terms of the contract, such as contract modifications issued pursuant to the Changes clause, or funding and other administrative changes.

(j) *Interest computation on unearned accounts.* In accordance with 31 U.S.C. 3903(c)(1), the amount payable under subparagraph (d)(2) of this clause shall be--

(1) Computed at the rate of average bond equivalent rates of 91-day Treasury bills auctioned at the most recent auction of such bills prior to the date the Contractor receives the unearned amount; and

(2) Deducted from the next available payment to the Contractor.

(End of clause)

75. INTEREST (JUNE 1996) FAR 52.232-17

(a) Except as otherwise provided in this contract under a Price Reduction for Defective Cost or Pricing Data clause or a Cost Accounting Standards clause, all amounts that become payable by the Contractor to the Government under this contract (net of any applicable tax credit under the Internal Revenue Code (26 U.S.C. 1481)) shall bear simple interest from the date due until paid unless paid within 30 days of becoming due. The interest rate shall be the interest rate established by the Secretary of the Treasury as provided in Section 12 of the Contract Disputes Act of 1978 (Public Law 95-563), which is applicable to the period in which the amount becomes due, as provided in paragraph (b) of this clause, and then at the rate applicable for each six-month period as fixed by the Secretary until the amount is paid.

(b) Amounts shall be due at the earliest of the following dates:

(1) The date fixed under this contract.

(2) The date of the first written demand for payment consistent with this contract, including any demand resulting from a default termination.

(3) The date the Government transmits to the Contractor a proposed supplemental agreement to confirm completed negotiations establishing the amount of debt.

(4) If this contract provides for revision of prices, the date of written notice to the Contractor stating the amount of refund payable in connection with a pricing proposal or a negotiated pricing agreement not confirmed by contract modification.

(c) The interest charge made under this clause may be reduced under the procedures prescribed in 32.614-2 of the Federal Acquisition Regulation in effect on the date of this contract.

(End of clause)

76. ASSIGNMENT OF CLAIMS (JAN 1986) ALTERNATE I (APR 1984) FAR 52.232-23 I

(a) The Contractor, under the Assignment of Claims Act, as amended, 31 U.S.C. 3727, 41 U.S.C. 15 (hereafter referred to as "the Act"), may assign it rights to be paid amounts due or to become due as a result of the performance of this contract to a bank, trust company, or other financing institution, including any Federal lending agency. The assignee under such an assignment may thereafter further assign or reassign its right under the original assignment to any type of financing institution described in the preceding sentence. Unless otherwise stated in this contract, payments to an assignee of any amounts due or to become due under this contract shall not, to the extent specified in the Act, be subject to reduction or setoff.

(b) Any assignment or reassignment authorized under the Act and this clause shall cover all unpaid amounts payable under this contract, and shall not be made to more than one party, except that an assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in the financing of this contract.

(c) The Contractor shall not furnish or disclose to any assignee under this contract any classified document (including this contract) or information related to work under this contract until the Contracting Officer authorizes such action in writing.

(End of clause)

77. PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (JUN 1997) FAR 52.232-27

Notwithstanding any other payment terms in this contract, the Government will make invoice payments and contract financing payments under the terms and conditions specified in this clause. Payment shall be considered as being made on the day a check is dated or an electronic funds transfer. Definitions of pertinent terms are set forth in 32.902 of the Federal Acquisition Regulation. All days referred to in this clause are calendar days, unless otherwise specified. (However, see subparagraph (a)(3) concerning payments due on Saturdays, Sundays, and legal holidays.)

(a) *Invoice Payments*--(1) *Types of invoice payments.* For purposes of this clause, there are several types of invoice payments which may occur under this contract, as follows:

(i) Progress payments, if provided for elsewhere in this contract, based on Contracting Officer approval of the estimated amount and value of work or services performed, including payments for reaching milestones in any project:

(A) The due date for making such payments shall be 14 days after receipt of the payment request by the designated billing office. However, if the designated billing office fails to annotate the payment request with the actual date of receipt at the time of receipt, the payment due date shall be the 14th day after the date of the Contractor's payment request, provided a proper payment request is received and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(B) The due date for payment of any amounts retained by the Contracting Officer in accordance with the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts, shall be as specified in the contract or, if not specified 30 days after approval for release to the Contractor by the Contracting Officer.

(ii) Final payments based on completion and acceptance of all work and presentation of release of all claims against the Government arising by virtue of the contract, and payments for partial deliveries that have been accepted by the Government (e.g., each separate building, public work, or other division of the contract for which the price is stated separately in the contract):

(A) The due date for making such payments shall be either the 30th day after receipt by the designated billing office of a proper invoice from the Contractor, or the 30th day after Government acceptance of the work or services completed by the Contractor, whichever is later. If the designated billing office fails to annotate the invoice with the date of actual receipt at the time of receipt, the invoice payment due date shall be deemed to be the 30th day after the date the Contractor's invoice, provided a proper invoice is received and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(B) On a final invoice where the payment amount is subject to contract settlement actions (e.g., release of claims), acceptance shall be deemed to have occurred on the effective date of the contract settlement.

(2) *Contractor's invoice.* The Contractor shall prepare and submit invoices to the designated billing office specified in the contract. A proper invoice must include the items listed in paragraphs (a)(2)(i) through (a)(2)(ix) of this clause. If the invoice does not comply with these requirements, it shall be returned within 7 days after the date the designated billing office received the invoice, with a statement of the reasons why it is not a property invoice. Untimely notification will be taken into account in computing any interest penalty owed the Contractor in the manner described in subparagraph (a)(4) of this clause.

(i) Name and address of the Contractor

(ii) Invoice date. (The Contractor is encouraged to date invoices as close as possible to the date of mailing or transmission.)

(iii) Contract number or other authorization for work or services performed (including order number and contract line item number).

(iv) Description of work or services performed.

(v) Delivery and payment terms (e.g., prompt payment discount terms).

(vi) Name and address of Contractor official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).

(vii) Name (where practicable), title, phone number, and mailing address of person to be notified in event of a defective invoice.

(viii) For payments described in paragraph (a)(1)(i) of this clause, substantiation of the amounts requested and certification in accordance with the requirements of the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts.

(ix) Any other information or documentation required by the contract.

(x) While not required, the Contractor is strongly encouraged to assign an identification number to each invoice.

(3) *Interest penalty.* An interest penalty shall be paid automatically by the designated payment office, without request from the Contractor, if payment is not made by the due date and the conditions listed in subdivisions (a)(3)(i) through (a)(3)(iii) of this clause are met, if applicable. However, when the due date falls on a Saturday, Sunday, or legal holiday when Federal Government offices are closed and Government business is not expected to be conducted, payment will be made on the following business day without incurring a late payment interest penalty.

(i) A proper invoice was received by the designated billing office.

(ii) A receiving report or other Government documentation authorizing payment was processed and there was no disagreement over quantity, quality, Contractor compliance with any contract term or condition, or requested progress payment amount.

(iii) In the case of a final invoice for any balance of funds due the Contractor for work or services performed, the amount was not subject to further contract settlement actions between the Government and the Contractor.

(4) *Computing penalty amount.* The interest penalty shall be at the rate established by the Secretary of the Treasury under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) that is in effect on the day after the due date, except where the interest penalty is prescribed by other governmental authority (e.g., tariffs). This rate is referred to as the "Renegotiation Board Interest Rate," and it is published in the *Federal Register* semiannually on or about January 1 and July 1. The interest penalty shall accrue daily on the invoice principal payment amount approved by the Government until the payment date of such approved principal amount, and will be compounded in 30-day increments inclusive from the first day after the due date through the payment date. That is, interest accrued at the end of any 30-day period will be added to the approved invoice principal payment amount and be subject to interest penalties if not paid in the succeeding 30-day period. If the designated billing office failed to notify the Contractor of a defective invoice within the periods prescribed in subparagraph (a)(2) of this clause, the due date on the corrected invoice will be adjusted by subtracting the number of days taken beyond the prescribed notification of defects period. Any interest penalty owed the Contractor will be based on this adjusted due date. Adjustments will be made by the designated payment office for errors in calculating interest penalties.

(i) For the sole purpose of computing an interest penalty that might be due the Contractor for payments described in subdivision (a)(1)(ii) of this clause, Government acceptance or approval shall be deemed to have occurred constructively on the 7th day after the Contractor has completed the work or services in accordance with the terms and conditions of the contract. In the event that actual acceptance or approval occurs within the constructive acceptance or approval period the determination of an interest penalty shall be based on the actual date of acceptance or approval. Constructive acceptance or constructive approval requirements do not apply if there is a disagreement over quantity, quality, or Contractor compliance with a contract provision. These requirements also do not compel Government officials to accept work or services, approve Contractor estimates, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The following periods of the time will not be included in the determination of an interest penalty:

(A) The period taken to notify the Contractor of defects in invoices submitted to the Government, but this may not exceed 7 days.

(B) The period between the defects notice and resubmission of the corrected invoice by the Contractor.

(C) For incorrect electronic funds transfer (EFT) information, in accordance with the EFT clause of this contract

(iii) Interest penalties will not continue to accrue after the filing of a claim for such penalties under the clause at 52.233-1, Disputes, or for more than 1 year. Interest penalties of less than $1.00 need not be paid.

(iv) Interest penalties are not required on payment delays due to disagreement between the Government and the Contractor over the payment amount or other issues involving contract compliance, or on amounts temporarily withheld or retained in accordance with the terms of the contract. Claims involving disputes, and any interest that may be payable, will be resolved in accordance with the clause at 52.233-1, Disputes.

(5) *Prompt payment discounts.* An interest penalty shall also be paid automatically by the designated payment office, without request from the Contractor, if a discount for prompt payment is taken improperly. The interest penalty will be calculated on the amount of discount taken for the period beginning with the first day after the end of the discount period through the date when the Contractor is paid.

(6) *Additional interest penalty.* (i) If this contract was awarded on or after October 1, 1989, a penalty amount, calculated in accordance with subdivision (a)(6)(iii) of this clause, shall be paid in addition to the interest penalty amount if the Contractor--

(A) Is owed an interest penalty of $1 or more;

(B) Is not paid the interest penalty within 10 days after the date the invoice amount is paid; and

(C) Makes a written demand to the designated payment office for additional penalty payment, in accordance with subdivision (a)(6)(ii) of this clause, postmarked not later than 40 days after the date the invoice amount is paid.

(ii) (A) Contractors shall support written demands for additional penalty payments with the following data. No additional data shall be required. Contractors shall--

(1) Specifically assert that late payment interest is due under a specific invoice, and request payment of all overdue late payment interest penalty and such additional penalty as may be required;

(2) Attach a copy of the invoice on which the unpaid late payment interest was due; and

(3) State that payment of the principal has been received, including the date of receipt.

(B) Demands may be postmarked on or before the 40th day after payment was made, except that--

(1) If the postmarked is illegible or nonexistent, the demand must have been received and annotated with the date of receipt by the designated payment office on or before the 40th day after payment was made; or

(2) If the postmark is illegible or nonexistent and the designated payment office fails to make the required annotation, the demand's validity will be determined by the date the Contractor has placed on the demand; provided such date is no later than the 40th day after payment was made.

(iii) (A) The additional penalty shall be equal to 100 percent of any original late payment, except--

(1) The additional penalty shall not exceed $5,000;

(2) The additional penalty shall never be less than $25; and

(3) No additional penalty is owed if the amount of the underlying interest penalty is less than $1.

(B) If the interest penalty ceases to accrue in accordance with the limits stated in subdivision (a)(4)(iii) of this clause, the amount of the additional penalty shall be calculated on the amount of interest penalty that would have accrue in the absence of these limits, subject to the overall limits on the additional penalty specified in subdivision (a)(6)(iii)(a) of the clause.

(C) For determining the maximum and minimum additional penalties, the test shall be the interest penalty due on each separate payment made for each separate contract. The maximum and minimum additional penalty shall not be based upon individual invoices unless the invoices are paid separately. Where payments are consolidated for disbursing purposes, the maximum and minimum additional penalty determination shall be made separately for each contract therein.

(D) The additional penalty does not apply to payments regulated by other Government regulations (e.g., payments under utility contracts subject to tariffs and regulation).

(b) *Contract Financing Payments*. (1) *Due dates for recurring financing payments.* If this contract provides for contract financing, requests for payment shall be submitted to the designated billing office as specified in this contract or as directed by the Contracting Officer. Contract financing payment shall be made on the 30th day after receipt of a proper contract financing request by the designated billing office. In the event that an audit or other review of a specific financing request is required to ensure compliance with the terms and conditions of the contract, the designated payment office is not compelled to make payment by the due date specified.

(2) *Due dates for other contract financing.* For advance payments, loans, or other arrangements that do not involve recurring submissions of contract financing requests, payment shall be made in accordance with the corresponding contract terms or as directed by the Contracting Officer.

(3) *Interest penalty not applicable.* Contract financing payments shall not be assessed an interest penalty for payment delays.

(c) *Subcontract clause requirements.* The Contractor shall include in each subcontract for property or services (including a material supplier) for the purpose of performing this contract the following:

(1) *Prompt payment for subcontractors.* A payment clause which obligates the Contractor to pay the subcontractor for satisfactory performance under its subcontract not later than 7 days from receipt of payment out of such amounts as are paid to the Contractor under this contract.

(2) *Interest for subcontractors.* An interest penalty clause which obligates the Contractor to pay to the subcontractor an interest penalty for each payment not made in accordance with the payment clause--

(i) For the period beginning on the day after the required payment date and ending on the date on which payment of the amount due to made; and

(ii) Computed at the rate of interest established by the Secretary of the Treasury, and published in the *Federal Register*, for interest payments under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligations to pay an interest penalty.

(3) *Subcontract clause flowdown* A clause requiring each subcontractor to include a payment clause and an interest penalty clause conforming to the standards set forth in subparagraphs (c)(1) and (c)(2) of this clause in each of its

subcontracts, and to require each of its subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or supplier.

(d) *Subcontract clause interpretation.* The clauses required by paragraph (c) of this clause shall not be construed to impair the right of Contractor or a subcontractor at any tier to negotiate, and to include in their subcontract, provisions that--

(1) *Retainage permitted.* Permit the Contractor or a subcontractor to retain (without cause) a specified percentage of each progress payment otherwise due to a subcontractor for satisfactory performance under the subcontract without incurring any obligation to pay a late payment interest penalty, in accordance with terms and conditions agreed to by the parties to the subcontract, giving such recognition as the parties deem appropriate to the ability of a subcontractor to furnish a performance bond and payment bond;

(2) *Withholding permitted.* Permit the Contractor or subcontractor to make a determination that part or all of the subcontractor's request for payment may be withheld in accordance with the subcontract agreement; and

(3) *Withholding requirements.* Permit such withholding without incurring any obligation to pay a late payment penalty if--

(i) A notice conforming to the standards of paragraph (g) of this clause previously has been furnished to the subcontractor; and

(ii) A copy of any notice issued by a Contractor pursuant to subdivision (d)(3)(i) of this clause has been furnished to the Contracting Officer.

(e) *Subcontractor withholding procedures*. If a Contractor, after making a request for payment to the Government but before making a payment to a subcontractor for the subcontractor's performance covered by the payment request, discovers that all or a portion of the payment otherwise due such subcontractor is subject to withholding from the subcontractor in accordance with the subcontract agreement, then the Contractor shall--

(1) *Subcontractor notice*. Furnish to the subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon ascertaining the cause giving rise to a withholding, but prior to the due date for subcontractor payment;

(2) *Contracting Officer notice.* Furnish to the Contracting Officer, as soon as practicable, a copy of the notice furnished to the subcontractor pursuant to subparagraph (e)(1) of this clause;

(3) *Subcontractor progress payment reduction.* Reduce the subcontractor's progress payment by an amount not to exceed the amount specified in the notice of withholding furnished under subparagraph (e)(1) of this clause;

(4) *Subsequent subcontractor payment.* Pay the subcontractor as soon as practicable after the correction of the identified subcontract performance deficiency, and--

(i) Make such payment within--

(A) Seven days after correction of the identified subcontract performance deficiency (unless the funds therefor must be recovered from the Government because of a reduction under subdivision (e)(5)(i)) of this clause; or

(B) Seven days after the Contractor recovers such funds from the Government; or

(ii) Incur an obligation to pay a late payment interest penalty computed at the rate of interest established by the Secretary of the Treasury, and published in the *Federal Register*, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty;

(5) *Notice to Contracting Officer*. Notify the Contracting Officer upon--

(i) Reduction of the amount of any subsequent certified application for payment; or

(ii) Payment to the subcontractor of any withheld amounts of a progress payment, specifying--

(A) The amounts withheld under subparagraph (e)(1) of this clause; and

(B) The dates that such withholding began and ended; and

(6) *Interest to Government.* Be obligated to pay to the Government an amount equal to interest on the withheld payments (computed in the manner provided in 31 U.S.C. 3903(c)(1)), from the 8th day after receipt of the withheld amounts from the Government until--

(i) The day the identified subcontractor performance deficiency is corrected; or

(ii) The date that any subsequent payment is reduced under subdivision (e)(5)(i) of this clause.

(f) *Third-party deficiency reports.* (1) *Withholding from subcontractor*. If a Contractor, after making payment to a first-tier subcontractor, receives from a supplier or subcontractor of the first-tier subcontractor (hereafter referred to as a "second-tier subcontractor") a written notice in accordance with section 2 of the Act of August 24, 1935 (40 U.S.C. 270b, Miller Act), asserting a deficiency in such first-tier subcontractor's performance under the contract for which the Contractor may be ultimately liable, and the Contractor determines that all or a portion of future payments otherwise due such first-tier subcontractor is subject to withholding in accordance with the subcontract agreement, the Contractor may, without incurring an obligation to pay an interest penalty under subparagraph (e)(6) of this clause--

(i) Furnish to the first-tier subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon making such determination; and

(ii) Withhold from the first-tier subcontractor's next available progress payment or payments an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (f)(1)(i) of this clause.

(2) *Subsequent payment or interest charge.* As soon as practicable, but not later than 7 days after receipt of satisfactory written notification that the identified subcontract performance deficiency has been corrected, the Contractor shall (i) Pay the amount withheld under paragraph (f)(1)(ii) of this clause to such first-tier subcontractor; or (ii) Incur an obligation to pay a late payment interest penalty to such first-tier subcontractor computed at the rate of interest established by the Secretary of the Treasury, and published in the *Federal Register*, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(g) *Written notice of subcontractor withholding.* A written notice of any withholding shall be issued to a subcontractor (with a copy to the Contracting Officer of any such notice issued by the Contractor), specifying--

(1) The amount to be withheld;

(2) The specific causes for the withholding under the terms of the subcontract; and

(3) The remedial actions to be taken by the subcontractor in order to receive payment of the amounts withheld.

(h) *Subcontractor payment entitlement.* The Contractor may not request payment from the Government of any amount withheld or retained in accordance with paragraph (d) of this clause until such time as the Contractor has determined and certified to the Contracting Officer that the subcontractor is entitled to the payment of such amount.

(i) *Prime-subcontractor disputes.* A dispute between the Contractor and subcontractor relating to the amount or entitlement of a subcontractor to a payment or a late payment interest penalty under a clause included in the subcontract pursuant to paragraph (c) of this clause does not constitute a dispute to which the United States is a party. The United States may not be interpleaded in any judicial or administrative proceeding involving such a dispute.

(j) *Preservation of prime-subcontractor rights.* Except as provided in paragraph (i) of this clause, this clause shall not limit or impair any contractual, administrative, or judicial remedies otherwise available to the Contractor or a subcontractor in the event of a dispute involving late payment or nonpayment by the Contractor or deficient subcontract performance or nonperformance by a subcontractor.

(k) *Non-recourse for prime contractor interest penalty.* The Contractor's obligation to pay an interest penalty to a subcontractor pursuant to the clauses included in a subcontract under paragraph (c) of this clause shall not be construed to be an obligation of the United States for such interest penalty. A cost reimbursement claim may not include any amount for reimbursement of such interest penalty.

(End of clause)

78. PAYMENT BY ELECTRONIC FUNDS TRANSFER—CENTRAL CONTRACTOR REGISTRATION (MAY 1999) FAR 52.232-33

(a) Method of payment. (1) All payments by the Government under this contract shall be made by electronic funds transfer (EFT), except as provided in paragraph (a)(2) of this clause. As used in this clause, the term "EFT" refers to the funds transfer and may also include the payment information transfer.

(2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either –

(i) Accept payment by check or some other mutually agreeable method of payment; or

(ii) Request the Government to extend the payment due date until such time as the Government can make payment by EFT (but see paragraph (d) of this clause).

(b) Contractor's EFT information. The Government shall make payment to the Contractor using the EFT information contained in the Central Contractor Registration (CCR) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the CCR database.

(c) Mechanisms for EFT payment. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Claring House Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.

(d) Suspension of payment. If the Contractor's EFT information in the CCR database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the CCR database; and any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(e) Contractor EFT arrangements. If the Contractor has identified multiple payment receiving points (i.e., more than one remittance address or EFT information set) in the CCR database, and the Contractor has not notified the Government

of the payment receiving point applicable to this contract, the Government shall make payment to the first payment receiving point (EFT information set or remittance address as applicable) listed in the CCR database.

(f) Liability for uncompleted or erroneous transfers. (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for—

(i) Making a correct payment;

(ii) Paying any prompt payment penalty due; and

(iii) Recovering any erroneously directed funds.

(2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and—

(i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or

(ii) If the funds remain under the control of the payment office, the Government shall not make payment, and the provisions of paragraph (d) of this clause shall apply.

(g) EFT and prompt payment. A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.

(h) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee register in the CCR database and be paid by EFT in accordance with the terms of this clause. In all respects, the requirements of this clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.

(j) Liability for change of EFT information by financial agent. The Government is not liable for errors resulting from changes to EFT information made by the Contractor's financial agent.

(k) Payment information. The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Contractor has certified in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address contained in the CCR database.

(End of clause)

79. DISPUTES (DEC 1998) FAR 52.233-1

(a) This contract is subject to the Contract Disputes Act of 1978, as amended (41 U.S.C. 601-613).

(b) Except as provided in the Act, all disputes arising under or relating to this contract shall be resolved under this clause.

(c) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to this contract. A claim arising under a contract, unlike a claim relating to that contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. However, a written demand or written assertion by the Contractor seeking the payment of money exceeding $100,000 is not a claim under the Act until certified as required by subparagraph (d)(2) of this clause. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim under the Act. The submission may be converted to a claim under the Act, by complying with the submission and certification requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(d)(1) A claim by the Contractor shall be made in writing and, unless otherwise stated in this contract, submitted within 6 years after accrual of the claim to the Contracting Officer for a written decision. A claim by the Government against the Contractor shall be subject to a written decision by the Contracting Officer.

(2)(i) Contractors shall provide the certification specified in paragraph (d)(2)(iii) of this clause when submitting any claim exceeding $100,000.

(ii) The certification requirement does not apply to issues in controversy that have not been submitted as all or part of a claim.

(iii) The certification shall state as follows: "I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Government is liable; and that I am duly authorized to certify the claim on behalf of the Contractor."

(3) The certification may be executed by any person duly authorized to bind the Contractor with respect to the claim.

(e) For Contractor claims of $100,000 or less, the Contracting Officer must, if requested in writing by the Contractor, render a decision within 60 days of the request. For Contractor-certified claims over $100,000, the Contracting Officer must, within 60 days, decide the claim or notify the Contractor of the date by which the decision will be made.

(f) The Contracting Officer's decision shall be final unless the Contractor appeals or files a suit as provided in the Act.

(g) If the claim by the Contractor is submitted to the Contracting Officer or a claim by the Government is presented to the Contractor, the parties, by mutual consent, may agree to use alternative disputes resolution (ADR). If the Contractor refuses an offer for ADR, the Contractor shall inform the Contracting Officer, in writing, of the Contractor's specific reasons for rejecting the offer.

(h) The government shall pay interest on the amount found due and unpaid from (1) the date that the Contracting Officer receives the claim (certified, if required); or (2) the date that payment otherwise would be due, if that date is later, until the date of payment. With regard to claims having defective certification, as defined in FAR 33.201, interest shall be paid from the date that the Contracting Officer initially receives the claim. Simple interest on claim shall be paid at the rate, fixed by the Secretary of the Treasury as provided in the Act, which is applicable to the period during which the Contracting Officer receives the claim and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pendency of the claim.

(i) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under the contract, and comply with any decision of the Contracting Officer.

(End of clause)

80. PROTEST AFTER AWARD (AUG 1996) FAR 52.233-3

(a) Upon receipt of a notice of protest (as defined in FAR 33.101) or a determination that a protest is likely (see FAR 33.102(d)), the Contracting Officer may, by written order to the Contractor, direct the Contractor to stop performance of the work called for by this contract. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Upon receipt of the final decision in the protest, the Contracting Officer shall either--

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

(b) If a stop-work order issued under this clause is canceled either before or after a final decision in the protest, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if--

(1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

(2) The Contractor asserts its right to an adjustment within 30 days after the end of the period of work stoppage; *provided*, that if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon a proposal submitted at any time before final payment under this contract.

(c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

(d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

(e) The Government's rights to terminate this contract at any time are not affected by action taken under this clause.

(f) If, as the result of the Contractor's intentional or negligent misstatement, misrepresentation, or miscertification, a protest related to this contract is sustained, and the Government pays costs, as provided in FAR 33.102(b)(2) or 33.104(h)(1), the Government may require the Contractor to reimburse the Government the amount of such costs. In

addition to any other remedy available, and pursuant to the requirements of Subpart 32.6, the Government may collect this debt by offsetting the amount against any payment due the Contractor under any contract between the Contractor and the Government.

(End of clause)

81. DIFFERING SITE CONDITIONS (APR 1984) FAR 52.236-2

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, an equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; *provided*, that the time prescribed in paragraph (a) of this clause for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

(End of clause)

81. SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984) FAR 52.236-3

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as to this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Government, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Government.

(b) The Government assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Government. Nor does the Government assume responsibility for any understanding reached or representation made concerning conditions that can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

(End of clause)

83. MATERIAL AND WORKMANSHIP (APR 1984) FAR 52.236-5

(a) All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the

Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide all information concerning the material or articles. When directed to do so, the Contractor shall submit samples for approval at the Contractor's expense, with all shipping at the Contractor's expense, with all shipping charges prepaid. Machinery, equipment, material, and articles that to not have the required approval shall be installed or used at the risk of subsequent rejection.

(c) All work under this contract shall be performed in a skillful and workmanlike manner. The Contracting Officer may require, in writing, that the Contractor remove from the work any employee the Contracting Officer deems incompetent, careless, or otherwise objectionable.

(End of clause)

84. SUPERINTENDENCE BY THE CONTRACTOR (APR 1984) FAR 52.236-6

At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the worksite a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

(End of clause)

85. PERMITS AND RESPONSIBILITIES (NOV 1991) FAR 52.236-7

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

(End of clause)

86. OTHER CONTRACTS (APR 1984) FAR 52.236-8

The Government may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with Government employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by Government employees.

(End of clause)

87. PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS (APR 1984) FAR 52.236-9

(a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

(b) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site, and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

(End of clause)

88. OPERATIONS AND STORAGE AREAS (APR 1984) FAR 52.236-10

(a) The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

(b) Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

(c) The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

(End of clause)

89. USE AND POSSESSION PRIOR TO COMPLETION (APR 1984) FAR 52.236-11

(a) The Government shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the Government intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The Government's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the Government has such possession or use, the Contractor shall be relieved of the responsibility for the loss of or damage to the work resulting from the Government's possession or use, notwithstanding the terms of the clause in this contract entitled "Permits and Responsibilities." If prior possession or use by the Government delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

(End of clause)

90. CLEANING UP (APR 1984) FAR 52.236-12

The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Contractor shall remove from the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Government. Upon completing the work, the Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer.

(End of clause)

91. ACCIDENT PREVENTION (NOV 1991)--ALTERNATE I (NOV 1991) FAR 52.236-13 I

(a) The Contractor shall provide and maintain work environments and procedures which will (1) safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to Contractor operations and activities; (2) avoid interruptions of Government operations and delays in project completion dates; and (3) control costs in the performance of this contract.

(b) For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the Contractor shall--

(1) Provide appropriate safety barricades, signs, and signal lights;

(2) Comply with the standards issued by the Secretary of Labor at 29 CFR Part 1926 and 29 CFR Part 1910; and

(3) Ensure that any additional measures the Contracting Officer determines to be reasonably necessary for the purposes are taken.

(c) If this contract is for construction or dismantling, demolition or removal of improvements with any Department of Defense agency or component, the Contractor shall comply with all pertinent provisions of the latest version of U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation.

(d) Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or Government personnel, the Contracting Officer shall notify the Contractor orally, with written confirmation, and request immediate initiation of corrective action. This notice, when delivered to the Contractor or the Contractor's representative at the work site, shall be deemed sufficient notice of the noncompliance and that corrective action is required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any stop work order issued under this clause.

(e) The Contractor shall insert this clause, including this paragraph (e), with appropriate changes in the designation of the parties, in subcontracts.

(f) Before commencing the work, the Contractor shall--

(1) Submit a written proposed plan for implementing this clause. The plan shall include an analysis of the significant hazards to life, limb, and property inherent in contract work performance and a plan for controlling these hazards; and

(2) Meet with representatives of the Contracting Officer to discuss and develop a mutual understanding relative to administration of the overall safety program.

(End of clause)

92. SCHEDULES FOR CONSTRUCTION CONTRACTS (APR 1984) FAR 52.236-15

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payment until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as directed by the Contracting Officer, and upon doing so shall immediately delivery three copies of the annotated schedule to the Contracting Officer. If, in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the Government. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of this contract.

(End of clause)

93. SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FEB 1997) FAR 52.236-21

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words “directed”, “required”, “ordered”, “designated”, “prescribed”, or words of like import are used, it shall be understood that the “direction”, “requirement”, “order”, “designation”, or “prescription”, of the Contracting Officer is intended and similarly the words “approved”, “acceptable”, “satisfactory”, or words of like import shall mean “approved by,” or “acceptable to”, or “satisfactory to” the Contracting Officer, unless otherwise expressly stated.

(c) Where “as shown”, “as indicated”, “as detailed”, or words of similar import are used, it shall be understood that reference is made to the drawings accompanying this contract unless stated otherwise. The word “provided” as used herein shall be understood to mean “provide complete in place”, that is furnished and installed”.

(d) Shop drawings means drawings, submitted to the Government by the Contractor, subcontractor, or any lower tier subcontractor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the contractor to explain in detail specific portions of the work required by the contract. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor’s approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the Government’s reasons therefor. Any work done before such approval shall be at the Contractor’s risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the Contracting Officer and one set will be returned to the Contractor.

(End of clause)

94. PRECONSTRUCTION CONFERENCE (FEB 1995) FAR 52.236-26

If the Contracting Officer decides to conduct a preconstruction conference, the successful offeror will be notified and will be required to attend. The Contracting Officer’s notification will include specific details regarding the date, time, and location of the conference, any need for attendance by subcontractors, and information regarding the items to be discussed.

(End of clause)

95. MODIFICATION PROPOSALS--PRICE BREAKDOWN (DEC 1991)
DFARS 252.236-7000

(a) The Contractor shall furnish a price breakdown, itemized as required and within the time specified by the Contracting Officer, with any proposal for a contract modification.

(b) The price breakdown--

(1) Must include sufficient detail to permit analysis of profit, and of all costs for--

(i) Material;

(ii) Labor;

(iii) Equipment;

(iv) Subcontracts; and

(v) Overhead; and

(2) Must cover all work involved in the modification, whether the work was deleted, added, or changed.

(c) The Contractor shall provide similar price breakdowns to support any amounts claimed for subcontracts.

(d) The Contractor’s proposal shall include a justification for any time extension proposed.

(End of clause)

96. BANKRUPTCY (JUL 1995) FAR 52.242-13

In the event the Contractor enters into proceedings relating to bankruptcy, whether voluntary or involuntary, the Contractor agrees to furnish, by certified mail or electronic commerce method authorized by the contract, written notification of the bankruptcy to the Contracting Officer responsible for administering the contract. This notification shall be furnished within five days of the initiation of the proceedings relating to bankruptcy filing. This notification shall include the date on which the bankruptcy petition was filed, the identity of the court in which the bankruptcy petition was filed, and a listing of Government contract numbers and contracting offices for all Government contracts against which final payment has not been made. This obligation remains in effect until final payment under this contract.

(End of clause)

97. SUSPENSION OF WORK (APR 1984) FAR 52.242-14

(a) The Contracting Officer may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified in this contract (or within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract.

(c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

(End of clause)

98. POSTAWARD CONFERENCE (DEC 1991) DFARS 252.242-7000

The Contractor agrees to attend any postaward conference convened by the contracting activity or contract administration office in accordance with Federal Acquisition Regulation Subpart 42.5.

(End of clause)

99. CHANGES (AUG 1987) FAR 52.243-4

(a) The Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes--

(1) In the specifications (including drawings and designs);

(2) In the method or manner or performance of the work;

(3) In the Government-furnished facilities, equipment, materials, services, or site; or

(4) Directing acceleration in the performance of the work.

(b) Any other written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; *provided*, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances, and source of the order and (2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement, or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for an adjustment based on defective specifications, no adjustment for any change under paragraph (b) of this clause shall be made for any costs incurred more than 20 days before the Contractor gives written notice as required. In the case of defective specifications

for which the Government is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting to the Contracting Officer a written statement describing the general nature and amount of proposal, unless this period is extended by the Government. The statement of proposal for adjustment may be included in the notice under paragraph (b) above.

(f) No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(End of clause)

100. PRICING OF CONTRACT MODIFICATIONS (DEC 1991) DFARS 252.243-7001

When costs are a factor in any price adjustment under this contract, the contract cost principles and procedures in FAR Part 31 and DFARS Part 231, in effect on the date of this contract, apply.

(End of clause)

101. REQUESTS FOR EQUITABLE ADJUSTMENT (MAR 1998) DFARS 252.243-7002

(a) The amount of any request for equitable adjustment to contract terms shall accurately reflect the contract adjustment for which the Contractor believes the Government is liable. The request shall include only costs for performing the change, and shall not include any costs that already have been reimbursed or that have been separately claimed. All indirect costs included in the request shall be properly allocable to the change in accordance with applicable acquisition regulations.

(b) In accordance with 10 U.S.C. 2410(a), any request for equitable adjustment to contract terms that exceeds the simplified acquisition threshold shall bear, at the time of submission, the following certificate executed by an individual authorized to certify the request on behalf of the Contractor:

> I certify that the request is made in good faith, and that the supporting data are accurate and complete to the best of my knowledge and belief.
>
> _____
> (Official's Name)
>
> _____
> (Title)

(c) The certification in paragraph (b) of this clause requires full disclosure of all relevant facts, including—

(1) Cost or pricing data if required in accordance with subsection 15.403-4 of the Federal Acquisition Regulation (FAR); and

(2) Information other than cost or pricing data, in accordance with subsection 15.403-3 of the FAR, including actual cost data and data to support any estimated costs, even if cost or pricing data are not required.

(d) The certification requirement in paragraph (b) of this clause does not apply to—

(1) Requests for routine contract payments; for example, requests for payment for accepted supplies and services, routine vouchers under a cost-reimbursement type contract, or progress payment invoices; or

(2) Final adjustments under an incentive provision of the contract.

(End of clause)

102. GOVERNMENT PROPERTY (FIXED-PRICE CONTRACTS) (DEC 1989) FAR 52.245-2

NOTE: This clause applies only when the acquisition cost of all Government-furnished property to be involved in the contract is more than $100,000.

(a) *Government-furnished property*. (1) The Government shall deliver to the Contractor, for use in connection with and under the terms of this contract, the Government-furnished property described in the Schedule or specifications together with any related data and information that the Contractor may request and is reasonably required for the intended use of the property (hereinafter referred to as "Government-furnished property").

(2) The delivery or performance dates for this contract are based upon the expectation that Government-furnished property suitable for use (except for property furnished "as is") will be delivered to the Contractor at the times stated in the Schedule or, if not so stated, in sufficient time to enable the Contractor to meet the contract's delivery or performance dates.

(3) If Government-furnished property is received by the Contractor in a condition not suitable for the intended use, the Contractor shall, upon receipt of it, notify the Contracting Officer, detailing the facts, and, as directed by the Contracting Officer and at Government expense, either repair, modify, return, or otherwise dispose of the property. After completing the directed action and upon written request of the Contractor, the Contracting Officer shall make an equitable adjustment as provided in paragraph (h) of this clause.

(4) If Government-furnished property is not delivered to the Contractor by the required time, the Contracting Officer shall, upon the Contractor's timely written request, make a determination of the delay, if any, caused the Contractor and shall make an equitable adjustment in accordance with paragraph (h) of this clause.

(b) *Changes in Government-furnished property*. (1) The Contracting Officer may, by written notice, (i) decrease the Government-furnished property provided or to be provided under this contract, or (ii) substitute other Government-furnished property for the property to be provided by the Government, or to be acquired by the Contractor for the Government, under this contract. The Contractor shall promptly take such action as the Contracting Officer may direct regarding the removal, shipment, or disposal of the property covered by such notice.

(2) Upon the Contractor's written request, the Contracting Officer shall make an equitable adjustment to the contract in accordance with paragraph (h) of this clause, if the Government has agreed in the Schedule to make the property available for performing this contract and there is any--

(i) Decrease or substitution in this property pursuant to subparagraph (b)(1) above; or

(ii) Withdrawal of authority to use this property, if provided under any other contract or lease.

(c) *Title in Government property*. (1) The Government shall retain title to all Government-furnished property.

(2) All Government-furnished property and all property acquired by the Contractor, title to which vests in the Government under this paragraph (collectively referred to as "Government property"), are subject to the provisions of this clause. However, special tooling accountable to this contract is subject to the provisions of the Special Tooling clause and is not subject to the provisions of this clause. Title to Government property shall not be affected by its incorporation into or attachment to any property not owned by the Government, nor shall Government property become a fixture or lose its identity as personal property by being attached to any real property.

(3) Title to each item of facilities and special test equipment acquired by the Contractor for the Government under this contract shall pass to and vest in the Government when its use in performing this contract commences or when the Government has paid for it, whichever is earlier, whether or not title previously vested in the Government.

(4) If this contract contains a provision directing the Contractor to purchase material for which the Government will reimburse the Contractor as a direct item of cost under this contract--

(i) Title to material purchased from a vendor shall pass to and vest in the Government upon the vendor's delivery of such material; and

(ii) Title to all other material shall pass to and vest in the Government upon--

(A) Issuance of the material for use in contract performance;

(B) Commencement of processing of the material or its use in contract performance; or

(C) Reimbursement of the cost of the material by the Government, whichever occurs first.

(d) *Use of Government property*. The Government property shall be used only for performing this contract, unless otherwise provided in the contract or approved by the Contracting Officer.

(e) *Property administration*. (1) The Contractor shall be responsible and accountable for all Government property provided under this contract and shall comply with Federal Acquisition Regulation (FAR) Subpart 45.5, as in effect on the date of this contract.

(2) The Contractor shall establish and maintain a program for the use, maintenance, repair, protection, and preservation of Government property in accordance with sound industrial practice and the applicable provisions of Subpart 45.5 of the FAR.

(3) If damage occurs to Government property, the risk of which has been assumed by the Government under this contract, the Government shall replace the items or the Contractor shall make such repairs as the Government directs. However, if the Contractor cannot effect such repairs with the time required, the Contractor shall dispose of the property as directed by the Contracting Officer. When any property for which the Government is responsible is replaced or repaired, the Contracting Officer shall make an equitable adjustment in accordance with paragraph (h) of this clause.

(4) The Contractor represents that the contract price does not include any amount for repairs or replacement for which the Government is responsible. Repairs or replacement of property for which the Contractor is responsible shall be accomplished by the Contractor at its own expense.

(f) *Access*. The Government and all its designees shall have access at all reasonable times to the premises in which any Government property is located for the purpose of inspecting the Government property.

(g) *Risk of loss*. Unless otherwise provided in this contract, the Contractor assumes the risk of, and shall be responsible for, any loss or destruction of, or damage to, Government property upon its delivery to the Contractor or upon passage of title to the Government under paragraph (c) of this clause. However, the Contractor is not responsible for reasonable wear and tear to Government property or for Government property properly consumed in performing this contract.

(h) *Equitable adjustment*. When this clause specifies an equitable adjustment, it shall be made to any affected contract provision in accordance with the procedures of the Changes clause. When appropriate, the Contracting Officer may initiate an equitable adjustment in favor of the Government. The right to an equitable adjustment shall be the Contractor's exclusive remedy. The Government shall not be liable to suite for breach of contract for--

(1) Any delay in delivery of Government-furnished property;

(2) Delivery of Government-furnished property in a condition not suitable for its intended use;

(3) A decrease in or substitution of Government-furnished property; or

(4) Failure to repair or replace Government property for which the Government is responsible.

(i) *Final accounting and disposition of Government property* Upon completing this contract, or at such earlier dates as may be fixed by the Contracting Officer, the Contractor shall submit, in a form acceptable to the Contracting Officer, inventory schedules covering all items of Government property (including any resulting scrap) not consumed in performing this contract or delivered to the Government. The Contractor shall prepare for shipment, delivery f.o.b. origin, or dispose of the Government property as may be directed or authorized by the Contracting Officer. The net proceeds of any such disposal shall be credited to the contract price or shall be paid to the Government as the Contracting Officer directs.

(j) *Abandonment and restoration of Contractor's premises*. Unless otherwise provided herein, the Government--

(1) May abandon any Government property in place, at which time all obligations of the Government regarding such abandoned property shall cease; and

(2) Has no obligation to restore or rehabilitate the Contractor's premises under any circumstances (e.g., abandonment, disposition upon completion of need, or upon contract completion). However, if the Government-furnished property (listed in the Schedule or specifications) is withdrawn or is unsuitable for the intended use, or if other Government property is substituted, then the equitable adjustment under paragraph (h) of this clause may properly include restoration or rehabilitation costs.

(k) *Communications*. All communications under this clause shall be in writing.

(l) *Overseas contracts*. If this contract is to be performed outside of the United States of America, its territories, or possessions, the words "Government" and "Government-furnished" (wherever they appear in this clause) shall be construed as "United States Government" and "United States Government-furnished," respectively.

(End of clause)

103 . GOVRNMENT-FURNISHED PROPERTY (SHORT FORM) (APR 1984) FAR 52.245-4

NOTE: This clause applies only when the acquisition cost of all Government-furnished property to be involved in the contract is $100,000 or less.

(a) The Government shall delivery to the Contractor, at the time and locations stated in this contract, the Government-furnished property described in the Schedule or specifications. If that property, suitable for its intended used, is not delivered to the Contractor, the Contracting Officer shall equitably adjust affected provisions of this contract in accordance with the Changes clause when--

(1) The Contractor submits a timely written request for an equitable adjustment; and

(2) The facts warrant an equitable adjustment.

(b) Title to Government-furnished property shall remain in the Government. The Contractor shall use the Government-furnished property only in connection with this contract. The Contractor shall maintain adequate property control records in accordance with sound industrial practice and will make such records available for Government

inspection at all reasonable times, unless the clause at Federal Acquisition Regulation 52.245-1, Property Records, is included in this contract.

(c) Upon delivery of Government-furnished property to the Contractor, the Contractor assumes, the risk and responsibility for its loss or damage, except--

(1) For reasonable wear and tear;

(2) To the extent property is consumed in performing this contract; or

(3) As otherwise provided for by the provisions of this contract.

(d) Upon completing this contract, the Contractor shall follow the instructions of the Contracting Officer regarding the disposition of all Government-furnished property not consumed in performing this contract or previously delivered to the Government. The Contractor shall prepare for shipment, delivery f.o.b. origin, or dispose of the Government property, as may be directed or authorized by the Contracting Officer. The net proceeds of any such disposal shall be credited to the contract price or shall be paid to the Government as directed by the Contracting Officer.

(e) If this contract is to be performed outside the United States of America, its territories, or possessions, the words "Government" and "Government-furnished" (wherever they appear in this clause) shall be construed as "United States Government" and "United States Government-furnished," respectively.

(End of clause)

104. REPORTS OF GOVERNMENT PROPERTY (MAY 1994) DFARS 252.245-7001

(a) The Contractor shall provide an annual report--

(1) For all DoD property for which the Contractor is accountable under the contract;

(2) Prepared in accordance with the requirements of DD Form 1662, DoD Property in the Custody of Contractors, or approved substitute, including instructions on the reverse side of the form;

(3) In duplicate, to the cognizant Government property administrator, no later than October 31.

(b) The Contractor is responsible for reporting all Government property accountable to this contract, including that at subcontractor and alternate locations.

(End of clause)

105. INSPECTION OF CONSTRUCTION (AUG 1996) FAR 52.246-12

(a) *Definition*. "Work" includes, but is not limited to, materials, workmanship, and manufacture and fabrication of components.

(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. The Contractor shall maintain complete inspection records and make them available to the Government. All work shall be conducted under the general direction of the Contracting Officer and is subject to Government inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

(c) Government inspections and tests are for the sole benefit of the Government and do not--

(1) Relieve the Contractor of responsibility for providing adequate quality control measures;

(2) Relieve the Contractor of responsibility for damage to or loss of the material before acceptance;

(3) Constitute or imply acceptance; or

(4) Affect the continuing rights of the Government after acceptance of the complete work under paragraph (i) below.

(d) The presence or absence of a Government inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Contracting Officer's written authorization.

(e) The Contractor shall promptly furnish, at no increase in contract price, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The Government may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The Government shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The Contractor shall, without charge, replace or correct work found by the Government not to conform to contract requirements, unless in the public interest the Government consents to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(g) If the Contractor does not promptly replace or correct rejected work, the Government may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor or (2) terminate for default the Contractor's right to proceed.

(h) If, before acceptance of the entire work, the Government decides to examine already completed work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor, and material. If the work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet contract requirements, the Contracting Officer shall make an equitable adjustment for the additional services involved in the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(i) Unless otherwise specified in the contract, the Government shall accept, as promptly as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the Government's rights under any warranty or guarantee.

(End of clause)

106. VALUE ENGINEERING--CONSTRUCTION (MAR 1989)--ALTERNATE I (APR 1984)
FAR 52.248-3 I

(a) *General*. The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall share in any instant contract savings realized from accepted VECP's, in accordance with paragraph (f) below.

(b) *Definitions*. "Collateral costs," as used in this clause, means agency costs of operation, maintenance, logistic support, or Government-furnished property.

"Collateral savings," as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

"Contractor's development and implementation costs," as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing, preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

"Government costs," as used in this clause means those agency costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistic support. The term does not include the normal administrative costs of processing the VECP.

"Instant contract savings," as used in this clause, means the estimated reduction in Contractor cost of performance resulting from acceptance of the VECP, minus allowable Contractor's development and implementation costs, including subcontractors' development and implementation costs (see paragraph (h) below).

"Value engineering change proposal (VECP): means a proposal that--

(1) Requires a change to this, the instant contract, to implement; and

(2) Results in reducing the contract price or estimated cost without impairing essential functions or characteristics; *provided*, that it does not involve a change--

(i) In deliverable end item quantities only; or

(ii) To the contract type only.

(c) VECP preparation. As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (7) below. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

(1) A description of the difference between the existing contract requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effect of the change on the end item's performance.

(2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.

(3) A separate, detailed cost estimate for (i) the affected portions of the existing contract requirement and (ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under paragraph (h) below.

(4) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.

(5) A predicting of any effects the proposed change would have on collateral costs to the agency.

(6) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(7) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

(d) *Submission*. The Contractor shall submit VECP's to the Resident Engineer at the worksite, with a copy to the Contracting Officer.

(e) *Government action*. (1) The Contracting Officer shall notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer shall notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of the decisions. The Government will process VECP's expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

(2) If the VECP is not accepted, the Contracting Officer shall notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

(3) Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause. The Contracting Officer may accept the VECP, even though an agreement on price reduction has not been reached, by issuing the Contractor a notice to proceed with the change. Until a notice to proceed is issued or a contract modification applies a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The Contracting Officer's decision to accept or reject all or part of any VECP shall be final and not subject to the Disputes clause or otherwise subject to litigation under the Contract Disputes Act of 1978 (41 U.S.C. 601-613).

(f) *Sharing*. (1) *Rates*. The Government's share of savings is determined by subtracting Government costs from instant contract savings and multiplying the result by (i) 45 percent for fixed-price contracts or (ii) 75 percent for cost-reimbursement contracts.

(2) *Payment*. Payment of any share due the Contractor for use of a VECP on this contract shall be authorized by a modification to this contract to--

(i) Accept the VECP;

(ii) Reduce the contract price or estimated cost by the amount of instant contract savings; and

(iii) Provide the Contractor's share of savings by adding the amount calculated to the contract price or fee.

(g) *Subcontracts*. The Contractor shall include an appropriate value engineering clause in any subcontract of $50,000 or more an may include one in subcontracts of lesser value. In computing any adjustment in this contract's price under paragraph (f) above, the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs clearly resulting from a VECP accepted by the Government under this contract, but shall exclude any value engineering incentive payments to a subcontractor. The Contractor may choose any arrangement for subcontractor value engineering incentive payments; *provided*, that these payments shall not reduce the Government's share of the savings resulting from the VECP.

(h) *Data*. The Contractor may restrict the Government's right to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

> "These data, furnished under the Value Engineering--Construction clause of contract _____, shall not be disclosed outside the Government or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. This restriction does not limit the Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations."

If a VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms "unlimited rights" and "limited rights" are defined in Part 27 of the Federal Acquisition Regulation.)

(End of clause)

107. TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SEP 1996)--ALTERNATE I (SEP 1996) FAR 52.249-2 I

(a) The Government may terminate performance of the work under this contract in whole or in part if the Contracting Officer determines that a termination is in the Government's interest. The Contracting Officer shall terminate by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.

(b) After receipt of a Notice of Termination and except as directed by the Contracting Officer, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

(1) Stop work as specified in the notice.

(2) Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the contract.

(3) Terminate all subcontracts to the extent they relate to the work terminated.

(4) Assign to the Government, as directed by the Contracting Officer, all right, title, and interest of the Contractor under the subcontracts terminated, in which case the Government shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.

(5) With approval or ratification to the extent required by the Contracting Officer, settle all outstanding liabilities and termination settlement proposals arising from the termination settlement proposals arising from the termination of subcontracts; the approval or ratification will be final for purposes of this clause.

(6) As directed by the Contracting Officer, transfer title and delivery to the Government (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (ii) the completed or partially completed plans, drawings, information, and other property that, if the contract had been completed, would be required to be furnished to the Government.

(7) Complete performance of the work not terminated.

(8) Take any action that may be necessary, or that the Contracting Officer may direct, for the protection and preservation of the property related to this contract that is in the possession of the Contractor and in which the Government has or may acquire an interest.

(9) Use its best efforts to sell, as directed or authorized by the Contracting Officer, any property of the types referred to in subparagraph (b)(6) of this clause; *provided*, however, that the Contractor (i) is not required to extend credit to any purchaser and (ii) may acquire the property under the conditions prescribed by, and at prices approved by, the Contracting Officer. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by the Government under this contract, credited to the price or cost of the work, or paid in any other manner directed by the Contracting Officer.

(c) The Contractor shall submit complete termination inventory schedules no later than 120 days from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 120-day period.

(d) After expiration of the plant clearance period as defined in Subpart 45.6 of the Federal Acquisition Regulation, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of termination inventory not previously disposed of, excluding items authorized for disposition by the Contracting Officer. The Contractor may request the Government to remove those items or enter into an agreement for their storage. Within 15 days, the Government will accept title to those items and remove them or enter into a storage agreement. The Contracting Officer may verify the list upon removal of the items, or if stored, within 45 days from submission of the list, and shall correct the list, as necessary, before final settlement.

(e) After termination, the Contractor shall submit a final termination settlement proposal to the Contracting Officer in the form and with the certification prescribed by the Contracting Officer. The Contractor shall submit the proposal promptly, but no later than 1 year from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 1-year period. However, if the Contracting Officer determines that the facts justify it, a termination settlement proposal may be received and acted on after 1 year or any extension. If the Contractor fails to submit the proposal within the time allowed, the Contracting Officer may determine, on the basis of information available, the amount, if any due the Contractor because of the termination and shall pay the amount determined.

(f) Subject to paragraph (e) of this clause, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. However, the agreed amount, whether under this paragraph (f) or paragraph (g) of this clause, exclusive of costs shown in subparagraph (g)(3) of this clause, may not exceed the total contract price as reduced by (1) the amount of payments previously made and (2) the contract price of work not terminated. The contract shall be modified, and the Contractor paid the agreed amount. Paragraph (g) of this clause shall not limit, restrict, or affect the amount that may be agreed upon to be paid under this paragraph.

(g) If the Contractor and the Contracting Officer fail to agree on the whole amount to be paid because of the termination of work, the Contracting Officer shall pay the Contractor the amounts determined as follows, but without duplication of any amounts agreed upon under paragraph (f) of this clause:

(1) For contract work performed before the effective date of termination, the total (without duplication of any items) of--

(i) The cost of this work;

(ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the contract if not included in subdivision (g)(1)(i) of this clause; and

(iii) A sum, as profit on subdivision (g)(1)(i) of this clause, determined by the Contracting Officer under 49.202 of the Federal Acquisition Regulation, in effect on the date of this contract, to be fair and reasonable; however, if it appears that the Contractor would have sustained a loss on the entire contract had it been completed, the Contracting Officer shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.

(2) The reasonable costs of settlement of the work terminated, including--

(i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;

(ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and

(iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

(h) Except for normal spoilage, and except to the extent that the Government expressly assumed the risk of loss, the Contracting Officer shall exclude from the amounts payable to the Contractor under paragraph (g) of this clause, the fair value, as determined by the Contracting Officer, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the Government or to a buyer.

(i) The cost principles and procedures of Part 31 of the Federal Acquisition Regulation, in effect on the date of this contract, shall govern all costs claimed, agreed to, or determined under this clause.

(j) The Contractor shall have the right of appeal, under the Disputes clause, from any determination made by the Contracting Officer under paragraph (e), (g), or (l) of this clause, except that if the Contractor failed to submit the termination settlement proposal or request for equitable adjustment within the time provided in paragraph (e) or (l), respectively, and failed to request a time extension, there is not right of appeal.

(k) In arriving at the amount due the Contractor under this clause, there shall be deducted--

(1) All unliquidated advance or other payments to the Contractor under the terminated portion of this contract;

(2) Any claim which the Government has against the Contractor under this contract; and

(3) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to the Government.

(l) If the termination is partial, the Contractor may file a proposal with the Contracting Officer for an equitable adjustment of the price(s) of the continued portion of the contract. The Contracting Officer shall make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within 90 days from the effective date of termination unless extended in writing by the Contracting Officer.

(m)(1) The Government may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract, if the Contracting Officer believes the total of these payments will not exceed the amount to which the Contractor will be entitled.

(2) If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to the Government upon demand, together with interest computed at the rate established by the Secretary of the Treasury under 50 U.S.C. App. 1215(b)(2). Interest shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or other disposition of termination inventory until 10 days after the date of the retention or disposition, or a later date determined by the Contracting Officer because of the circumstances.

(n) Unless otherwise provided in this contract or by statute, the Contractor shall maintain all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make these records and documents available to the Government, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Contracting Officer, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents.

(End of clause)

108. DEFAULT (FIXED-PRICE CONSTRUCTION) (APR 1984) FAR 52.249-10

(a) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract including any extension, or fails to complete the work within this time,

the Government may, by written notice to the Contractor, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In this event, the government may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Government resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Government in completing the work.

(b) The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause, if--

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God or of the public enemy, (ii) acts of the Government in either its sovereign or contractual capacity, (iii) acts of another Contractor in the performance of a contract with the Government, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and

(2) The Contractor, within 10 days from the beginning of any delay (unless extended by the Contracting Officer), notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, the time for completing the work shall be extended. The findings of the Contracting Officer shall be final and conclusive on the parties, but subject to appeal under the Disputes clause.

(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the Government.

(d) The rights and remedies of the Government in this clause are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

109. COMPUTER GENERATED FORMS (JAN 1991) FAR 52.253-1

(a) Any data required to be submitted on a Standard or Optional Form prescribed by the Federal Acquisition Regulation (FAR) may be submitted on a computer generated version of the form, *provided* the form carries the Standard or Optional Form number and edition data.

(b) Unless prohibited by agency regulations, any data required to be submitted on an agency unique form prescribed by an agency supplement to the FAR may be submitted on a computer generated version of the form provided there is no change to the name, content, or sequence of the data elements on the form and provided the form carries the agency form number and edition data.

(c) If the Contractor submits a computer generated version of a form that is different than the required form, then the rights and obligations of the parties will be determined based on the content of the required form.

(End of clause)

END OF SECTION 00700

SECTION 00800
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Section 00800

Special Contract Requirements

2 January 1996
1. COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK (APR 1984) FAR 52.211-10. The Contractor shall be required to commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, prosecute said work diligently, and complete the entire work ready for use not later than 630 calendar days after date of receipt of notice to proceed. The time stated for completion shall include as-built drawings, O&M manuals, operational tests/reports/training/instructions, equipment lists, and final cleanup of the premises.

2 January 1996
2. LIQUIDATED DAMAGES--CONSTRUCTION (APR 1984) FAR 52.211-12.

2.1 If the Contractor fails to complete the work within the time specified in the contract, or any extension, the Contractor shall pay to the Government as liquidated damages, the sum of $900.00 for each day of delay.

2.2 If the Government terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the Government in completing the work.

2.3 If the Government does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

2 January 1996
3. NOT USED.

24 February 1992
4. EXCLUSION OF PERIODS IN COMPUTING COMPLETION SCHEDULES. No construction work will be required during the period between 15 December 1999 and 15 March 2000 inclusive, and such period has not been considered in computing the time allowed for completion. The Contractor may, however, perform work during all or any part of this period upon giving prior written notice to and receiving approval from the Contracting Officer. If the work performed during such period is less than the average monthly work necessary to complete the contract within the time specified and the Contracting Officer maintains an inspection force during this period to inspect the work, the Contractor will be charged the percentage of the cost of maintaining such force that his work is less than the average monthly work necessary to complete the contract within the time specified.

20 March 1997
5. NOT USED.

1 August 1996
(2) 6. CONTRACT DRAWINGS, MAPS AND SPECIFICATIONS (DEC 1991) DFARS 252.236-7001.

6.1 The Government will furnish the Design/Build Contractor with one copy of the CD-ROM containing the RFP Solicitation which includes those drawings issued with the solicitation. The Government will also furnish the Contractor with the MicroStation design drawing file set for the Avionics Lab Phase I, which is adjacent to the Phase IIIA project.

6.2 The Contractor shall--

(1) Check all drawings furnished immediately upon receipt;

(2) Compare all drawings and verify the figures before laying out the work;

(3) Promptly notify the Contracting Officer of any discrepancies; and

(4) Be responsible for any errors which might have been avoided by complying with paragraph 6.2 (1), (2) and (3).

6.3 Omissions from the drawings or specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work, but shall be performed as if fully and correctly set forth and described in the drawings and specifications.

6.4 The work shall conform to the specifications and the contract drawings identified on the following index of drawings:

TABLE OF DRAWINGS

Drawing No. and Title

Cover Sheet
C001 Location Map
C101 Existing Conditions Plan
C201 Site Plan
C202 Grading Plan
C203 Utility Plan
A201 Basement Floor Plan
A202 First Floor Plan
A203 Second Floor Plan
A204 Third Floor Plan
A301 Exterior Elevations
A302 Building Sections
A401 Room Finish Schedule
A402 Color Schedule
A901 First Floor Furniture Plan
A902 Second Floor Furniture Plan
A903 Third Floor Furniture Plan
A904 Typical Workstation Plans
E801 Communication Site Plan

E802 Duct Bank Site Plan
E803 Stairewell Conduit Plan
E804 New Conduit Plan
E805 Telecommunications Room Details
E806 Duct Bank Details
E807 Communications Details

7. NOT USED.

17 JULY 1992
8. RIGHTS IN SHOP DRAWINGS (APR 1966) DFARS 252.227-7033.

8.1 Shop drawings for construction means drawings, submitted to the Government by the Construction Contractor, subcontractor or any lower tier subcontractor pursuant to a construction contract, showing detail (I) the proposed fabrication and assembly of structural elements and (ii) the installation (i.e., form, fit, and attachment details) of materials or equipment. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

8.2 This clause, including this paragraph (8.2), shall be included in all subcontracts hereunder at any tier.

3 November 1998
9. AS-BUILT DOCUMENTS

9.1 General: This section covers the completion of as-built drawings and as-built specifications, as a requirement of the contract.

9.1.1 As-Built Drawings:

An as-built drawing is a construction drawing revised to reflect the final as-built conditions of the project as a result of modifications, changes, corrections to the project design required during construction, submittals and extensions of design. The terms "drawings," "contract drawings," "drawing files," "working as-built drawings" and "final as-built drawings" refer to contract drawings which are revised to be used for the “RECORD DRAWING AS-BUILTS”.

9.1.2 As-Built Specifications:

As-built specifications are the construction specifications as modified by changes (contract mods, ACO approved variations from the construction specifications which did not result in contract mods).

9.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-18 Records

As-Built CADD Drawings; [GA].

CADD drawings showing final as-built conditions of the project. The CADD

drawing submittals shall consist of two (2) separate types of media. One set of media shall consist of the electronic CADD drawing files. The second media type, shall consist of one set of mylar plots with stamps (seal of the registered designer for each discipline), 2 sets of blue line prints of the mylars, and the approved red-marked working as-built prints.

9.3 PROCEDURES

9.3.1 General Discussion

9.3.1.1 Maintenance of Working As-Built Drawings:

The Contractor shall revise 2 sets of paper prints by red-line process to show the as-built conditions during the prosecution of the project. These as-built marked prints shall be kept current on a weekly basis and available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. Changes must be reflected on all sheets affected by the change. The working as-built marked prints will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. The working as-built drawings shall show the following information, but not be limited thereto:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.

b. The location and dimensions of any changes within the building structure.

c. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

d. Additional as-built information that exceeds the detail shown on the Contract Drawings. These as-built conditions include those that reflect structural details, fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations and layouts, equipment, sizes, mechanical room layouts and other extensions of design, that were not shown in the original contract documents because the exact details were not known until after the time of approved shop drawings. It is recognized that these shop drawing submittals (revised showing as-built conditions) will serve as the as-built record without actual incorporation into the contract drawings. All such shop drawing submittals must include, along with the hard copy of the drawings, CADD files of the shop drawings in a commercially available digital format, compatible with the Using Agency System (see paragraph 9.3.2). All shop drawings which require submittal of CADD files are indicated in the submittal register located at the end of this section.

e. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

f. Changes or modifications which result from the final inspection.

g. Where contract drawings or specifications present options, only

the option selected for construction shall be shown on the final as-built prints.

h. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, the Contractor shall furnish a contour map of the final borrow pit/spoil area elevations.

g. If fire protection and fire detection related systems are included in this project, the as-built drawings will include detailed information for all aspects of the systems including wiring, piping, and equipment drawings.

9.3.1.4 Preliminary Submittal:

Six (6) weeks prior to occupancy of this facility by the Government, the Contractor shall submit one (1) set the original working as-built drawings to the Contracting Officer for review and approval. These working as-built marked drawings shall be neat, legible and accurate. The review by Government personnel will be expedited to the maximum extent possible. Upon approval, the working as-built marked drawings will be returned to the Contractor for use in preparation of final as-built drawings. If upon review, the working as-built marked drawings are found to contain errors and/or omissions, they will be returned to the Contractor for corrections. The Contractor shall complete the corrections and return the working as-built marked drawings to the Contracting Officer within 10 calendar days.

9.3.1.5 Preparation of Final As-Built Drawings:

Upon approval of the working as-built prints submittal, the Contractor shall prepare final As-Built CADD drawings. In the event the Contractor accomplishes additional work which changes the as-built conditions of the facility, after submission and approval of the working as-built drawings, he shall be responsible for the addition of these changes to the working as-built drawings and also to the final as-built documents.

9.3.1.6 Markings and Indicators

Changes shall be annotated with a triangle and sequential number at the following locations: bottom of the revised detail, right hand and bottom borders aligned with the revised detail, and the revision block of the title block.

Separate markings shall be made for each modification negotiated into the contract.

9.3.1.7 Preparation of Final As-Built Specifications:

Final as-built specifications shall be prepared in MicroSoft Word Version 6.0 and the electronic files shall be placed on the same CD ROM that contains the “As-Built” CADD files, if applicable. The front sheet of the specifications shall contain an identification which clearly labels the specifications as representing as-built conditions and shall be dated with the date of the submittal.

9.3.1.8 Preparation of Other As-Built Documents:

All other non-electronic documents which may include design analysis, catalog cuts, certification documents that are not available in native electronic format shall be scanned and provided in an organized manner in Adobe .pdf format.

9.3.1.9 Submittal of Final As-Built Documents:

At the time of Beneficial Occupancy of the project, Final As-Built documents shall be provided to the Contracting Officer in the formats described in paragraph 9.3.2.

9.3.1.10 Partial Occupancy:

For projects where portions of construction are to be occupied or activated prior to overall project completion, including portions of utility systems, as-built drawings for those portions of the facility being occupied or activated shall be supplied at the time the facility is occupied or activated. This same as-built information previously furnished must also be shown on the final set of as-built drawings at project completion.

9.3.2 Computer Aided Design and Drafting (CADD) Drawings:

Only personnel proficient in the preparation of CADD drawings shall be employed to modify the contract drawings or prepare additional new drawings. Additions and corrections to the contract drawings shall be equal in quality to that of the originals. Line work, line weights, lettering, layering conventions, and symbols shall be the same as the original line work, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same guidance specified for original drawings. Three dimensional (3D) elements shall be placed in files in their proper locations when utilizing 3D files with spatially correct elements. The title block and drawing border to be used for any new final as-built drawings shall be identical to that used on the contract drawings. Additions and corrections to the contract drawings shall be accomplished using CADD media files supplied by the Government. All work by the contractor shall be done on files in the format in which they are provided. Translation of files to a different format, for the purpose of As-Built production, and then retranslating back to the format originally provided, will NOT be acceptable. The As-Built CADD drawings will already be compatible with the Using Agency's system. The Using Agency uses Microstation NT CADD software system. The Contractor shall be responsible for providing all program files and hardware necessary to prepare final as-built drawings. The Contracting Officer will review final as-built drawings for accuracy and the Contractor shall make all required corrections, changes, additions, and deletions.

a. When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the Contractor in letters at least 5 mm 3/16 inch high. All other contract drawings shall be marked either "AS-BUILT" drawing denoting no revisions on the sheet or "REVISED AS-BUILT" denoting one or more revisions. Original contract drawings shall be dated in the revision block.

b. Revision markers defined in paragraph 9.3.1.6 shall be placed as follows:bottom of the revised detail, right hand and bottom borders aligned with the revised detail, and the revision block of the title block.

c. After receipt by the Contractor of the approved working as-built prints and the original contract drawings files the Contractor shall, within 30 calendar days, make the final as-built submittal. This submittal shall consist of 2 sets of completed final as-built drawings on separate media consisting of both CADD files compatible with the Using Agency's system on electronic storage media identical to that supplied by the Government) and mylars; 2 blue line prints of these drawings and the return of the approved marked working as-built prints. They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any transactions or adjustments necessary to accomplish this is the responsibility of the

Contractor. The Government reserves the right to reject any drawing files it deems incompatible with its CADD system. All paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final as-built drawing files and marked prints as specified shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

9.3.3 Not Used.

9.3.4 Payment:

No separate payment will be made for as-built drawings required under this contract, and all costs in conjunction therewith, shall be considered a subsidiary obligation of the Contractor.

1 August 1996
(2) 10. EQUIPMENT DATA.

10.1 Real Property Equipment. The Contractor shall be required to make a list of all installed equipment furnished under this contract. This list shall include all information usually listed on manufacturer's name plate. The RMS form is called INSTALLATION PROPERTY INFORMATION can be found in the RMS software. A copy of this form can be found at the end of the SPECIAL CONTRACT REQUIREMENTS. The list shall also include the cost of each piece of installed property F.O.B. construction site. For each of the items which is specified herein to be guaranteed for a specified period from the date of acceptance thereof, the following information shall be given: The name, serial and model number address of equipment supplier, or manufacturer originating the guaranteed item. The Contractor's guarantee to the Government of these items will not be limited by the terms of any manufacturer's guarantee to the Contractor. The list shall be furnished in electronic format in addition to hard paper copy. The list shall be furnished to the Contracting Officer not later than thirty (30) calendar days prior to completion of any segment of the contract work which has an incremental completion date.

10.2 Maintenance and Parts Data. The Contractor will be required to furnish a brochure, catalog cut, parts list, manufacturer's data sheet or other publication which will show detailed parts data on all other equipment subject to repair and maintenance procedures not otherwise required in Operations and Maintenance Manuals specified elsewhere in this contract. Distribution of directives shall follow the same requirements as listed in paragraph 10.1.

2 January 1996
11. PHYSICAL DATA (APR 1984) FAR 52.236-4. Data and information furnished or referred to below are furnished for the Contractor's information. The Government will not be responsible for any interpretation or conclusion drawn from the data or information by the Contractor.

11.1 Physical Conditions indicated on the drawings and in the specifications are the result of site investigations by surveys, and borings.

11.2 Weather Conditions. The Contractor shall make his own investigations as to weather conditions at the site. Data may be obtained from various National Weather Service offices located generally at airports of principal cities, the nearest to this project being:

Dayton, OH
NWS Forecast Office
3800 Wright Ave

Vandalia, OH 45377

Historical data for all areas may be obtained from:

U. S. Department of Commerce
National Climatic Center
Federal Building
Asheville, N. C. 28801

11.3 Transportation Facilities. Roads in the general area are shown on the drawings. The site may be accessed by either Q Street or 13th Street.

15 June 1990

12. UTILITIES (APR 1984) FAR 52.236-14 (Para. 12.1.1 & 12.1.2 only).

12.1 Availability and Use of Utility Services.

12.1.1 The Government will make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the Government or, where the utility is produced by the Government, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

12.1.2 The Contractor, at its expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

12.1.3 The Contractor is responsible for obtaining his own temporary electric power.

12.1.4 Drinking Water may be obtained from approved outlets in the existing buildings.

12.1.5 Washrooms and toilets in the existing buildings may not be used.

12.2 Alterations to Utilities. Where changes and relocations of utility lines are noted to be performed by others, the Contractor shall give the Contracting Officer at least thirty (30) days written notice in advance of the time that the change or relocation is required. In the event that, after the expiration of thirty (30) days after the receipt of such notice by the Contracting Officer, such utility lines have not been changed or relocated and delay is occasioned to the completion of the work under contract, the Contractor will be entitled to a time extension equal to the period of time lost by the Contractor after the expiration of said thirty (30) day period. Any modification to existing or relocated lines required as a result of the Contractor's method of operation shall be made wholly at the Contractor's expense and no additional time will be allowed for delays incurred by such modifications.

12.3 Interruptions of Utilities:

12.3.1 No utility services shall be interrupted by the Contractor to make connections, to relocate, or for any purpose without approval of the Contracting Officer.

12.3.2 Request for Permission to shut down services shall be submitted in writing to the Contracting Officer not less than seventeen (17) days prior to date of proposed interruption. The request shall give the following information:

(1) Nature of Utility (Gas, L.P. or H.P., Water, etc.)

(2) Size of line and location of shutoff.

(3) Buildings and services affected.

(4) Hours and date of shutoff.

(5) Estimated length of time services will be interrupted.

12.3.3 Services shall not be shutoff until receipt of approval of the proposed hours and date from the Contracting Officer.

12.3.4 Shutoffs which will cause interruption of Government work operations as determined by the Contracting Officer shall be accomplished during regular non-work hours or on non-work days of the Using Agency without any additional cost to the Government.

12.3.5 Operation of valves on water mains will be by Government personnel. Where shutoff of water lines interrupts service to fire hydrants or fire sprinkler systems, the Contractor shall arrange his operations and have sufficient material and personnel available to complete the work without undue delay or to restore service without delay in event of emergency.

12.3.6 Flow in gas mains which have been shut off shall not be restored until the Government inspector has determined that all items serviced by the gas line have been shut off.

24 February 1992
13. NOT USED.

15 June 1990
(1) 14. LAYOUT OF WORK (APR 1984) FAR 52.236-17. The Contractor shall lay out their work and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at his own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.

15 June 1990
15. PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984) FAR 52.236-1 (Para. 15 only). The Contractor shall perform on the site, and with its own organization, work equivalent to at least 20 percent of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the

Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

15.1 For purposes of this paragraph "WORK BY THE CONTRACTOR" is defined as prime Contractor direct contract labor (including testing and layout personnel), exclusive of other general condition or field overhead personnel, material, equipment, or subcontractors. The "TOTAL AMOUNT OF WORK" is defined as total direct contract labor (including testing and layout personnel), exclusive of other general condition or field overhead personnel, material, or equipment.

15.2 Within 7 days after the award of any subcontract, either by himself or a subcontractor, the Contractor shall deliver to the Contracting Officer a completed SF 1413, "Statement and Acknowledgment." The form shall include the subcontractor's acknowledgement of the inclusion in his subcontract of the clauses of this contract entitled "Davis-Bacon Act," "Contract Work Hours and Safety Standards Act-Overtime Compensation," "Apprentices and Trainees," "Compliance with Copeland Regulations," "Withholding of Funds," "Subcontracts," "Contract Termination-Debarment," and "Payrolls and Basic Records." Nothing contained in this contract shall create any contractual relation between the subcontractor and the Government.

16. NOT USED.

24 February 1992

17. SUPERINTENDENCE OF SUBCONTRACTORS

17.1 The Contractor shall be required to furnish the following, in addition to the superintendence required by CONTRACT CLAUSE: SUPERINTENDENCE BY THE CONTRACTOR.

(1) If more than 50 percent and less than 70 percent of the value of the contract work is subcontracted, one superintendent shall be provided at the site and on the Contractor's payroll to be responsible for coordinating, directing, inspecting and expediting the subcontract work.

(2) If 70 percent or more of the value of the work is subcontracted, the Contractor shall be required to furnish two such superintendents to be responsible for coordinating, directing , inspecting and expediting the subcontract work.

17.2 If the Contracting Officer, at any time after 50 percent of the subcontracted work has been completed, finds that satisfactory progress is being made, he may waive all or part of the above requirements for additional superintendence subject to the right of the Contracting Officer to reinstate such requirement if at any time during the progress of the remaining work he finds that satisfactory progress is not being made.

15 June 1990

18. IDENTIFICATION OF EMPLOYEES.

18.1 The Contractor shall be responsible for furnishing an identification badge/card to each employee prior to the employees work on-site, and for requiring each employee engaged on the work to display identification as may be approved and directed by the Contracting Officer. All prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon release of the employee. When required by the Contracting Officer, the Contractor shall obtain and submit fingerprints of all persons employed or to be employed on the project.

24 February 1992

19. CONTRACTOR-PREPARED SCHEDULE

The progress chart to be prepared by the Contractor pursuant to the clause entitled "Schedules for Construction Contracts," shall consist of detailed bar chart as described below. In preparing this system the scheduling of construction is the responsibility of the Contractor. The requirement for the system is included to assure adequate planning and execution of the work and to assist the Contracting Officer in appraising the reasonableness of the proposed schedule and evaluating progress of the work.

19.1 Not Used.

19.2 Not Used.

19.3 Submission and approval of the bar chart shall be as follows:

(1) A preliminary chart defining the Contractor's planned operations during the first sixty (60) calendar days after notice to proceed will be submitted within ten (10) days. The Contractor's general approach for the balance of the project shall be indicated. Cost of activities expected to be completed or partially completed before submission and approval of the whole schedule should be included.

(2) The complete chart shall be submitted within forty (30) calendar days after receipt of notice to proceed.

19.4 The Contractor shall participate in a review and evaluation of the proposed chart by the Contracting Officer. Any revisions necessary as a result of this review shall be resubmitted for approval of the Contracting Officer within ten (10) calendar days after the conference. The approved schedule shall then be the schedule to be used by the Contractor for planning, organizing and directing the work and for reporting progress. If the Contractor thereafter desires to make changes in his method of operating and scheduling he shall notify the Contracting Officer in writing stating the reasons for the change. If the Contracting Officer considers these changes to be of a major nature he may require the Contractor to revise and submit for approval, without additional cost to the Government. A change may be considered of major nature if the time estimated to be required or actually used for an activity or the logic of sequence of activities is varied from the original plan to a degree that there is a reasonable doubt as to the effect on the contract completion date or dates. Changes which affect activities with adequate slack time shall be considered as minor changes, except that an accumulation of minor changes may be considered a major change when their cumulative effect might affect the contract completion date.

19.5 The Contractor shall submit at intervals of fifteen (15) calendar days a report of the actual construction progress by updating chart. Revisions causing changes in the detailed network shall be noted on the summary network, or a revised issue of affected portions of the detailed network furnished.

19.6 The report shall show the activities or portions of activities completed during the reporting period and their total value as basis for the Contractor's periodic request for payment. Payment made pursuant to the General Provision entitled "Payments to Contractor" will be based on the total value of such activities completed or partially completed after verification by the Contracting Officer. The report will state the percentage of the work actually completed and scheduled as of the report date and the progress along the critical path in terms of days ahead or behind the allowable dates. If the project is behind schedule, progress along other paths with negative slack shall also be reported. The Contractor shall also submit a narrative report with the

updated analysis which shall include but not be limited to a description of the problem areas, current and anticipated, delaying factors and their impact, and an explanation of corrective actions taken or proposed.

19.7 Sheet size of diagrams shall be 30 by 42 inches. Each updated copy shall show a date of the latest revision.

19.8 Initial submittal and complete revisions shall be submitted in six (6) copies.

19.9 Periodic reports shall be submitted in four (4) copies.

15 January 1998

20. WARRANTY OF CONSTRUCTION (MAR 1984) ALTERNATE 1 (APR 1984) FAR 52.246-21I.

20.1 General Requirements.

20.1.1 In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph 20.1.10 of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

20.1.1.1 Warranty Payment: Warranty work is a subsidiary portion of the contract work, and has a value to the Government approximating 1% of the contract award amount. The Contractor will assign a value of that amount in the breakdown for progress payments mentioned in the Contract Clause: Payments Under Fixed-Price Construction Contracts. If the Contractor fails to respond to warranty items as provided in paragraph 20.5, the Government may elect to acquire warranty repairs through other sources and, if so, shall backcharge the Contractor for the cost of such repairs. Such backcharges shall be accomplished under the Changes Clauses of the contract through a credit modification(s).

20.1.2 This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

(a) As a part of the one year warranty inspection, the Contracting Officer will conduct an infrared roof survey on any project involving a membrane roofing system. This survey will be conducted in accordance with ASTM C1153-90, "Standard Practice for the Location of Wet Insulation in Roofing Systems Using Infrared Imaging". In accordance with paragraph 20.1.3 and 20.1.4, the Contractor shall be required to replace all damaged materials and to locate and repair sources of moisture penetration.

20.1.3 The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of--

(a) The Contractor's failure to conform to contract requirements; or

(b) Any defect of equipment, material, workmanship, or design furnished.

20.1.4 The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to

work repaired or replaced will run for 1 year from the date of repair or replacement.

20.1.5 The Contracting Officer shall notify the Contractor, in writing, (see para. 20.2.3 and 20.5) within a reasonable time after the discovery of any failure, defect, or damage.

20.1.6 If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, (see para. 20.5) the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

20.1.7 With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall--

(a) Obtain all warranties that would be given in normal commercial practice;

(b) Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and

(c) Provide names, addresses, and telephone numbers of all subcontractors, equipment suppliers, or manufacturers with specific designation of their area of responsibilities if they are to be contacted directly on warranty corrections; and

(d) Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

20.1.8 In the event the Contractor's warranty under paragraph 20.1.2 of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

20.1.9 Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

20.1.10 This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

20.1.11 Defects in design or manufacture of equipment specified by the Government on a "brand name and model" basis, shall not be included in this warranty. In this event, the Contractor shall require any subcontractors, manufacturers, or suppliers thereof to execute their warranties, in writing, directly to the Government.

20.2 Performance Bond.

20.2.1 The Contractor's Performance Bond will remain effective throughout the construction warranty period and warranty extensions.

20.2.2 In the event the Contractor or his designated representative(s) fails to commence and diligently pursue any work required under this clause, and in a manner pursuant to the requirements thereof, the Contracting Officer shall have a right to demand that said work be performed under the Performance Bond by making written notice on the surety. If the surety fails or refuses to perform the obligation it assumed under the Performance Bond, the Contracting Officer

shall have the work performed by others, and after completion of the work, may make demand for reimbursement of any or all expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

20.2.3 Following oral or written notification of required warranty repair work, the Contractor will respond as dictated by para. 20.5. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor as outlined in the paragraph 20.2.2 above.

20.3 Pre-Warranty Conference. Prior to contract completion and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this clause. Communication procedures for Contractor notification of warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor will furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warrantied construction, will be continuously available, and will be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of his responsibilities in connection with other portions of this provision.

20.4 Equipment Warranty Identification Tags.

20.4.1 The Contractor shall provide warranty identification tags on all Contractor and Government furnished equipment which he has installed.

(a) The tags shall be similar in format and size to the exhibits provided by this specification, they shall be suitable for interior and exterior locations, resistant to solvents, abrasion, and to fading caused by sunlight, precipitation, etc. These tags shall have a permanent pressure-sensitive adhesive back, and they shall be installed in a position that is easily (or most easily) noticeable. Contractor furnished equipment that has differing warranties on its components will have each component tagged.

(b) Sample tags shall be submitted for Government review and approval. These tags shall be filled out representative of how the Contractor will complete all other tags.

(c) Tags for Warrantied Equipment: The tag for this equipment shall be similar to the following. Exact format and size will be as approved.

EQUIPMENT WARRANTY
CONTRACTOR FURNISHED EQUIPMENT

MFG MODEL NO.

SERIAL NO.

CONTRACT NO.

CONTRACTOR NAME

CONTRACTOR WARRANTY EXPIRES

MFG WARRANTY(IES) EXPIRE

EQUIPMENT WARRANTY
GOVERNMENT FURNISHED EQUIPMENT

MFG MODEL NO.

SERIAL NO.

CONTRACT NO.

DATE EQUIP PLACED IN SERVICE

MFG WARRANTY(IES) EXPIRE

(d) If the manufacturer's name (MFG), model number and serial number are on the manufacturer's equipment data plate and this data plate is easily found and fully legible, this information need not be duplicated on the equipment warranty tag. The Contractor warranty expires (warranty expiration date) and the final manufacturer's warranty expiration date will be determined as specified by para. 20.1.

20.4.2 Execution. The Contractor will complete the required information on each tag and install these tags on the equipment by the time of and as a condition of final acceptance of the equipment.

20.4.3 Payment. The work outlined above is a subsidiary portion of the contract work, and has a value to the Government approximating 5% of the value of the Contractor furnished equipment. The Contractor will assign a value of that amount in the breakdown for progress payments mentioned in the Contract Clause: PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS.

20.4.4 Equipment Warranty Tag Replacement. As stated in para. 20.1.4, the Contractor's warranty with respect to work repaired or replaced shall run for one year from the date of repair or replacement. Such activity shall include an updated warranty identification tag on the repaired or replaced equipment. The tag shall be furnished and installed by the Contractor, and shall be identical to the original tag, except that the Contractor's warranty expiration date will be one year from the date of acceptance of the repair or replacement.

20.5 Contractor's Response to Warranty Service Requirements.

20.5.1 Following oral or written notification by the Contracting Officer or an authorized representative of the installation designated in writing by the Contracting Officer, the Contractor shall respond to warranty service requirements in accordance with the "Warranty Service Priority List" and the three categories of priorities listed below.

First Priority Code 1 Perform on site inspection to evaluate situation, determine course of action, initiate work within 24 hours and work continuously to completion or relief.

Second Priority Code 2 Perform on site inspection to evaluate situation, determine course of action, initiate work within 48 hours and work continuously to completion or relief.

Third Priority Code 3 All other work to be initiated within 5 work days and work continuously to completion or relief.

The "Warranty Service Priority List" is as follows:

Code 1 Air Traffic Control and Air Navigation Systems and Equipment.

Code 1 Air Conditioning System
a. Buildings with computer equipment.

Code 2 Air Conditioning Systems
a. Air conditioning leak in part of building, if causing damage.

Code 1 Doors
a. Overhead doors not operational.

Code 1 Electrical
a. Power failure (entire area or any building operational after 1600 hours).
b. Security lights.

Code 2 Electrical
a. Power failure (no power to a room or part of building).
b. Receptacle and lights.
c. Fire alarm systems.

Code 1 Gas
a. Leaks and breaks.

Code 1 Heat
a. Area power failure affecting heat.

Code 1 Intrusion Detection Systems
a. High security areas.

Code 2 Intrusion Detection Systems
Systems other than those listed under Code 1.

Code 2 Plumbing
a. Flush valves.
b. Fixture drain, supply line commode, or water pipe leaking.
c. Commode leaking at base.

Code 1 Roof Leaks
Temporary repairs will be made where major damage to property is occurring.

Code 2 Roof Leaks
Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

Code 2 Water (Exterior)
No water to facility.

Code 1 Sprinkler System
All sprinkler systems, valves, manholes, deluge systems, and air systems to sprinklers.

20.5.2 Should parts be required to complete the work and the parts are not immediately available the Contractor shall have a maximum of 12 hours after arrival at the job site to provide the Contracting Officer or an authorized representative of the installation designated in writing by the Contracting Officer, with firm written proposals for emergency alternatives and temporary repairs for Government participation with the Contractor to provide emergency relief until the required parts are available on site for the Contractor to perform permanent warranty repair. The Contractors proposals shall include a firm date and time that the required parts shall be available on site to complete the permanent warranty repair. The Contracting Officer or an authorized representative of the installation designated in writing by the Contracting Officer, will evaluate the proposed alternatives and negotiate the alternative considered to be in the best interest of the Government to reduce the impact of the emergency condition. Alternatives considered by the Contracting Officer or an authorized representative of the installation designated in writing by the Contracting Officer will include the alternative for the Contractor to "Do Nothing" while waiting until the required parts are available to perform permanent warranty repair. Negotiating a proposal which will require Government participation and the expenditure of Government funds shall constitute a separate procurement action by the using service.

21. NOT USED.

22. NOT USED.

23. NOT USED.

24. NOT USED.

25. NOT USED.

26. NOT USED.

27. NOT USED.

2 January 1991
28. IDENTIFICATION OF GOVERNMENT-FURNISHED PROPERTY (APR 1984) FAR 52.245-3.

28.1 The Government will furnish to the Contractor the property identified in the Schedule to be incorporated or installed into the work or used in performing the contract. The listed property is at the place specified below. The Contractor shall verify its quantity and condition and acknowledge receipt in writing to the Contracting Officer. The Contractor shall also report in writing to the Contracting Officer within 24 hours of delivery any damage to or shortage of the property as received. All such property shall be installed or incorporated into the work at the expense of the Contractor, unless otherwise indicated in this contract.

Location of GFP: The UPS is in to Building 23, second floor, room 215.

28.2 The Contractor is required to unload, store, and provide any further transportation of the property to the jobsite at its own expense.

28.3 Each item of property to be furnished under this clause shall be identified in the Schedule by quantity, item, and description.

Quantity	Item	Description
1	Uninterrupt. power syst.	Leibert UPS (225KVA unit) Model #: UDA63225A27A073 Part #: 02-791625-64

29. NOT USED.

30. NOT USED.

1 August 1996
(1) 31. PROJECT SIGN.

31.1 General. The Contractor shall furnish and erect at the location directed one project sign. The sign shall be lettered on one side only and shall conform to the details shown on the sketch bound with the SPECIAL CONTRACT REQUIREMENTS.

31.1.1 Project nomenclature shall be:

Consolidate Avionics Research Laboratory, Phase IIIA

31.1.2 Architect-Engineer name shall be:

Design/Build Contractor and the Designers

31.2 Materials. The sign shall be constructed of good sound materials suitable for the purpose. Lumber shall be salt treated softwood of No. 2 grade or better. Sizes shown are nominal. Plywood shall be 1/2-inch, B-B, marine grade. Screws shall be of commercial quality and of sizes shown.

31.3 Painting. The sign and posts shall be given one prime coat and two finish coats of gloss exterior-type enamel paint, Glidden, Reddish Brown, Part No. 4537-5PER. All lettering shall be white.

31.4 Logos (Air Force and Corps Castle) will be furnished to the Contractor by Contracting Officer and shall be applied at the location shown.

31.5 Erection and Maintenance. The sign shall be erected at the location designated by the Contracting Officer. Sign shall be plumb and backfill of post holes shall be well tamped to properly support the sign in position throughout the life of the contract. The sign shall be maintained in good condition until completion of the contract, shall remain the property of the Contractor, and shall be removed from the site upon completion of work under the contract.

31.6 Payment. No separate payment will be made for furnishing and erecting the project sign as specified and costs thereof shall be considered a subsidiary obligation of the Contractor.

32. NOT USED.

1 February 1995

33. WAGE RATES. The decision of the Secretary of Labor, covering rates of wages, including fringe benefits to be paid laborers and mechanics performing work under this contract, is attached hereto. The payment for all classes of laborers and mechanics actually employed to perform work under the contract will be specified in the following contract clauses: DAVIS-BACON ACT, CONTRACT WORK HOURS AND SAFETY STANDARDS ACT, and THE COPELAND ACT.

34. NOT USED.

15 June 1990

35. INTERFERENCE WITH TRAFFIC AND PUBLIC AND PRIVATE PROPERTY.

35.1 The Contractor at all times shall dispose his plant and conduct the work in such manner as to cause as little interference as possible with private and public travel. Damage (other than that resulting from normal wear and tear) to roads, shall be repaired to as good a condition as they were prior to the beginning of work and to the satisfaction of the Contracting Officer.

35.2 The Contractor shall provide and maintain as may be required by the Base, proper barricades or fences, and take such other precautions as may be necessary to protect life, property and structures, and shall be liable for and hold the Government free and harmless from all damages occasioned in any way by his act or neglect, or that of his agents, employees, or workmen.

15 September 1995

36. SEQUENCE OF WORK.

36.1 Scheduling or work during the period 18 December through 1 January must be approved by occupants. The Government gives no assurance of smooth work flow during this time. There are significant numbers of occupants on leave during this holiday period. Any attempt to schedule work during this period is at the Contractor's risk.

36.2 D/B Contractor shall coordinate all work in the existing portions of B620 with the facility user and WPAFB 88th CEG. The following shall be sequenced and coordinated with WPAFB personnel:

1. Relocation of the existing transformer shall be performed with the approval of the facility user on a weekend to minimize disruption of power to B620.
2. The removal of the stair and subsequent life safety work required in Building 620 Northeast Wing shall be sequenced to allow continuous life safety egress from the Northeast Wing during construction.
3. Relocation of the existing cooling tower shall be performed with the approval of the facility user on a weekend to minimize disruption of HVAC service to B620.
4. Security work, Fire alarm, fire protection and water connections shall be sequenced in such a manner as to allow continuous security, fire protection service and water service to B620.
5. The structural modifications required between Phase I and Avionics Research Lab Phase IIIA shall be made in such a manner as not to disrupt life safety and general ingress and egress into Phase I during construction.
6. All telephone work shall be sequenced to allow continuous telephone service throughout construction.

7. Replacement of the existing subsurface drainage well shall be sequenced to provide continuous drainage throughout construction.
8. Construction at the Phase I/Avionics Research Lab Phase IIIA connection points shall be sequenced to allow unnterupted life safety egress and ingress from both components.
9. All utility connection work shall be sequenced to minimize disruption of service to existing B620.
10. GF/CI UPS system work shall be coordinated and sequenced to minimize power disruption.

37. NOT USED.

1 August 1996

38. COMPLIANCE WITH POST/BASE REGULATIONS. The site of the work is on a military instalaltion and all rules and regulations issued by the Commanding Officer covering general safety, security, sanitary requirements, pollution control and traffic regulations, shall be observed by the Contractor. Information regarding these requirements may be obtained by contacting the Contracting Officer, who will provide such information or assist in obtaining same from appropriate authorities.

38.1 Contractor personnel shall park only in areas authorized by the Contracting Officer.

20 March 1997

39. EQUIPMENT AND OWNERSHIP AND OPERATING EXPENSE SCHEDULE (MAR 1995) EFAR 52.231-5000.

39.1 This does not apply to terminations. See 52.249,5000, Basis for Settlement of Proposals and FAR Part 49.

39.2 Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for which the Government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule, Region II. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the Contracting Officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time of negotiations shall apply.

39.3 Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

39.4 When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the Contracting Officer

shall request the Contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Cover Sheet.

39.5 Whenever a modification or equitable adjustment of contract price is required, the contractor's cost proposals for equipment ownership and operating expenses shall be determined in accordance with the requirements of SPECIAL CONTRACT REQUIREMENT: EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE. A copy of EP 1110-1-8, "Construction Equipment Ownership and Operating Expense Schedule" is available for review at the office of the District Engineer, Room 821, 600 Dr. Martin Luther King, Jr. Place, Louisville, Kentucky, or a copy may be ordered from the Government Printing Office at a cost of $11.00 by calling telephone no. (301) 953-7974.

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9	008-022-00262-6
10	008-022-00263-4
11	008-022-00264-2
12	008-022-00265-1

15 June 1990

40. LABOR, EQUIPMENT, AND MATERIAL REPORTS.

40.1 Daily Equipment Report. The Contractor shall submit a daily report of all Contractor-owned or rented equipment at the jobsite. A similar report is required for all subcontractor equipment. The subcontractor's report may be separate or included with the Contractor's report provided the equipment is adequately identified as to ownership. The required equipment report shall include each item of equipment (hand-operated small tools or equipment excluded) on the job and shall specifically identify each item as to whether it is Contractor-owned or rented, shifts, hours of usage, downtime for repairs, and standby time. Identification of the equipment shall include make, model and plant number of all items. Separate identification by a key sheet providing these data may be utilized with the daily report indicating the type of equipment and the equipment plant numbers. The format of the Daily Equipment Report will be as approved by the Government in the field.

40.2 Labor, Equipment & Material Reports for Extra Work/Cost. A Report shall also be submitted by the Contractor listing any labor, equipment and materials expended on and/or impacted by any change order directed by the Government and for which total price/time agreement has not been reached. These requirements also apply to subcontractors at any tier. The same Report is required at any time the Contractor claims or intends to claim for extra costs whether or not there is Government recognition (constructive changes). This

requirement is in addition to any Contractor "Notice" or "Reservation of Rights". Submittal of such a report will not be construed as satisfying the "Notice" required under the "Changes" clause or any other clause. But, absence of such Reports
submitted to the Government contemporaneously with the alleged extra work/cost will be considered as evidence that no such extra work/cost occurred that are chargeable to the Government.

40.3 The Report shall be detailed to the degree required by the Government in the field and shall contain the following as a minimum:

a. The cause of the extra labor, equipment or materials costs.

b. For extra labor - Indicate crew, craft, hours, location and cost. Describe nature or type of extra costs, i.e, extra work, overtime, acceleration, interference, reassignment, mobilizations and demobilizations, supervision, overhead, type of inefficiency, etc.

c. For extra equipment - Indicate type and description, hours, location, cost; whether working, idle, standby, under repair, extra work involved, etc.

d. For extra materials - Indicate type and description, where used, whether consumed, installed or multi-use, quantity, cost, extra work involved, etc.

e. Affected activities - Relate to Contract Schedule (Network Analysis); demonstrate whether delay or suspension is involved.

f. Segregate all entries by prime and each subcontractor.

g. Summarize costs daily and by cumulative subtotal or with frequency required by the Government.

40.4 This Report will not be considered as evidence that any of the alleged extra costs actually occurred. The Report will be used to check against over obligation of funds for change orders directed prior to price/time agreement and to track alleged extra costs the Contractor considers otherwise chargeable against the Government. The Government may respond at any interval to either challenge, amend or confirm the Report. Absence of a Government response is not to be considered acquiescence or denial. The Government may order work stoppage if deemed necessary to avoid overobligation of funds. The frequency of the report shall be daily or as otherwise approved by the Government representative
in writing.

15 June 1990

41. OHIO SALES AND USE TAX.

The contract price should not include any amount for the Ohio Sales and Use Tax for building and construction materials to be used in the structure. Contractors are exempt from the payment of the Ohio Sales Tax for building structures or improvements to real property under a construction contract with the United States. The exemption certificate shall be in such form as prescribed by the Rules of the Ohio Department of Taxation (Tax Commissioner's Rule 5703-9-03) and should be signed by the Contractor, the subcontractor, and the Corps' Contracting Officer. The certificate should then be furnished to the supplier by the vender within the period within which the supplier is required to file a return for the period in which the sale is consummated, as provided in Ohio Revised Code Section 5739.03. The exemption certificate must specify the

reason that the sale is exempt. The Contractor shall be responsible for obtaining the required exemption certificate and submitting it to the Contracting Officer for exemption.

24 January 1994
(3) 42. PROGRESS PHOTOGRAPHS. The Contractor shall, during the progress of the work, furnish the Contracting Officer photographs, slides and negatives to depict progress of construction. The photographic work shall be commercial quality as determined by the Contracting Officer. The photography shall be performed between the first and fifth of each month and the photographs, slides and negatives delivered to the Contracting Officer not later than the 15th of each month taken. A maximum of six views from different positions shall be taken outside, and six views within the building, as directed to show, inasmuch as possible, work accomplished during the previous month. At least, one set of photographs, slides and negatives shall be made at completion of the contract after the final inspection by the Contracting Officer. The photographs shall be 8"x10" color prints and the slides 35 mm color. Each photograph and slide shall be identified on the face of the picture or the border of the slide giving the date made, contract title and number, location of work, as well as a brief description of work depicted. Each negative will be identified with the same information on a sheet of paper by cross-referencing to the number on the negative. Two copies of photographs and slides, along with the original negatives of each view taken, shall be furnished to the Contracting Officer by the time stipulated above. No separate payment will be made for these services and all costs in connection thereto shall be considered a subsidiary obligation of the Contractor.

20 March 1997
43. NOT USED

44. NOT USED.

17 July 1992
45. INSURANCE--WORK ON A GOVERNMENT INSTALLATION (SEP 1989) FAR 52.228-5.

45.1 The Contractor shall, at its own expense, provide and maintain during the entire performance of this contract at least the kinds and minimum amounts of insurance required in the Schedule or elsewhere in the contract.

(1) Coverage complying with State laws governing insurance requirements, such as those requirements pertaining to Workman's Compensation and Occupational Disease Insurance. Employer's Liability Insurance shall be furnished in limits of not less than $100,000.00 except in states with exclusive or monopolistic funds.

(2) Comprehensive General Liability Insurance for bodily injury coverage shall be furnished in limits of not less than $500,000 per occurrence.

(3) Comprehensive Automobile Liability Insurance for both bodily injury and property damage, shall be furnished in limits of not less than $200,000.00 per person, $500,000.00 per accident for bodily injury, and $20,000.00 per accident for property damage. When the Financial Responsibility or Compulsory Insurance Law of the State, requires higher limits, the policy shall provide for coverage of at least those higher limits.

45.2 Before commencing work under this contract, the Contractor shall certify to the Contracting Officer in writing that the required insurance has

been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective (1) for such period as the laws of the State in which this contract is to be performed prescribe, or (2) until 30 days after the insurer or the Contractor gives written notice to the Contracting Officer, whichever period is longer.

45.3 The Contractor shall insert the substance of this clause, including this paragraph (45.3), in subcontracts under this contract that require work on a Government installation and shall require subcontractors to provide and maintain the insurance required in the Schedule or elsewhere in the contract. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the Contracting Officer upon request.

46. NOT USED.

47. NOT USED.

15 June 1990

48. DEFINITIONS. The following provision is applicable to the SPECIFICATIONS, of this solicitation: The term GENERAL PROVISIONS shall mean CONTRACT CLAUSES, the terms SPECIAL PROVISIONS and SPECIAL CLAUSES shall mean SPECIAL CONTRACT REQUIREMENTS.

49. NOT USED

2 January 1991

50. TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER. ER 415-1-15 (31 OCT 89)

50.1 This provision specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the contract clause entitled "Default: Fixed Price Construction)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

50.1.1 The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

50.1.2 The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

50.2 The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(14)	(10)	(06)	(05)	(05)	(04)	(04)	(04)	(04)	(04)	(05)	(08)

50.3 Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph 50.2, above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled "Default (Fixed Price Construction)".

51. NOT USED.

4 June 1993

52. USE OF INCLINOMETER FOR LONG BED DUMP TRUCKS (DACF BULLETIN 25 MARCH 1993) The recommendation of EM 385-1-1, Section 16.B.15, is mandatory for this project.

20 March 1997

53. AVAILABILITY OF SAFETY AND HEALTH REQUIREMENTS MANUAL (EM 385-1-1). As covered by CONTRACT CLAUSE "ACCIDENT PREVENTION", compliance with EM 385-1-1 is a requirement for this contract. Copies may be purchased for $31.00 each at the following address:

United States Government Bookstore
Room 118, Federal Building
1000 Liberty Avenue
Pittsburgh, PA 15222
Telephone: (412) 644-2721
FAX: (412) 644-4547

15 April 1991

54. FIRE PROTECTION DURING CONSTRUCTION (MIL-HDBK-1008c Para. 1.6) The Contractor is alerted to the requirements of Contract Clause "CLEANING UP" and more specifically to the requirements for fire protection during construction spelled out in EM 385-1-1 and NFPA No. 241 Building Construction and Demolition Operations. This item must be covered in the submittal required under Contract Clause "ACCIDENT PREVENTION".

55. NOT USED.

56. NOT USED.

57. NOT USED.

1 November 1991

58. CONSTRUCTION HAZARD COMMUNICATION. The Contractor is required to comply with the requirements of the OSHA Hazard Communication Standard (29 CFR 1926.59). This standard is designed to inform workers of safe and appropriate methods of working with hazardous substances in the workplace. The

standard has five requirements, and every hazardous or potentially hazardous substance used or stored in the work area is subject to all five. They are:

(1) Hazard Evaluation. Any company which produces or imports a chemical or compound must conduct a hazard evaluation of the substance to determine its potential health or physical hazard. The hazard evaluation consists of an investigation of all the available scientific evidence about the substance. The Contractor is required to assure that all producers (manufacturer/distributors) have performed these evaluations and transmit the required information with any hazardous materials being used or stored on the project site. From the hazard evaluation, a substance may be classified as a health hazard, or a physical hazard. These classifications are then further broken down according to type:

Health Hazards	Physical Hazards
Carcinogens	Combustible liquids
Irritants	Compressed gases
Sensitizers	Explosives
Corrosives	Flammables
Toxic substances	Organic peroxides
Highly toxic substances	Unstable substances
Substances harmful to specific organs or parts of the body	Water-reactive substances

(2) Warning Labels. If a chemical is hazardous or potentially hazardous, the producer or importer must affix a warning label to every container of that chemical before it leaves his facility. The Contractor must assure these labels are attached and legible. The label must identify the chemical, state the hazard, and give the name and address of the producer or importer. If the hazardous substance is transferred to another container, that container must then be labeled, tagged, or marked with the name of the chemical and the appropriate hazard warning. Warning labels should be replaced immediately if they are defaced or removed.

(3) Material Safety Data Sheets. The producer or importer must also supply a material safety data sheet (MSDS). The Contractor must keep these available in the work area where the substance is used, so that the people using the substance can easily review important safety and health information, such as:

The hazard possible from misuse of the substance
Precautions necessary for use, handling, and storage
Emergency procedures for leaks, spills, fire and first aid
Useful facts about the substance's physical or chemical properties

(4) Work Area Specific Training. Because of hazardous substance may react differently depending on how it is used or the environment of the work area, the Contractor must conduct work area specific training; special training which takes the Contractor's operations, environment, and work policies into consideration. Work area training presents:

The hazardous substances which are present in the work place and the hazards they pose

Ways to protect against those hazards, such as protective equipment, emergency procedures, and safe handling

Where the MSDS's are kept, and an explanation of the labeling system

Where the Contractor's written Hazard Communication Program is located

(5) The Written Hazard Communication Program. In accordance with OSHA requirements, the Contractor must prepare a written Hazard Communication Program. This document will be included in the Contractor's Accident Prevention Plan. This document states how the Contractor plans to ensure that hazardous materials are appropriately labeled, how and where MSDS's will be maintained, and how employees will be provided with specific information and training.

15 June 1990

59. CORPS OF ENGINEERS PLAQUE. At the location directed by the Contracting Officer, the Contractor shall mount a Government furnished plaque. Mounting shall be with expansion bolts and rosettes. A photostatic copy of this plaque is bound at the end of these SPECIAL CONTRACT REQUIREMENTS.

60. NOT USED.

24 FEBRUARY 1992

61. MECHANICAL ROOM LAYOUT (ORL). Detailed mechanical room layout drawings shall be submitted for approval in accordance with SD-04 Section 01330. Layout drawings shall show location and maintenance clearances for all mechanical room equipment, and all utility runs/chases for mechanical, electrical, telephone and other similar systems. Drawings shall be submitted at the same time as the submittals for the equipment to be located within the mechanical room.

62. RIGHTS IN TECHNICAL DATA--NONCOMMERCIAL ITEMS (NOV 1995) 252.227-7013 (JUN 1995).

(a) Definitions. As used in this clause:

(1) "Computer data base" means a collection of data recorded in a form capable of being processed by a computer. The term does not include computer software.

(2) "Computer program" means a set of instructions, rules, or routines recorded in a form that is capable of causing a computer to perform a specific operation or series of operations.

(3) "Computer software" means computer programs, source code, source code listings, object code listings, design details, algorithms, processes, flow charts, formulae and related material that would enable the software to be reproduced, recreated, or recompiled. Computer software does not include computer data bases or computer software documentation.

(4) "Computer software documentation" means owner's manuals, user's manuals, installation instructions, operating instructions, and other similar items, regardless of storage medium, that explain the capabilities of the computer software or provide instructions for using the software.

(5) "Detailed manufacturing or process data" means technical data that describe the steps, sequences, and conditions of manufacturing, processing or assembly used by the manufacturer to produce an item or component or to perform a process.

(6) "Developed" means that an item, component, or process exists and is workable. Thus, the item or component must have been constructed or the process practiced. Workability is generally established when the item, component, or process has been analyzed or tested sufficiently to demonstrate to reasonable people skilled in the applicable art that there is a high probability

that it will operate as intended. Whether, how much, and what type of analysis or testing is required to establish workability depends on the nature of the item, component, or process, and the state of the art. To be considered "developed," the item, component, or process need not be at the stage where it could be offered for sale or sold on the commercial market, nor must the item, component, or process be actually reduced to practice within the meaning of Title 35 of the United States Code.

(7) "Developed exclusively at private expense" means development was accomplished entirely with costs charged to indirect cost pools, costs not allocated to a government contract, or any combination thereof.

(i) Private expense determinations should be made at the lowest practicable level.

(ii) Under fixed-priced contracts, when total costs are greater than the firm-fixed-price or ceiling price of the contract, the additional development costs necessary to complete development shall not be considered when determining whether development was at government, private, or mixed expense.

(8) "Developed exclusively with government funds" means development was not accomplished exclusively or partially at private expense.

(9) "Developed with mixed funding" means development was accomplished partially with costs charged to indirect cost pools and/or costs not allocated to a government contract, and partially with costs charged directly to a government contract.

(10) "Form, fit, and function data" means technical data that describes the required overall physical, functional, and performance characteristics (along with the qualification requirements, if applicable) of an item, component, or process to the extent necessary to permit identification of physically and functionally interchangeable items.

(11) "Government purpose" means any activity in which the United States Government is a party, including cooperative agreements with international or multi-national defense organizations, or sales or transfers by the United States Government to foreign governments or international organizations. Government purposes include competitive procurement, but do not include the rights to use, modify, reproduce, release, perform, display, or disclose technical data for commercial purposes or authorize others to do so.

(12) "Government purpose rights" means the right to--

(i) Use, modify, reproduce, release, perform, display, or disclose technical data within the Government without restrictions; and

(ii) Release or disclose technical data outside the Government and authorize persons to whom release or disclosure has been made to use, modify, reproduce, release, perform, display, or disclose that data for United States government purposes.

(13) "Limited rights" means the rights to use, modify, reproduce, release, perform, display, or disclose technical data, in whole or in part, within the Government. The Government may not, without the written permission of the party asserting limited rights, release or disclose the technical data outside the Government, use the technical data for manufacture, or authorize the technical data to be used by another part, except that the Government may reproduce, release or disclose such data or authorize the use or reproduction of

the data by persons outside the Government if reproduction, release, disclosure, or use is--

(i) Necessary for emergency repair and overhaul; or

(ii) A release or disclosure of technical data (other than detailed manufacturing or process data) to, or use of such data by, a foreign government that is in the interest of the Government and is required for evaluational or informational purposes;

(iii) Subject to a prohibition on the further reproduction, release, disclosure, or use of the technical data; and

(iv) The contractor or subcontractor asserting the restriction is notified of such reproduction, release, disclosure, or use.

(14) "Technical data" means recorded information, regardless of the form or method of the recording, of a scientific or technical nature (including computer software documentation). The term does not include computer software or data incidental to contract administration, such a financial and/or management information.

(15) "Unlimited rights" means rights to use, modify, reproduce, perform, display, release, or disclose technical data in whole or in part, in any manner, and for any purpose whatsoever, and to have or authorize others to do so.

(b) Rights in technical data.

The Contractor grants or shall obtain for the Government the following royalty free, world-wide, nonexclusive, irrevocable license rights in technical data other than computer software documentation (see Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation clause of this contract for rights in computer software documentations):

(1) Unlimited rights.

The Government shall have unlimited rights in technical data that are--

(i) Data pertaining to an item, component, or process which has been or will be developed exclusively with Government funds;

(ii) Studies, analyses, test data, or similar data produced for this contract, when the study, analysis, test, or similar work was specified as an element of performance;

(iii) Created exclusively with Government funds in the performance of a contract that does not require the development, manufacture, construction, or production of items, components, or processes;

(iv) Form, fit, and function data;

(v) Necessary for installation, operation, maintenance, or training purposes (other than detailed manufacturing or process data);

(vi) Corrections or changes to technical data furnished to the Contractor by the Government;

(vii) Otherwise publicly available or have been released or disclosed by the Contractor or subcontractor without restrictions on further use, release or disclosure, other than a release or disclosure resulting from the sale, transfer, or other assignment of interest in the technical data to another party or the sale or transfer of some or all of a business entity or its assets to another party;

(viii) Data in which the Government has obtained unlimited rights under another Government contract or as a result of negotiations; or

(ix) Data furnished to the Government, under this or any other Government contract or subcontract thereunder, with--

(A) Government purpose license rights or limited rights and the restrictive condition(s) has/have expired; or

(B) Government purpose rights and the Contractor's exclusive right to use such data for commercial purposes has expired.

(2) Government purpose rights.

(i) The Government shall have government purpose rights for a five-year period, or such other period as may be negotiated, in technical data--

(A) That pertain to items, components, or processes developed with mixed funding except when the Government is entitled to unlimited rights in such data as provided in paragraphs (b)(ii) and (b)(iv) through (b)(ix) of this clause; or

(B) Created with mixed funding in the performance of a contract that does not require the development, manufacture, construction, or production of items, components, or processes.

(ii) The five-year period, or such other period as may have been negotiated, shall commence upon execution of the contract, subcontract, letter contract (or similar contractual instrument), contract modification, or option exercise that required development of the items, components, or processes or creation of the data described in paragraph (b)(2)(i)(B) of this clause. Upon expiration of the five-year or other negotiated period, the Government shall have unlimited rights in the technical data.

(iii) The Government shall not release or disclose technical data in which it has government purpose rights unless--

(A) Prior to release or disclosure, the intended recipient is subject to the non-disclosure agreement at 227.7103-7 of the Defense Federal Acquisition Regulation Supplement (DFARS); or

(B) The recipient is a Government contractor receiving access to the data for performance of a Government contract that contains the clause at DFARS 252.227-7025, Limitations on the Use or Disclosure of Government-Furnished Information Market with Restrictive Legends.

(iv) The Contractor has the exclusive right, including the right to license others, to use technical data in which the Government has obtained government purpose rights under this contract for any commercial purpose during the time period specified in the government purpose rights legend prescribed in paragraph (f)(2) of this clause.

(3) Limited rights.

(i) Except as provided in paragraphs (b)(1)(ii) and (b)(1)(iv) through (b)(1)(ix) of this clause, the Government shall have limited rights in technical data--

(A) Pertaining to items, components, or processes developed exclusively at private expense and marked with the limited rights legend prescribed in paragraph (f) of this clause; or

(B) Created exclusively at private expense in the performance of a contract that does not require the development, manufacture, construction, or production of items, components, or processes.

(ii) The Government shall require a recipient of limited rights data for emergency repair or overhaul to destroy the data and all copies in its possession promptly following completion f the emergency repair/overhaul and to notify the Contractor that the data have been destroyed.

(iii) The Contractor, its subcontractors, and suppliers are not required to provide the Government additional rights to use, modify, reproduce, release, perform, display, or disclose technical furnished to the Government with limited rights. However, if the Government desires to obtain additional rights in technical data in which it has limited rights, the Contractor agrees to promptly enter into negotiations with the Contracting Officer to determine whether there are acceptable terms for transferring such rights. All technical data in which the Contractor has granted the Government additional rights shall be listed or described in a license agreement made part of the contract. the license shall enumerate the additional rights granted the Government in such data.

(4) Specifically negotiated license rights.

The standard license rights granted to the Government under paragraphs (b)(1) through (b)(3) of this clause, including the period during which the Government shall have government purpose rights in technical data, may be modified by mutual agreement to provide such rights as the parties consider appropriate but shall not provide the Government lesser rights than are enumerated in paragraph (a)(13) of this clause. Any rights so negotiated shall be identified in a license agreement made part of this contract.

(5) Prior government rights.

Technical data that will be delivered, furnished, or otherwise provided to the Government under this contract, in which the Government has previously obtained rights shall be delivered, furnished, or provided with the pre-existing rights, unless--

(i) The parties have agreed otherwise; or

(ii) Any restrictions on the Government's rights to use, modify, reproduce, release, perform, display, or disclose the data have expired or no longer apply.

(6) Release from liability.

The Contractor agrees to release the Government from liability for any release or disclosure of technical data made in accordance with paragraph (a)(13) or (b)(2)(iii) of this clause, in accordance with the terms of a license negotiated under paragraph (b)(4) of this clause, or by others to whom the recipient has released or disclosed the data and to seek relief solely from the

party who has improperly used, modified, reproduced, released, performed, displayed, or disclosed Contractor data marked with restrictive legends.

(c) Contractor rights in technical data.

All rights not granted to the Government are retained by the Contractor.

(d) Third party copyrighted data.

The Contractor shall not, without the written approval of the Contracting Officer, incorporate any copyrighted data in the technical data to be delivered under this contract unless the Contractor is the copyright owner or has obtained for the Government the license rights necessary to perfect a license or licenses in the deliverable data of the appropriate scope set forth in paragraph (b) of this clause, and has affixed a statement of the license or licenses obtained on behalf of the Government and other persons to the data transmittal document.

(e) Identification and delivery of data to be furnished with restrictions on use, release, or disclosure.

(1) This paragraph does not apply to restrictions based solely on copyright.

(2) Except as provided in paragraph (e)(3) of the clause, technical data that the Contractor assets should be furnished to the Government with restrictions on use, release, or disclosure are identified in an attachment to this contract (see Attachment). The Contractor shall not deliver any data with restrictive markings unless the data are listed on the Attachment.

(3) In addition to the assertions made in the Attachment, other assertions may be identified after award when based on new information or inadvertent omissions unless the inadvertent omissions would have materially affected the source selection decision. Such identification and assertion shall be submitted to the Contracting Officer as soon as practicable prior to the scheduled date for delivery of the data, in the following format, and signed by an official authorized to contractually obligate the Contractor:

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data.

The Contractor asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data should be restricted--

Technical Data to be Furnished With Restrictions*	Basis for Assertion**	Asserted Rights Category***	Name of Person Asserting Restrictions****
(LIST)	(LIST)	(LIST)	(LIST)

*If the assertion is applicable to items, components, or processes developed at private expense, identify both the data and each such item, component, or process.

**Generally, the development of an item, component, or process at private expense, either exclusively or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose technical data pertaining to such terms, components, or processes. Indicate whether development was exclusively or partially at private expense. If development was

not at private expense, enter the specific reason for asserting that the Government's right should be restricted.

***Enter asserted rights category (e.g. government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited or government purpose rights under this or a prior contract, or specifically negotiated licenses).

****Corporation, individual, or other person, as appropriate.

Date _____

Printed Name and Title _____

_____

Signature _____

_____

(End of identification and assertion)

(4) When requested by the Contracting Officer, the Contractor shall provide sufficient information to enable the Contracting Officer to evaluate the Contractor's assertions. The Contracting Officer reserves the right to add the Contractor's assertions to the Attachment and validate any listed assertion, at a later date, in accordance with the procedures of the Validation of Restrictive Markings on Technical Data clause of this contract.

(f) Marking requirements.

The Contractor, and its subcontractor or suppliers, may only assert restrictions on the Government's rights to use, modify, reproduce, release, perform, display, or disclose technical data to be delivered under this contract by marking the deliverable data subject to restriction. Except as provided in paragraph (f)(5) of this clause, only the following legends are authorized under this contract: the government purpose rights legend at paragraph (f)(2) of this clause: the limited rights legend at paragraph (f)(3) of this clause: or the special license rights legend at paragraph (f)(4) of this clause, and/or a notice of copyright as prescribed under 17 U.S.C. 401 or 402.

(1) General marking instructions.

The Contractor, or its subcontractors or suppliers, shall conspicuously and legibly mark the appropriate legend on all technical data that qualify for such markings. The authorized legends shall be placed on the transmittal document or storage container and, for printed material, each page of the printed material containing technical data for which restrictions are asserted. When only portions of a page of printed material are subject to the asserted restrictions, such portions shall be identified by circling, underscoring, with a note, or other appropriate identifier. Technical data transmitted directly from one computer or computer terminal to another shall contain a notice of asserted restrictions. Reproductions of technical data or any portions thereof subject to asserted restrictions shall also reproduce the asserted restrictions.

(2) Government purpose rights markings.

Data delivered or otherwise furnished to the Government with government purpose rights shall be marked as follows:

GOVERNMENT PURPOSE RIGHTS

Contract No. _____

Contractor Name _____

Contractor Address _____

_____

Expiration Date _____

The Government's rights to use, modify, reproduce, release, perform, display, or disclose these technical data are restricted by paragraph (b)(2) of the Rights in Technical Data--Noncommercial Items clause contained in the above identified contract. No restrictions apply after the expiration date shown above. Any reproduction of technical data or portions thereof marked with this legend must also reproduce the markings.

(End of legend)

(3) Limited rights markings.

Data delivered or otherwise furnished to the Government with limited rights shall be marked with the following legend:

LIMITED RIGHTS

Contract No. _____

Contractor Name _____

Contractor Address _____

_____

The Government's rights to use, modify, reproduce, release, perform, display, or disclose these technical data are restricted by paragraph (b)(3) of the Rights in Technical Data--Noncommercial Items clause contained in the above identified contract. Any reproduction of technical data or portions thereof marked with this legend must also reproduce the markings. Any person, other than the Government, who has been provided access to such data must promptly notify the above name Contractor.

(End of legend)

(4) Special license rights markings.

(I) Data in which the Government's rights stem from a specifically negotiated license shall be marked with the following legend:

SPECIAL LICENSE RIGHTS

The Government's rights to use, modify, reproduce, release, perform, display, or disclose these data are restricted by Contract No. _____)Insert contract number) _____, License No. _____ (Insert license

identifier) _____. Any reproduction of technical data or portions thereof marked with this legend must also reproduce the markings.

(End of legend)

(ii) For purposes of this clause, special licenses do not include government purpose license rights acquired under a prior contract (see paragraph (b)(5) of this clause)_.

(5) Pre-existing data markings.

If the terms of a prior contract or license permitted the Contractor to restrict the Government's rights to use, modify, reproduce, release perform, display, or disclose technical data deliverable under this contract, and those restrictions are still applicable, the Contractor may mark such data with the appropriate restrictive legend for which the data qualified under the prior contract or license. The marking procedures in paragraph (f)(1) of this clause shall be followed.

(g) Contractor procedures and records.

Throughout performance of this contract, the Contractor and its subcontractors or suppliers that will deliver technical data with other than unlimited rights, shall--

(1) Have, maintain, and follow written procedures sufficient to assure that restrictive markings are used only when authorized by the terms of this clause, and

(2) Maintain records sufficient to justify the validity of any restrictive markings on technical data delivered under this contract.

(h) Removal of unjustified and nonconforming markings.

(1) Unjustified technical data markings.

The rights and obligations of the parties regarding the validation of restrictive markings or technical data furnished or to be furnished under this contract are contained in the Validation of Restrictive Markings on Technical Data clause of this contract. Notwithstanding any provision of this contract concerning inspection and acceptance, the Government may ignore or, at the Contractor's expense, correct or strike a marking if, in accordance with the procedures in the Validation of Restrictive Markings on Technical Data clause of this contract, a restrictive marking is determined to be unjustified.

(2) Nonconforming technical data markings.

A nonconforming marking is a marking placed on technical data delivered or otherwise furnished to the Government under this contract that is not in the format authorized by this contract. Correction of nonconforming markings is not subject to the Validation of Restrictive Markings on Technical Data clause of this contract. If the Contracting Officer notifies the Contractor of a nonconforming marking and the Contractor fails to remove or correct such marking within sixty (60) days, the Government may ignore or, at the Contractor's expense, remove or correct any nonconforming marking.

(I) Relation to patents.

Nothing contained in this clause shall imply a license to the Government under any patent or be construed as affecting the scope of any license or other with otherwise granted to the Government under any patent.

(j) Limitation on charges for rights in technical data.

(1) The Contractor shall not charge to this contract any cost, including, but not limited to, license fees, royalties, or similar charges, for rights in technical data to be delivered under this contract when--

(I) The Government has acquired, by any means, the same or greater rights in the data; or

(ii) The data are available to the public without restrictions.

(2) The limitation in paragraph (j)(1) of this clause--

(I) Includes costs charged by a subcontractor or supplier, at any tier, or costs incurred by the Contractor to acquire rights in subcontractor or supplier technical data, if the subcontractor or supplier has been paid for such rights under any other Government contract or under a license conveying the rights to the Government; and

(ii) Does not include the reasonable costs of reproducing, handling, or mailing the documents or other media in which the technical data will be delivered.

(k) Applicability to subcontractors or suppliers.

(1) The Contractor shall ensure that the rights afforded its subcontractors and suppliers under 10 U.S.C. 2320, 10 U.S.C. 2321, and the identification, assertion, and delivery processes of paragraph (e) of this clause are recognized and protected.

(2) Whenever any technical data for noncommercial items is to be obtained from a subcontractor or supplier for delivery to the Government under this contract, the Contractor shall use this same clause in the subcontract or other contractual instrument, and require its subcontractors or suppliers to do so, without alteration, except to identify the parties. No other clause shall be used to enlarge or diminish the Government's, the Contractor's, or a higher-tier subcontractor's or supplier's rights in a subcontractor's or supplier's technical data.

(3) Technical data required to be delivered by a subcontractor or supplier shall normally be delivered to the next higher-tier contractor, subcontractor, or supplier. However, when there is a requirement in the prime contract for data which may be submitted with other than unlimited rights by a subcontractor or supplier, then said subcontractor or supplier may fulfill its requirement by submitting such data directly to the Government, rather than through a higher-tier contractor, subcontractor, or supplier.

(4) The Contractor and higher-tier subcontractors or suppliers shall not use their power to award contracts as economic leverage to obtain rights in technical data from their subcontractors or suppliers.

(5) In no event shall the Contractor use its obligation to recognize and protect subcontractor or supplier rights in technical data as an excuse for failing to satisfy its contractual obligation to the Government.

63. NOT USED.

64. thru 67. NOT USED.

68. NOT USED.

2 January 1996

69. BASIS FOR SETTLEMENT OF PROPOSALS. EFARS 52.249-5000. Actual costs will be used to determine equipment costs for a settlement proposal submitted on the total cost basis under FAR 49.206-2(b). In evaluating a terminations settlement proposal using the total cost basis, the following principles will be applied to determine allowable equipment costs:

(1) Actual costs for each piece of equipment, or groups of similar serial or series equipment, need not be available in the contractor's accounting records to determine total actual equipment costs.

(2) If equipment costs have been allocated to a contract using predetermined rates, those charges will be adjusted to actual costs.

(3) Recorded job costs adjusted for allowable expenses will be used to determine equipment operating expenses.

(4) Ownership costs (depreciation) will be determined using the contractor's depreciation schedule (subject to the provisions of FAR 31.205-11).

(5) License, taxes, storage and insurance costs are normally recovered as an indirect expense and unless the contractor charges these costs directly to contracts, they will be recovered through the indirect expense rate.

70. NOT USED.

17 August 1998

71. PARTNERING. In order to most effectively accomplish this contract, the Government proposes to form a partnership with the Contractor to develop a cohesive building team. It is anticipated that this partnership would involve the Corps of Engineers, the Design/Build Contractor and the Designers, the Base Civil Engineering, the building Users, and other interested parties. This partnership would strive to develop a cooperative management team drawing on the strengths of each team member in an effort to achieve a quality project within budget and on schedule. This partnership would be bilateral in membership and participation will be totally voluntary. Any cost associated with effectuating this partnership, excluding travel and lodging cost of Government personnel, will be borne by the Contractor.

24 January 1994

72. PROPOSED BETTERMENTS

The minimum requirements of the contract are identified in the Request for Proposal. All betterments offered in the proposal become a requirement of the awarded contract.

"Betterment" is defined as any component or system which exceeds the minimum requirements stated in the Request for Proposal. This includes all proposed betterments listed in accordance with Submittal Requirements of Section 00100 of the Proposal, and all Government identified betterments.

"Government identified betterments" include the betterments identified on the list of Accepted Project Betterments prepared by the Proposal Evaluation Board and made a part of the contract by alteration, and all other betterments identified in the accepted Proposal after award.

17 August 1998
(2) 73. SEQUENCE OF DESIGN/CONSTRUCTION (FAST TRACK)

(a) After receipt of Notice to Proceed (NTP) with design, the Contractor shall initiate design, comply with all design submission requirements as covered under Division 01 General Requirements, and obtain Government review of each submission. The contractor may begin construction on portions of the work for which the Government has reviewed the final design submission and has determined satisfactory for purposes of beginning construction. The COR will notify the contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the COR, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

(b) If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government.

24 January 1994
74. DESIGN RESPONSIBILITY OF THE DESIGN/BUILD CONTRACTOR

(a) The Contractor shall be responsible for the professional quality, technical accuracy, and coordination of all designs, drawings, specifications, and other design functions necessary for the Contractor to perform this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiencies in its designs, drawings, specifications, or other design function.

(b) Neither the Government's review, approval or acceptance of, nor any payment related to the design portion of this contract shall be construed as to operate as a waiver of any rights under this contract or any cause of action arising out of the performance of this contract.

24 January 1994
75. GOVERNMENT RIGHTS (UNLIMITED) (MAR 1979) FAR 52.227-7022

The Government shall have unlimited rights, in all drawings, designs, specifications, notes and other works developed in the performance of this contract, including the right to use same on any other Government design or construction without additional compensation to the Contractor. The Contractor hereby grants to the Government a paid-up license throughout the world to all such works to which he may assert or establish any claim under design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish the original or copies of all such works on the request of the Contracting Officer.

24 January 1994
76. DRAWINGS AND OTHER DATA TO BECOME PROPERTY OF GOVERNMENT (MAR 1979) FAR 52.227-7023

All designs, drawings, specifications, notes and other works developed in the performance of this contract shall become the sole property of the Government and may be used on any other design or construction without additional compensation to the Contractor. The Government shall be considered the "person for whom the work was prepared" for the purpose of authorship in any copyrightable work under 17 U.S.C. 201(b). With respect thereto, the Contractor agrees not to assert or authorize others to assert any rights nor establish any claim under the design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish all retained works on the request of the Contracting Officer. Unless otherwise provided in this contract, the Contractor shall have the right to retain copies of all works beyond such period.

17 August 1998

77. KEY PERSONNEL, SUBCONTRACTORS AND OUTSIDE ASSOCIATES OR CONSULTANTS

In connection with the services covered by this contract, any inhouse personnel, subcontractors, and outside associates or consultants will be limited to individuals or firms that were specifically identified and agreed to during negotiations. The Contractor shall obtain the Contracting Officer's written consent before making any substitution for these designated inhouse personnel, subcontractors, associates, or consultants.

20 March 1997

78. REQUIREMENTS FOR REGISTRATION OF DESIGNERS (APR 1984) FAR 52.236-25

The design of architectural, structural, mechanical, electrical, civil, or other engineering features of the work shall be accomplished or reviewed and approved by architects or engineers registered to practice in the particular professional field involved in a State or possession of the United States, in Puerto Rico, or in the District of Columbia. The cover sheet of the drawings shall be stamped (sealed) by each discipline responsible for the design.

17 August 1998

79. DESIGN/BUILD CONTRACT – ORDER OF PRECEDENCE

(a) The contract includes the standard contract clauses and schedules current at the time of contract award. It entails (1) the solicitation in its entirety, including all drawings, cuts, and illustrations, and any amendments, and (2) the successful offeror's accepted proposal. The contract constitutes and defines the entire agreement between the Contractor and the Government. No documentation shall be omitted which in any way bears upon the terms of that agreement.

(b) In the event of conflict or inconsistency between any of the provisions of this contract, precedence shall be given in the following order:

(1) Betterments: Any portions of the accepted proposal which both conform to and exceed the provisions of the solicitation.

(2) The provisions of the solicitations. (See also contract Clause: SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION.)

(3) All other provisions of the accepted proposal.

(4) Any design products including, but not limited to, plans, specifications, engineering studies and analyses, shop drawings, equipment installation drawings, etc. These are "deliverables" under the contract and are

not part of the contract itself. Design products must conform with all provisions of the contract, in the order of precedence herein.

17 August 1998

80. DESIGN CONFERENCES

a. Pre-Work: As part of the Pre-work conference conducted after contract award, key representatives of the Government and the Contractor will review the design submission and review procedures specified herein, discuss the preliminary design schedule and provisions for phase completion of the D/B documents with construction activities (fast tracking), as appropriate, meet with Corps of Engineers Design Review personnel and key Using Agency points of contact and any other appropriate pre-design discussion items.

b. Design Meeting(s): After award of the contract, the Contractor shall visit the site and conduct extensive interviews, and problem solving discussions with the individual users, base personnel, Corps of Engineers personnel to acquire all necessary site information, review user operations, and discuss user needs. The purpose of the meeting(s) is to allow the Contractor to obtain any additional information necessary to proceed with final design. The functional aspects of the floor plan should not be changed in the meeting(s). The Contractor shall document all discussions. The design shall be finalized as direct result of the meeting(s).

c. Design Review Conferences: Review conferences will be held on base for each design for each submittal. The Contractor shall bring the personnel that developed the design submittal to the review conference. The conferences will take place the week after the review is complete.

1 February 1995

81. POLLUTION PREVENTION PLAN

The Contractor shall do and implement a Pollution Prevention Plan for this project. This plan shall be developed as part of the design process by the Contractor and must meet the erosion and sediment control requirements for the state of Ohio. The plan must identify the controls that will be used and include design, inspection, and maintenance information. A site plan with the existing and proposed grading shall be included, showing the controls being utilized. The permanent stabilization practices (permanent seeding, mulching, sodding, plants, erosion control blanket, riprap, etc.) should be shown on the final grading plan, with temporary controls (temporary gravel construction entrance/exit, silt fences, temporary diversions, sediment basins or traps, etc.) shown on the existing grading plan. Use of straw bales is not considered an effective method of sediment control and should not be used. Prior to construction, the Contractor shall submit the Pollution Prevention Plan to the Contracting Officer for review.

82. NOT USED.

83. NOT USED.

16 July 1999

84. CONSTRUCTION AND DEMOLITION (C&D) WASTE MANAGEMENT PLAN

(1) The Contractor is required to submit for government approval a detailed C&D Waste Management Plan within 30 days after contract award and prior to initiating any site clearance or C&D work.

(2) Specific elements to be addressed in the plan are as follows:

(a) Designated individuals on the contractor's staff who are responsible for C&D waste prevention and management.

(b) Actions that will be taken to reduce solid waste generation (including use of more efficient facility design and construction processes, reduced packaging and packing materials, supplier take-back programs, etc.).

(c) Description of the specific approaches to be used in recycling/reuse of the various materials generated, including, as appropriate, the specification of areas and equipment to be used for processing, sorting, and temporary storage of C&D wastes.

(d) Characterization of the waste to be generated during the C&D project, to include types and quantities of waste materials. The characterization should address site waste materials, building materials, packaging, packing, wastes generated by construction equipment, wastes generated by site offices, and wastes generated by the workforce on-site.

(e) Landfill and/or incinerator name, tipping fee amounts, projected cost of disposing of all trash and waste materials in the landfill/incinerator, as if there would be no salvage or recycling on the project.

(f) Identification of local and regional reuse programs, including non-profit organizations such as schools, local housing agencies, and public arts programs that accept used materials (e.g., Habitat For Humanity, national materials exchange networks).

(g) A list of specific waste materials that will be salvaged for resale, salvaged and reused, and recycled; the recycling facilities that will be utilized; and copies of their permits and/or registrations.

(h) Identification of materials that cannot be recycled/reused with a written justification. All disposed materials including anticipated hazardous wastes must include names of haulers and disposal sites, and copies of their permits and/or registrations.

(i) Anticipated net cost savings determined by subtracting contractor program management costs and the cost of salvage (deconstruction), separating, and recycling from the following:

(1)revenue from the sale of salvaged products and materials;

(2)revenue from the sale of recycled products and materials;

(3)revenue from the return of materials; and

(4)incineration and/or landfill tipping fees saved due to diversion of materials.

(j) The plan must cover the following materials if the material is applicable to the specific project.

Asphalt	Gypsum
Concrete	Plastic
Soil	Polystyrene
Metal	Porcelain
Wood	Corrugated cardboard
Brick	Carpet

(3) Firms and facilities used by the contractor for recycling, reuse, and disposal shall be appropriately permitted for the contractor's intended use, to the extent required by federal, state, and local regulations. The contractor shall maintain records of disposition of the materials, including all copies of manifests, origin, and disposal forms, and bills of lading. All facility, landfill, and hauler permits showing USEPA and state registration numbers shall be maintained and shall be available to the contracting officer when requested.

(4) The Contracting Officer shall review the C&D waste management plan in coordination with the environmental office within 7 calendar days of submittal. Where the contracting officer determines that the contractor has diligently explored all feasible methods to reduce C&D waste, the plan shall be approved, or approved with comment. Where it is determined that the contractor has not diligently explored all feasible methods, the contracting officer shall request a resubmittal.

(5) All revenues generated by reusing, returning, salvaging, or recycling materials, as well as costs avoided by reduced tipping and incineration fees as compared to conventional disposal shall accrue to the contractor's benefit and be reported to the Contracting Officer. Where an on-site Army C&D landfill is the only available disposal facility, the Contractor will be changed the prevailing commercial rate.

22 June 1998

85. YEAR 2000 COMPLIANCE

a. In accordance with FAR 39.106, the Contractor shall ensure that with respect to any design, construction, goods, or services under this contract as well as any subsequent task/delivery orders issued under this contract (if applicable), all information technology contained therein shall be Year 2000 compliant. Specifically:

b. The Contractor shall:

(1) Perform, maintain, and provide an inventory of all major components to include structures, equipment, items, parts, and furnishings under this contract and each task/delivery order which may be affected by the Y2K compliance requirements.

(2) Indicate whether each component is currently Year 2000 compliant or requires an upgrade for compliance prior to government acceptance.

STATEMENT AND ACKNOWLEDGMENT

FORM APPROVED OMB NO
9000-0014

Public reporting burden for this collection of information is estimated to average .15 hours per response, including the time for reviewing instructions. Searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the suggestions for reducing this burden, to the FAR Secretarial (VRS), Office of Federal Acquisition and Regulatory Policy, GSA Washington, D.C. 20405: and to the Office of Management and Budget, Paperwork Reduction Project (9000-0014), Washington, D.C. 20503

PART I - STATEMENT OF PRIME CONTRACTOR

1. PRIME CONTRACT NO.	2. DATE SUBCONTRACT AWARDED	3. SUBCONTRACT NUMBER
4. PRIME CONTRACTOR (Name, address and ZIP code)		5. SUBCONTRACTOR (Name, address and ZIP code)

6. The prime contractor states that under the contract shown in item 1, a subcontract was awarded on date shown in item 2 by (Name of Awarding Firm)

to the subcontractor identified in item 5, for the following work:

7. PROJECT	8. LOCATION	
9. NAME AND TITLE OF PERSON SIGNING	10. BY (Signature)	11. DATE SIGNED

PART II - ACKNOWLEDGMENT OF SUBCONTRACTOR

12. The subcontractor acknowledges that the following clauses of the contract shown in item 1 are included in this subcontract:

Contract Work Hours and Safety Standards Act - Overtime Compensation - Construction	David-Bacon Act
Payrolls and Basic Records	Apprentices and Trainees
Withholding of Funds	Compliance with Copeland Regulations
Disputes Concerning Labor Standards	Subcontracts
	Contract Termination-Debarment
	Certification of Eligibility

13. NAME(S) OF ANY INTERMEDIATE SUBCONTRACTORS, IF ANY

14. NAME AND TITTLE OF PERSON SIGNING	15. BY (Signature)	16 DATE SIGNED

24 October 1988

(Sample of Typical contractor Quality report)

CONTRACTOR'S NAME
(Address)

DAILY CONSTRUCTION QUALITY CONTROL REPORT

Contract No:_____ Date:_____ Report No._____
Project Name_____
Weather: (Clear) (P. Cloudy) (Cloudy); Temperature: ____Min. ____Max; ____Rainfall ____in.

Contractor/Subcontractors/Supplier	Area of Responsibility
a.	
b.	
c.	
d.	
e.	
f.	
g.	

1. Definable Features of Construction in Progress: (Give briefly only definable features of work in progress and location. Refer to work performed by prime and/or subcontractor and/or supplier by letter in table above).

2. Material and/or Equipment Delivered to site:

3. Results of Surveillance:

Preparatory Phase (Attach minutes):

Initial Phase (Attach minutes):

Follow-up Phase (Include satisfactory work completed and/or deficiencies with action to be taken):

4. Tests Required by Plans and/or Specification Performed and results of Test: (Attach results of test taken on previous dates).

5. Verbal Instructions Received: (List any instructions given by Government Personnel on construction deficiencies. Retesting required, etc., with action to be taken.

6. Safety Deficiencies Noted. (Describe corrective actions taken).

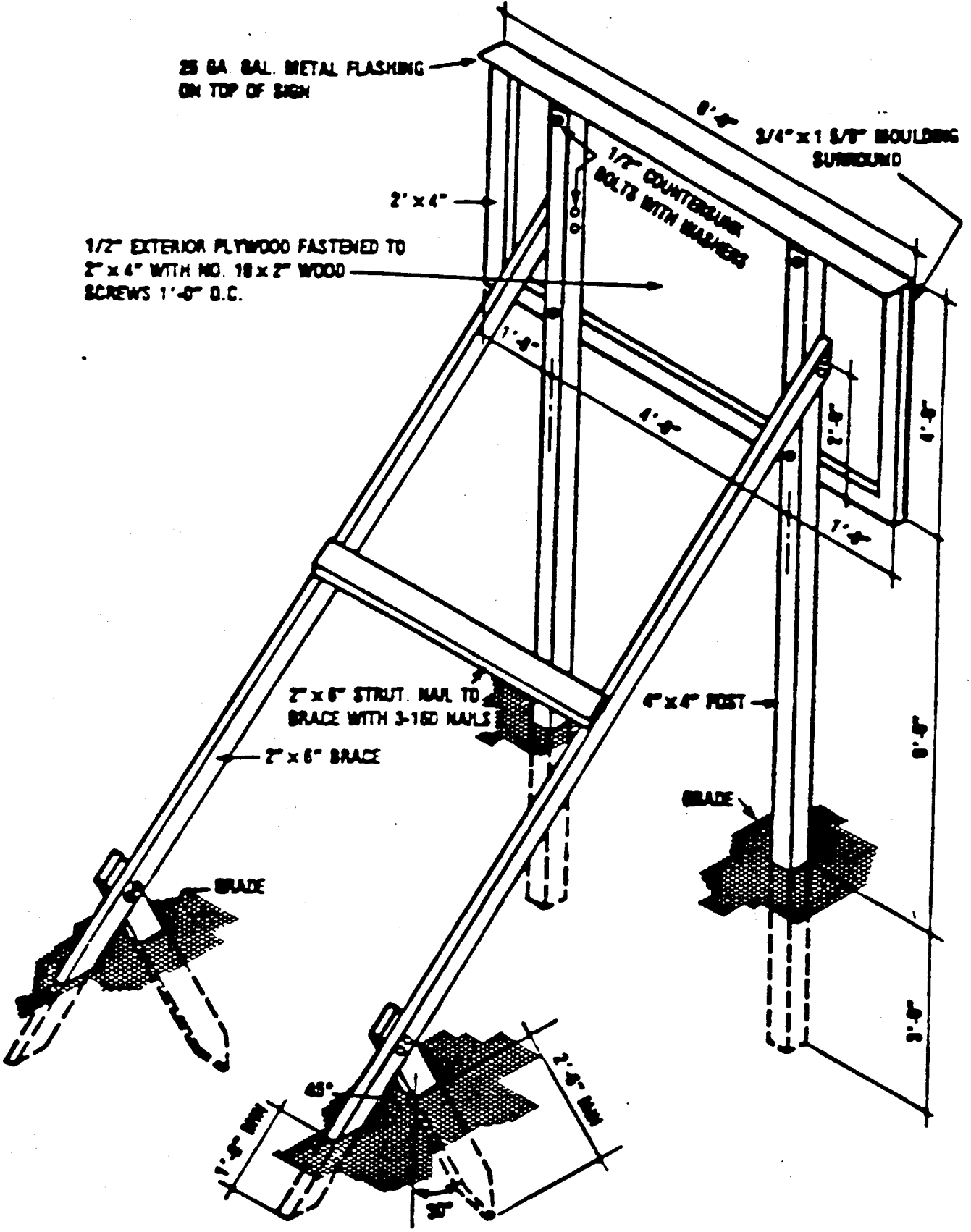
7. Remarks: (Cover any conflicts in plans, specifications, or instruction).

CONTRACTOR'S VERIFICATION: The above report is complete and correct and all material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Contractor's Authorized QC Representative

UNITED STATES AIR FORCE
GEOGRAPHIAE SCIENTIAEQUE CONFINIA PENETRAMUS
ENGINEERING AND SERVICES

AFVA 85-2



CONSTRUCTION SIGN ISOMETRIC
ERECTION DETAILS

All Construction Project Identification signs and Safety Performance signs are to be fabricated and installed as described below. The signs are to be erected at a location designated by the contracting officer and shall conform to the size, format, and typographic standards shown

The sign panels are to be fabricated from .75" High Density Overlay Plywood.

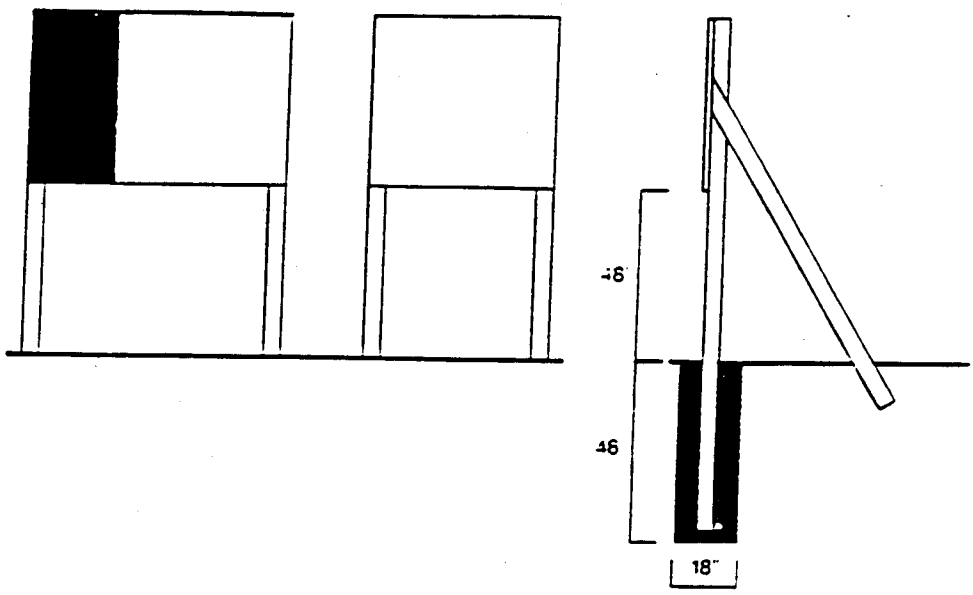
All graphics are to be applied to the background panel following the graphic formats as indicated.

Drill and insert six (6) .375" T-nuts from the front face of the HDO sign panel. Flange of T-nut to be flush with sign face.

Apply lettering and logo to prepared HDO plywood panel.

Sign uprights to be structural grade 4"x4" treated Douglas Fir or Southern Yellow Pine, No. 1 or better. Post to be 12' long. Drill six (6) .375" mounting holes in uprights to align with T-nuts in sign panel. Countersink (.5") back of hole to accept socket head cap screw (4"x.375").

Assemble sign panel and uprights. Imbed assembled sign panel and uprights in 4' hole. Bolt additional 2"x4" struts on inside face of uprights to reinforce installation as shown.



Construction Project Sign

Legend Group 1: Corps Relationship

1. _____
2. _____

Legend Group 2: Corps Signature

1. U.S. Army Corps
2. of Engineers

Legend Group 2A: District Name

1. _____
2. _____

Legend Group 3: Project Title

1. _____
2. _____
3. _____

Legend Group 4: Facility Name

1. _____
2. _____

Legend Group 5a: Designer

1. _____
2. _____
3. _____
4. _____
5. _____

Legend Group 5b: Contractor

1. _____
2. _____
3. _____
4. _____
5. _____

Introduction: Project Identification Sign

Below are two samples of the construction project identification sign showing how this panel is adaptable for use to identify either civil works projects with a local sponsor (top) or military (bottom). The graphic format for this 4' x 6' sign panel follows the legend guidelines and layout as specified below. The large 4' x 4' section of the panel on the right is to be white with black legend. For the top sign, the upper left 2' x 2' section of the sign with the full Corps signature is to be painted Communications Red with white lettering. The lower left 2' x 2' section of the sign shall match the local sponsor's colors with white lettering. For the bottom sign, the 2' x 4' left section of the sign with full Corps signature is to be painted Communications Red with white lettering. Mounting and fabrication details are provided.

Legend Group 1: One-to two-line description of Corps relationship to project.
Color: White
Typeface: 1.25" Helvetica Regular
Maximum line length: 19"

Legend Group 2: Two-line Corps Signature (US Army Corps of Engineers). Placed below Corps Castle
Color: White
Typeface: 1.5" Helvetica Bold

Legend Group 2a: District Name. Placed below Signature (6" Castle).
Color: White
Typeface: 1.25" Helvetica Regular

Legend Group 3: Words "Local Sponsor"
Color: White
Typeface: 1.25" Helvetica Regular
Maximum length: 19"

Legend Group 4: One-to-three lines for name of local sponsor
Color: White
Typeface: 1.5" Helvetica Regular

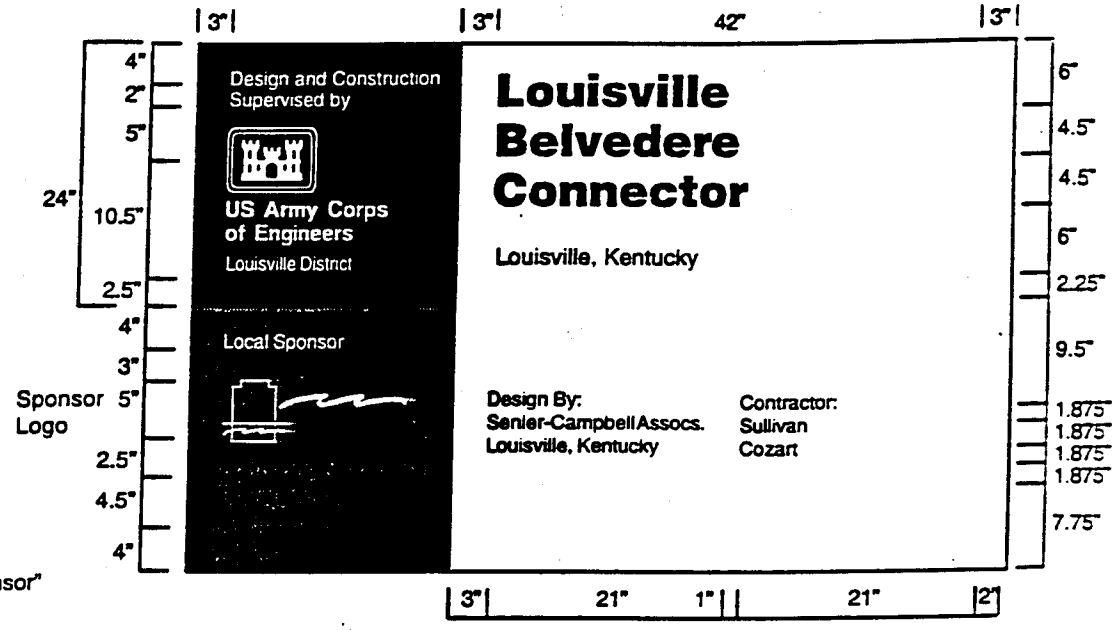
Legend Group 5: One- to three-line project title legend describes the work being done under this contract.
Color: Black
Typeface: 3" Helvetica Bold
Maximum line length: 42"

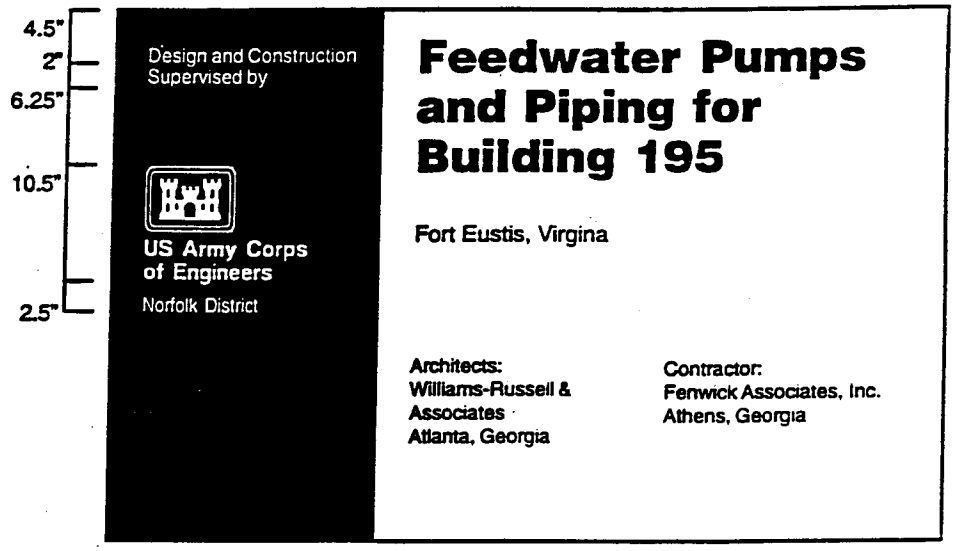
Legend Group 6: One- to two-line identification of project or facility (civil works) or name of sponsoring department (military).
Color: Black
Typeface: 1.5" Helvetica Regular
Maximum line length: 42"

Cross-align the first line of Legend Group 5 with the first line of the Corps Signature (US Army Corps) as shown.

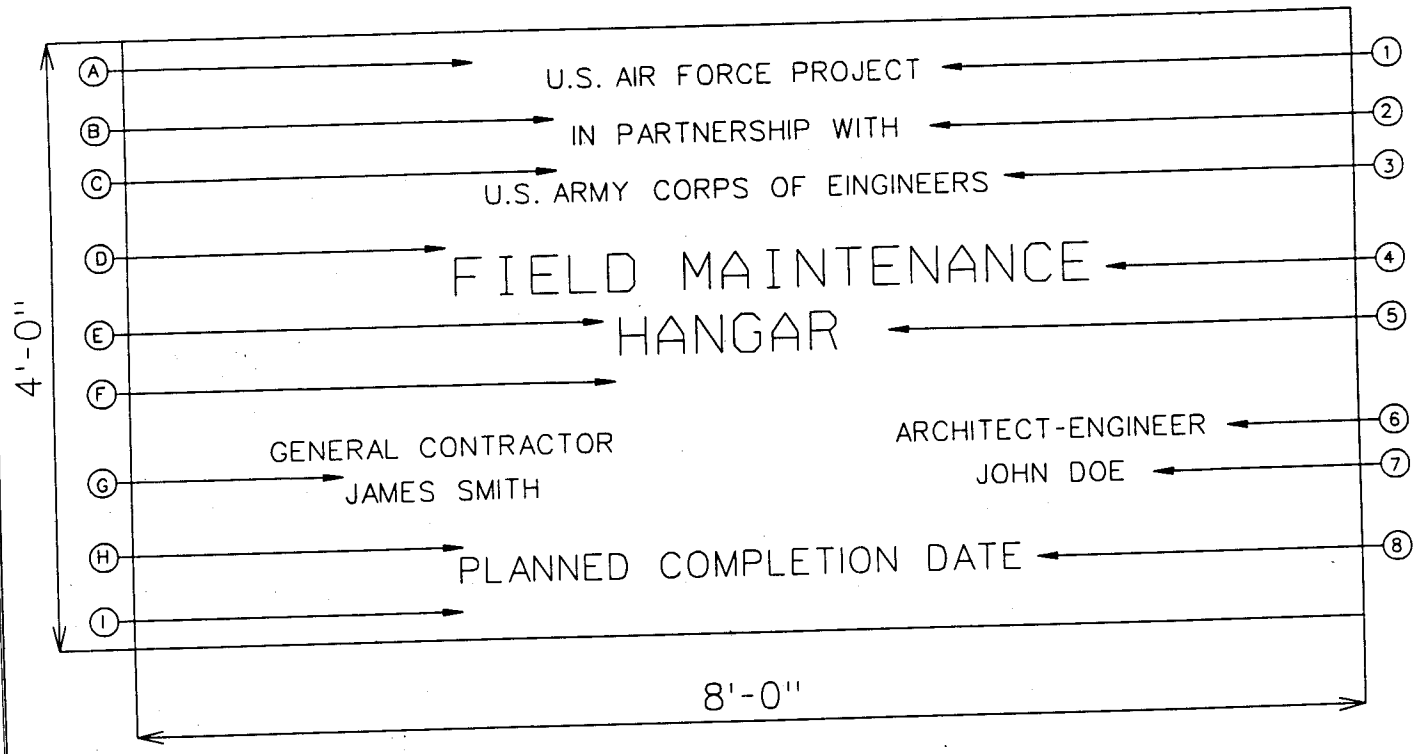
Legend Groups 7a-b: One- to five-line identification of prime contractors including: type (general contractor, etc.) corporate or firm name, city, state.
Color: Black
Typeface: 1.25" Helvetica Regular
Maximum line length: 21"

All typography is flush left and rag right, upper and lower case with initial capitals only as shown.





Legend Size	Panel Size	Post Size	Mounting Height	Color Bkg/Lgd
Various	4' x 6'	4" x 4"	48"	WH-RD/BK

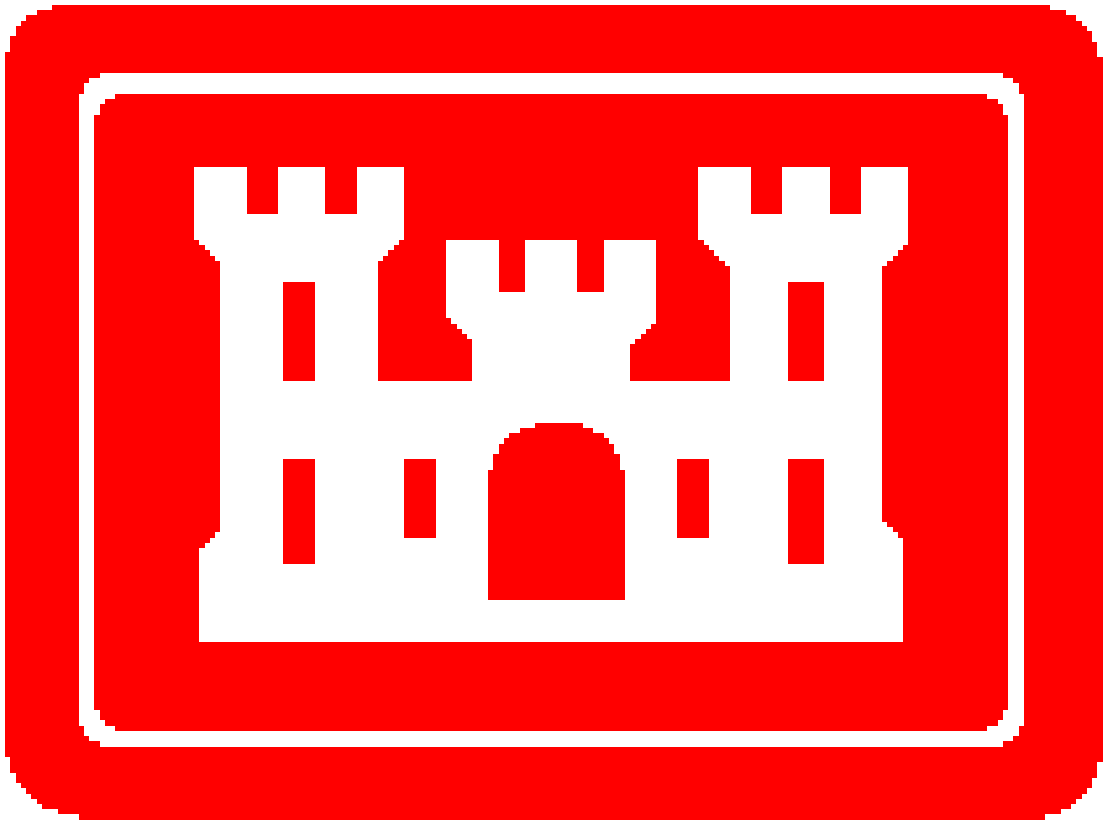


SAMPLE CONSTRUCTION SIGN FOR MILCON PROJECTS

SCHEDULE

SPACE	HEIGHT	LINE	DESCRIPTION	LETTER HEIGHT	STROKE
A	3"	1	U.S. AIR FORCE PROJECT	1.5"	3/16"
B	1"	2	IN PARTNERSHIP WITH	1.5"	3/16"
C	1"	3	U.S. ARMY CORPS ENGINEERS	1.5"	3/16"
D	5"	4	PROJECT NAME	4"	1/2"
E	3"	5	PROJECT NAME CONT'D (IF REQUIRED)	4"	1/2"
F	5"	6	GENERAL CONTRACTOR/A-E	1.5"	3/16"
G	1"	7	GENERAL CONTRACTOR/A-E	1.5"	3/16"
H	4"	8	PLANNED COMPLETION DATE	2.5"	1/4"
I	3"				

f:/cddwgs.dgn Dec. 04, 1996 09:29:02



US Army Corps of Engineers

Louisville District

SUBMITTAL REGISTER

(ER 415-1-10)

CONTRACT NO.:

TITLE AND LOCATION

CONTRACTOR:

SPECIFICATION SECTION:

ACTIVITY NO	TRANS-MITTAL NO.	ITEM NO	SPECIFICATION PARAGRAPH NUMBER	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL										CLASSI-FICATION		REVIEWER	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS
					DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	O&M MANUALS	INFORMATION ONLY	GOVERNMENT APPROVED		SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERN-MENT	CODE	DATE	
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	aa

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE *(Read instructions on the reverse side prior to initiating this form)*	DATE	TRANSMITTAL NO.

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO:	FROM:	CONTRACT NO.	CHECK ONE: ☐ THIS IS A NEW TRANSMITTAL ☐ THIS IS A RESUBMITTAL OF TRANSMITTAL _____
SPECIFICATION SEC. NO. *(Cover only one section with each transmittal)*	PROJECT TITLE AND LOCATION		CHECK ONE: THIS TRANSMITTAL IS FOR FIO ☐ GOV'T ☐ APPROVAL

ITEM NO. a.	DESCRIPTION OF ITEM SUBMITTED *(Type size, model number/etc.)* b.	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. (See Instruction no. 8) c.	NO. OF COPIES d.	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE g.	VARIATION (See instruction no. 6) h.	FOR CE USE CODE i.
				SPEC. PARA. NO. e.	DRAWING SHEET NO. f.			

REMARKS	I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as other wise stated _____ NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED *(List by Item No.)*	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

Instructions

1. Section I will be initiated by the contractor in the required number of copies.

2. Each transmittal shall be numbered consecutively in the space provided for “Transmittal No.”. This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; in resubmittals, insert transmittal number of last submission as well as the new submittal number.

3. The “Item No.” will be the same “Item No.” as indicated on ENG FORM 4288-R for each entry on this form.

5. Separate transmittal form will be used for submittals under separate section of the specifications.

6. a check shall be placed in the “Variation” column when a submittal is not in accordance with the plans and specifications—also, a written statement to that effect shall be included in the space provided for “Remarks.

7. Form is self-transmittal, letter of transmittal is not required.

8. When a sample of material or Manufacturer’s Certificate of Compliance is transmitted, indicate “Sample” or “Certificate” in column c, Section I.

9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g. to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A – Approved as submitted.

B – Approved, except as noted on drawings.

C – Approved, except as noted on drawings. Refer to attached sheet resubmission required.

D – Will be returned by separate correspondence.

E – Disapproved (See attached).

F – Receipt acknowledged.

FX – Receipt acknowledged, does not comply as noted with contract requirements.

G – Other *(Specify)*

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG form 4025-R)

EQUIPMENT-IN-PLACE LIST

Contract No._____

Description of Item:_____

Model No:_____

Serial No:_____

Capacity:_____

Name of Mfg:_____

Condition:_____

Checked by:_____Replacement Cost_____

Description of Item:_____

Model No:_____

Serial No:_____

Capacity:_____

Name of Mfg:_____

Condition:_____

Checked by:_____Replacement Cost_____

Description of Item:_____

Model No:_____

Serial No:_____

Capacity:_____

Name of Mfg:_____

Condition:_____

Checked by:_____Replacement Cost_____

(If Para. 10 is used, use this form)

DEFICIENCY LIST

CONTRACT NUMBER:_____ PROJECT: _____

		DEFICIENCY		CORRECTION		
DEFIC. NO.	DESCRIPTION	DATE OBSERVED	CQC REPORT NO.	DATE CORRECTED	CQC REPORT NO.	COMMENTS

WAIS Document RetrievalGENERAL DECISION OH990029 08/06/99 OH29
General Decision Number OH990029

Superseded General Decision No. OH980029

State: Ohio

Construction Type:
BUILDING

County(ies):

ADAMS	GREENE	MUSKINGUM
ALLEN	GUERNSEY	NOBLE
ASHLAND	HANCOCK	OTTAWA
ASHTABULA	HARRISON	PERRY
AUGLAIZE	HIGHLAND	PICKAWAY
BELMONT	HOCKING	PIKE
BROWN	HOLMES	PREBLE
BUTLER	HURON	RICHLAND
CLERMONT	JACKSON	ROSS
CLINTON	JEFFERSON	SANDUSKY
COLUMBIANA	KNOX	SCIOTO
COSHOCTON	LAKE	SENECA
CRAWFORD	LICKING	TUSCARAWAS
CUYAHOGA	MADISON	VINTON
DELAWARE	MEDINA	WARREN
ERIE	MIAMI	WASHINGTON
FAIRFIELD	MONROE	WAYNE
FAYETTE	MONTGOMERY	WOOD
FRANKLIN	MORGAN	WYANDOT
GEAUGA	MORROW	

BUILDING CONSTRUCTION PROJECTS (Does not include single family homes and apartments up to and including four (4) stories)

Modification Number	Publication Date
0	01/22/1999
1	03/12/1999
2	04/02/1999
3	05/14/1999
4	06/04/1999
5	07/02/1999
6	08/06/1999

COUNTY(ies):

ADAMS	GREENE	MUSKINGUM
ALLEN	GUERNSEY	NOBLE
ASHLAND	HANCOCK	OTTAWA
ASHTABULA	HARRISON	PERRY
AUGLAIZE	HIGHLAND	PICKAWAY
BELMONT	HOCKING	PIKE
BROWN	HOLMES	PREBLE
BUTLER	HURON	RICHLAND
CLERMONT	JACKSON	ROSS
CLINTON	JEFFERSON	SANDUSKY
COLUMBIANA	KNOX	SCIOTO
COSHOCTON	LAKE	SENECA

CRAWFORD	LICKING	TUSCARAWAS
CUYAHOGA	MADISON	VINTON
DELAWARE	MEDINA	WARREN
ERIE	MIAMI	WASHINGTON
FAIRFIELD	MONROE	WAYNE
FAYETTE	MONTGOMERY	WOOD
FRANKLIN	MORGAN	WYANDOT
GEAUGA	MORROW	

ASBE0002B 08/01/1998

	Rates	Fringes
BELMONT, JEFFERSON & MONROE COUNTIES:		
ASBESTOS WORKERS/INSULATORS (Includes application of all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems)	22.94	9.35

ASBE0003A 05/01/1999

	Rates	Fringes
ASHTABULA (Harpersfield, Unionville, Plymouth, Saybrook, Austinburg, Jefferson, Ashtabula & Geneva Townships), CUYAHOGA, ERIE (Berlin, Berlin Heights, Birmingham, Florence, Huron, Milan, Shinrock & Vermilion Townships), GEAUGA, HURON & LAKE COUNTIES:		
ASBESTOS WORKERS/INSULATORS (Includes application of all insulating materials, protective coverings, coatings & finishings to all types of mechanical systems)	26.18	8.95

ASBE0003B 07/01/1998

	Rates	Fringes
ASHLAND, COSHOCTON, HOLMES, MEDINA, RICHLAND, TUSCARAWAS & WAYNE COUNTIES:		
ASBESTOS WORKERS/INSULATORS (Includes application of all insulating materials, protective coverings coatings & finishings to all types of mechanical systems)	22.04	7.85

ASBE0008A 07/01/1998

	Rates	Fringes
ADAMS, BROWN, BUTLER (Including Fairfield, Hanover, Liberty, Milford, Morgan, Oxford, Ripley, Ross, St. Clair, Union & Wayne Townships), CLERMONT, HIGHLAND & WARREN (Including Deerfield, Hamilton, Harlan, Salem, Union & Washington Townships) COUNTIES:		
ASBESTOS WORKERS/INSULATORS (Includes application of all insulating materials, protective coverings,		

coatings & finishings to all types
of mechanical systems) 20.07 7.16

ASBE0035A 06/16/1998

Rates Fringes

ASHTABULA (Excluding Ashtabula, Austinburg, Geneva, Harpersfield, Jefferson, Plymouth & Saybrook Townships), COLUMBIANA & HARRISON COUNTIES:

ASBESTOS WORKERS/INSULATORS (Includes
application of all insulating
materials, protective coverings,
coatings & finishings to all types
of mechanical systems) 22.66 7.46

ASBE0041C 07/01/1998

Rates Fringes

ALLEN COUNTY:

ASBESTOS WORKERS/INSULATORS (Includes
application of all insulating
materials, protective coverings,
coatings and finishings to all types
of mechanical systems) 20.64 7.10

ASBE0044A 07/01/1999

Rates Fringes

CRAWFORD, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GUERNSEY, HOCKING, KNOX, LICKING, MADISON, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, ROSS & VINTON COUNTIES:

ASBESTOS WORKERS/INSULATORS (Includes
application of all insulating
materials, protective coverings,
coatins & finisings to all types

of mechanical systems) 22.27 6.79

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* ASBE0045A 07/01/1999

Rates Fringes

ERIE (City limits of Sandusky & Townships of Groton, Margaretta, Oxford & Perkins), HANCOCK, OTTAWA, SANDUSKY, SENECA, WOOD & WYANDOT COUNTIES:

ASBESTOS WORKERS/INSULATORS (Includes
application of all insulating
materials, protective coverings,
coatings & finishings to all types
of mechanical systems) 23.95 9.58

ASBE0079A 06/01/1999

Rates Fringes

AUGLAIZE, BUTLER (Lemon & Madison Townships), CLINTON, GREENE, MIAMI, MONTGOMERY, PREBLE & WARREN (Clear Creek, Franklin, Massie, Turtle Creek & Wayne Townships) COUNTIES:

ASBESTOS WORKERS/INSULATORS (Includes application of all insulating materials, protective coverings, coatings & finishings to all types of mechanical systems)	21.05	5.37

ASBE0080D 08/12/1998

	Rates	Fringes
JACKSON, PIKE, SCIOTO & WASHINGTON COUNTIES:		
INSULATORS/ASBESTOS WORKERS (Includes application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems)	23.13	6.70
HAZARDOUS MATERIAL HANDLERS (includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems)	13.40	3.73

ASBE0207I 06/01/1998

	Rates	Fringes
ALLEN COUNTY:		
HAZARDOUS MATERIAL HANDLERS (Includes preparation, wetting, stripping, removal, scraping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems)	13.80	4.05

ASBE0207N 07/01/1998

	Rates	Fringes
HAZARDOUS MATERIAL HANDLERS (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems):		

AUGLAIZE, BUTLER (Excluding Townships of Fairfield, Hanover, Liberty, Milford, Morgan, Oxford, Ripley, Ross, St. Clair, Union & Wayne), CLINTON, GREENE, MIAMI, MONTGOMERY, PREBLE & WARREN

(Townships of Clear Creek, Franklin, Massie, Turtle Creek & Wayne) COUNTIES
15.00 4.05

ADAMS, ASHLAND, ASHTABULA, BROWN, BUTLER (Townships of Fairfield, Hanover, Liberty, Milford, Morgan, Oxford, Ripley, Ross, St. Clair, Union & Wayne), CLERMONT, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, GEAUGA, GUERNSEY, HANCOCK, HARRISON, HIGHLAND, HOCKING, HURON, KNOX, LAKE, LICKING, MADISON, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PERRY, PICKAWAY, ROSS, SANDUSKY, SENECA, VINTON, WOOD & WYANDOT COUNTIES
15.00 4.05

HOLMES, MEDINA, RICHLAND, TUSCARAWAS & WAYNE COUNTIES
14.45 3.60

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* BOIL0085A 07/15/1999

	Rates	Fringes
ALLEN, ASHLAND, AUGLAIZE, CRAWFORD, DELAWARE, ERIE, HANCOCK, HURON, KNOX, MORROW, OTTAWA, RICHLAND, SANDUSKY, SENECA, WOOD & WYANDOT COUNTIES:		
BOILERMAKERS	23.00	10.11

BOIL0105A 10/01/1998

	Rates	Fringes
ADAMS, BROWN, BUTLER, CLERMONT, CLINTON, FAIRFIELD, FAYETTE, FRANKLIN, GREENE, GUERNSEY, HIGHLAND, HOCKING, JACKSON, LICKING, MADISON, MIAMI, MONTGOMERY, MORGAN, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, PREBLE, ROSS, SCIOTO, VINTON & WARREN COUNTIES:		
BOILERMAKERS	24.10	9.20

BOIL0154B 06/01/1999

	Rates	Fringes
COLUMBIANA & JEFFERSON COUNTIES:		
BOILERMAKERS	27.52	11.55

BOIL0667B 10/01/1998

	Rates	Fringes
BELMONT, MONROE & WASHINGTON COUNTIES:		
BOILERMAKERS	24.90	8.86

BOIL0744A 10/01/1998

	Rates	Fringes
ASHTABULA, COSHOCTON, CUYAHOGA, GEAUGA, HARRISON, HOLMES, LAKE, MEDINA, TUSCARAWAS & WAYNE COUNTIES:		

BOILERMAKERS	25.50	9.91

BROH0003A 07/01/1998

	Rates	Fringes
WOOD COUNTY (Townships of Perrysburg, Ross, Lake, Troy, Freedom, Montgomery, Webster, Center, Portage, Middleton, Plain, Liberty, Henry, Washington, Weston, Milton, Jackson & Grand Rapids)		
BRICKLAYERS & STONEMASONS	22.50	6.72

BROH0003D 07/01/1998

	Rates	Fringes
WOOD COUNTY (Townships of Perrysburg, Ross, Lake, Troy, Freedom, Montgomery, Webster, Center, Portage, Middleton, Plain, Liberty, Henry, Washington, Weston, Milton, Jackson & Grand Rapids)		
MARBLE SETTERS; TERRAZZO WORKERS; & TILE SETTERS	21.91	4.92
FINISHERS	18.88	3.85

BROH0005A 05/01/1999

	Rates	Fringes
CUYAHOGA & MEDINA (Hinckley, Granger, Brunswick, Liverpool, Montville, York, Homer, Harrisville, Chatham, Litchfield & Spencer Townships and the city of Medina) COUNTIES:		
BRICKLAYERS; CAULKERS; CLEANERS; MARBLE SETTERS; POINTERS; STONEMASONS; & TERRAZZO WORKERS	24.02	6.40
SANDBLASTERS	24.27	6.40
SEWER BRICKLAYERS; STACK BUILDERS; & SWING SCAFFOLD	24.52	6.40

BROH0005E 06/01/1999

	Rates	Fringes
ASHLAND, CUYAHOGA, ERIE, GEAUGA, HURON, LAKE, MEDINA & RICHLAND COUNTIES:		
MARBLE SETTERS' FINISHERS; TILE SETTERS' FINISHERS	23.62	3.50
TERRAZZO WORKERS' FINISHERS	23.65	3.50

BROH0006A 05/01/1999

	Rates	Fringes
COLUMBIANA (Knox, Butler, West & Hanover Townships) & TUSCARAWAS COUNTIES:		
BRICKLAYERS; CAULKERS; CLEANERS; POINTERS; & STONEMASONS	20.98	6.35

BROH0006B 05/01/1999

	Rates	Fringes
TUSCARAWAS COUNTY:		
MARBLE SETTERS, TERRAZZO WORKERS, TERRAZZO GRINDERS & TILE SETTERS	19.05	5.50
FINISHERS	16.65	5.50

BROH0006D 05/01/1999

	Rates	Fringes
TUSCARAWAS COUNTY:		
CEMENT MASONS; PLASTERERS	20.98	6.35

BROH0007A 06/01/1999

	Rates	Fringes
MEDINA (Wadsworth, Guilford, Westfield, Lafayette & Sharon Townships) & WAYNE (Milford & Chippewa Townships) COUNTIES:		
BRICKLAYERS & STONEMASONS	22.32	7.43

BROH0007D 06/01/1999

	Rates	Fringes
WAYNE COUNTY (Milton & Chippewa Townships):		
MARBLE SETTERS' FINISHERS; TERRAZZO WORKERS' FINISHERS; & TILE SETTERS' FINISHERS	18.70	4.68

BROH0007F 06/01/1999

	Rates	Fringes
WAYNE COUNTY (Milton & Chippewa Townships):		
MARBLE SETTERS; TERRAZZO WORKERS; & TILE SETTERS	21.70	4.68

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* BROH0008A 06/01/1999

	Rates	Fringes
COLUMBIANA COUNTY (Salem, Perry, Fairfield, Center, Elk Run, Middleton, & Unity Townships and the city of New Waterford):		
BRICKLAYERS; CAULKERS; CLEANERS; POINTERS; & STONEMASONS	21.21	8.23

BROH0008B 06/01/1998

	Rates	Fringes
COLUMBIANA COUNTY (Center, Elk Run, Fairfield, Middleton, New Waterford, Perry, Salem, & Unity Townships):		

MARBLE SETTERS; TERRAZZO WORKERS;
 & TILE SETTERS 22.43 4.06

BROH0008F 06/01/1998

	Rates	Fringes
ASHTABULA, COLUMBIANA, COSHOCTON, HARRISON, HOLMES, JEFFERSON, & WAYNE (Excluding Milton & Chippewa Townships) COUNTIES:		
MARBLE SETTERS' FINISHERS & TERRAZZO WORKERS' FINISHERS	19.82	3.86
ASHTABULA, COLUMBIANA, COSHOCTON, HOLMES, JEFFERSON (Townships of Mt. Pleasant, Warren, Salineville & the Village of Dillonvale), & WAYNE (Excluding Milton & Chippewa Townships) COUNTIES:		
TILE SETTERS' FINISHERS	19.82	3.86

BROH0009A 07/01/1999

	Rates	Fringes
BELMONT, JEFFERSON (Warren & Mt. Pleasant Townships & the Village of Dillonvale) & MONROE COUNTIES:		
BRICKLAYERS & STONEMASONS	21.40	6.08
MARBLE SETTERS; TERRAZZO WORKERS; & TILE SETTERS	21.17	4.98

BROH0010A 06/15/1998

	Rates	Fringes
COLUMBIANA (St. Clair, Madison, Wayne, Franklin, Washington, Yellow Creek & Liverpool Townships) & JEFFERSON (Brush Creek & Saline Townships) COUNTIES:		
BRICKLAYERS; CAULKERS; CLEANERS; CEMENT BLOCKLAYERS; MARBLE SETTERS; POINTERS; STONEMASONS; TERRAZZO WORKERS; & TILE SETTERS:		
Project cost of $50,000.00 & Up	20.35	4.10
Project cost under $50,000.00	14.25	4.10
TILE SETTERS' FINISHERS:		
Project cost of $50,000.00 & Up	17.85	4.10
Project cost under $50,000.00	11.25	4.10

BROH0014A 07/01/1999

	Rates	Fringes
HARRISON & JEFFERSON (Except Mt. Pleasant, Warren, Brush Creek, Saline & Salineville Townships & the Village of Dillonvale) COUNTIES:		
BRICKLAYERS; STONEMASONS	22.17	5.29
TILE SETTERS	21.57	5.29

TILE SETTERS' FINISHERS	18.57	5.29

BROH0015A 06/01/1999

NOBLE (Brookfield, Noble, Center, Sharon, Olive, Enoch, Stock, Jackson, Jefferson & Elk Townships) & WASHINGTON COUNTIES:

	Rates	Fringes
BRICKLAYERS; BLOCKLAYERS; CAULKERS; CLEANERS; MARBLE SETTERS; POINTERS; STONEMASONS; TERRAZZO WORKERS; & TILE SETTERS	21.55	4.98

BROH0016A 05/01/1998

GEAUGA & LAKE COUNTIES:

	Rates	Fringes
BRICKLAYERS; CAULKERS; CEMENT MASONS; CLEANERS; MARBLE SETTERS; PLASTERERS; POINTERS; STONEMASONS; & TERRAZZO WORKERS	23.94	6.60

BROH0018A 01/01/1999

BROWN, BUTLER, CLERMONT, PREBLE (Gasper, Dixon, Israel, Lanier, Somers & Gratis Townships) & WARREN COUNTIES:

	Rates	Fringes
BRICKLAYERS; CAULKERS; CLEANERS; POINTERS; & STONEMASONS	20.46	5.54
REFRACTORY	20.96	5.54

BROH0018D 12/01/1998

BROWN, BUTLER, CLERMONT, PREBLE (Gasper, Dixon, Israel, Lanier, Somers & Gratis Townships) & WARREN COUNTIES:

	Rates	Fringes
MARBLE SETTERS	21.82	4.96
TERRAZZO WORKERS & TILE SETTERS	21.77	4.96

BROH0018F 12/01/1998

ADAMS, BROWN, BUTLER, CLERMONT, FAYETTE, JACKSON, PIKE, ROSS, SCIOTO, VINTON, WARREN & WASHINGTON COUNTIES:

	Rates	Fringes
MARBLE, TERRAZZO & TILE FINISHERS:		
Finishers & Grinders	17.38	4.96
Marble Sanders, Polishers, Waxers, & Sawyers	17.45	4.96
Terrazzo Base Grinders (While operating base grinding machine)	17.80	4.96

BROH0022A 05/01/1999

	Rates	Fringes
CLINTON, GREENE, HIGHLAND, MIAMI, MONTGOMERY & PREBLE (Jackson, Monroe, Harrison, Twin, Jefferson & Washington Townships) COUNTIES:		
BRICKLAYERS; CAULKERS; CLEANERS; POINTERS; STONEMASONS	21.10	5.89
LAYOUT MAN & SAWMAN	20.85	5.89

BROH0022B 05/01/1999

	Rates	Fringes
CLINTON, GREENE, HIGHLAND, MIAMI, MONTGOMERY & PREBLE (Jackson, Monroe, Harrison, Twin, Jefferson & Washington Townships) COUNTIES:		
MARBLE SETTERS; TERRAZZO WORKERS; & TILE SETTERS	20.97	4.18

BROH0022C 11/01/1998

	Rates	Fringes
AUGLAIZE, CLINTON, GREENE, HIGHLAND, MIAMI, MONTGOMERY & PREBLE COUNTIES:		
FINISHERS	18.57	1.50
BASE MACHINE	19.37	1.50

BROH0034C 05/01/1997

	Rates	Fringes
MEDINA COUNTY (Homer, Harrisville, Chatham, Litchfield & Spencer Townships):		
CEMENT MASONS	22.17	2.15

BROH0035A 01/01/1999

	Rates	Fringes
ALLEN & AUGLAIZE COUNTIES:		
BRICKLAYERS; CAULKERS; CLEANERS; POINTERS; STONEMASONS; & TILE SETTERS	19.80	5.12

BROH0036A 05/01/1999

	Rates	Fringes
CUYAHOGA, GEAUGA, LAKE & MEDINA (City of Medina and the Townships of Hinckley, Granger, Brunswick, Liverpool, Montville & York) COUNTIES:		
TILE SETTERS	24.60	6.45

BROH0039A 06/01/1997

	Rates	Fringes
ADAMS & SCIOTO COUNTIES:		
BRICKLAYERS; CAULKERS; CLEANERS; MARBLE SETTERS; POINTERS; STONEMASONS; TERRAZZO WORKERS; & TILE SETTERS	20.87	6.71

BROH0040A 05/01/1999

	Rates	Fringes
ASHLAND, CRAWFORD, HOLMES, MORROW, RICHLAND, WAYNE (Except Milton & Chippewa Townships) & WYANDOT (Except Crawford, Ridge, Richland & Tymochtee Townships) COUNTIES:		
BRICKLAYERS; BLOCKLAYERS; CAULKERS; CLEANERS; MARBLE SETTERS; POINTERS; STONEMASONS; TERRAZZO WORKERS & TILE SETTERS	21.87	6.18

BROH0040B 05/01/1999

	Rates	Fringes
HOLMES & WAYNE (Except Milton & Chippewa Townships) COUNTIES:		
CEMENT MASONS & PLASTERERS	23.81	2.58

BROH0042A 05/01/1999

	Rates	Fringes
ASHTABULA COUNTY:		
BRICKLAYERS; CAULKERS; CEMENT BLOCK LAYERS; CEMENT MASONS; CLEANERS; MARBLE SETTERS; PLASTERERS; POINTERS; STONEMASONS; TERRAZZO WORKERS & TILE SETTERS	23.27	5.90

BROH0044A 01/01/1998

	Rates	Fringes
COSHOCTON, FAIRFIELD, KNOX & LICKING COUNTIES:		
BRICKLAYERS; CAULKERS; CLEANERS; POINTERS; & STONEMASONS	18.80	6.10
GUERNSEY, HOCKING, MORGAN, MUSKINGUM, NOBLE (Beaver, Buffalo, Seneca & Wayne Townships) & PERRY COUNTIES:		
BRICKLAYERS; CAULKERS; CLEANERS; POINTERS; & STONEMASONS	18.80	6.10
COSHOCTON COUNTY:		
CEMENT MASONS & PLASTERERS	18.80	6.10

GUERNSEY COUNTY:
 CEMENT MASONS & PLASTERERS 18.80 6.10

 BROH0045A 06/01/1997
 Rates Fringes
FAYETTE, JACKSON, PIKE, ROSS & VINTON COUNTIES:

BRICKLAYERS; CAULKERS; CEMENT MASONS;
 CLEANERS; POINTERS; & STONEMASONS 19.90 6.20

 BROH0046A 06/01/1999
 Rates Fringes
ERIE, HANCOCK, HURON, OTTAWA, SANDUSKY, SENECA, WOOD (Perry &
 Bloom Townships) & WYANDOT (Tymochtee, Crawford, Ridge &
 Richland Townships) COUNTIES & the islands of Lake Erie north of
 Sandusky:

BRICKLAYERS; CAULKERS; CEMENT BLOCK
 LAYERS; CLEANERS; GUNNITE MASONS;
 MARBLE SETTERS; POINTERS; REFRACTORY
 MASONS; STONEMASONS; TERRAZZO
 WORKERS; & TILE SETTERS 21.03 7.75

ERIE, HURON, OTTAWA, SANDUSKY, SENECA, WOOD (Perry & Bloom
 Townships) & WYANDOT (Tymochtee, Crawford, Ridge & Richland
 Townships) COUNTIES & the islands of Lake Erie north of
 Sandusky:

CEMENT MASONS & PLASTERERS 21.03 7.75

HANCOCK, OTTAWA, SANDUSKY, SENECA, WOOD (Perry & Bloom
 Townships) & WYANDOT (Tymochtee, Crawford, Ridge & Richland
 Townships) COUNTIES & the islands of Lake Erie north of

  Sandusky:

MARBLE SETTERS' FINISHERS; TERRAZZO
 WORKERS' FINISHERS; & TILE
 SETTERS' FINISHERS 17.38 7.75

 BROH0055A 06/01/1999
 Rates Fringes
DELAWARE, FRANKLIN, MADISON & PICKAWAY COUNTIES:

BRICKLAYERS; CAULKERS; CLEANERS;
 POINTERS; & STONEMASONS 21.00 6.35
RUBBLE WORK 20.17 6.35

 BROH0055B 06/01/1997
 Rates Fringes
COSHOCTON, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GUERNSEY,
 HOCKING, JACKSON, KNOX, LICKING, MADISON, MORGAN, MUSKINGUM,

NOBLE (Beaver, Buffalo, Seneca & Wayne Townships), PERRY, PICKAWAY, PIKE, ROSS & VINTON COUNTIES:

MARBLE SETTERS	21.53	4.55
TERRAZZO WORKERS & TILE SETTERS	19.60	4.50

BROH0055D 06/01/1997

	Rates	Fringes
BELMONT, DELAWARE, FAIRFIELD, FRANKLIN, GUERNSEY, HOCKING, KNOX, LICKING, MADISON, MONROE, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY & PICKAWAY COUNTIES:		
MARBLE, TERRAZZO & TILE FINISHERS	18.50	1.05

CARP0069A 05/01/1999

	Rates	Fringes
TUSCARAWAS & WAYNE COUNTIES:		
CARPENTERS; SOFT FLOOR LAYERS	19.61	6.12

CARP0069G 05/01/1999

	Rates	Fringes
COSHOCTON, HOLMES, KNOX & MORROW COUNTIES:		
CARPENTERS; SOFT FLOOR LAYERS	18.95	6.10

CARP0171A 05/01/1999

	Rates	Fringes
BELMONT, COLUMBIANA, HARRISON, JEFFERSON & MONROE COUNTIES:		
CARPENTERS & SOFT FLOOR LAYERS:		
Light Commercial Work not to exceed $2,500,000.00 of total project cost	16.41	7.24
All Other Work	19.20	7.24

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CARP0200A 06/01/1999

	Rates	Fringes
DELAWARE, FAIRFIELD, FRANKLIN, GUERNSEY, LICKING, MADISON, MORGAN, MUSKINGUM, NOBLE, PERRY & PICKAWAY COUNTIES:		
CARPENTERS; & SOFT FLOOR LAYERS	20.51	5.18
PILEDRIVERMEN	21.19	5.18

CARP0248A 07/01/1998

	Rates	Fringes
WOOD COUNTY:		
CARPENTERS & LATHERS:		

Projects 20,000 sq. ft. & Under for Renovation and 10,000 square ft. & Under for New Construction	18.27	7.10
All Other Work	22.76	7.10

CARP0248B 07/01/1998

	Rates	Fringes
HANCOCK & WOOD COUNTIES:		
SOFT FLOOR LAYERS	21.70	7.60

CARP0248C 07/01/1998

	Rates	Fringes
HANCOCK COUNTY:		
CARPENTERS & LATHERS	19.32	7.10

CARP0254A 05/01/1999

	Rates	Fringes
ASHTABULA, CUYAHOGA, GEAUGA & LAKE COUNTIES:		
CARPENTERS; SOFT FLOOR LAYERS	23.38	7.31

CARP0356A 06/01/1999

	Rates	Fringes
HOCKING, VINTON & WASHINGTON COUNTIES:		
CARPENTERS	20.31	7.18
PILEDRIVERS	20.61	7.18
SOFT FLOOR LAYERS	19.91	7.18

CARP0372A 07/01/1998

	Rates	Fringes
ALLEN & AUGLAIZE COUNTIES:		
CARPENTERS & LATHERS	18.62	6.90

CARP0437A 06/01/1998

	Rates	Fringes
ADAMS, FAYETTE, HIGHLAND, JACKSON, PIKE, ROSS & SCIOTO COUNTIES:		
CARPENTERS; PILEDRIVERMEN & SOFT FLOOR LAYERS	22.00	6.75

CARP0639A 05/01/1999

	Rates	Fringes
MEDINA COUNTY:		
CARPENTERS & SOFT FLOOR LAYERS	22.61	6.49

CARP0735B 05/01/1999

	Rates	Fringes
ASHLAND, ERIE, HURON & RICHLAND COUNTIES:		
CARPENTERS; SOFT FLOOR LAYERS	18.80	6.34

CARP1066A 09/01/1998

	Rates	Fringes
BROWN, BUTLER, CLERMONT, CLINTON & WARREN COUNTIES:		
MILLWRIGHTS	21.30	7.25

CARP1066B 09/01/1998

	Rates	Fringes
GREENE, MIAMI, MONTGOMERY & PREBLE COUNTIES:		
MILLWRIGHTS	21.30	7.55

CARP1241A 06/01/1998

	Rates	Fringes
DELAWARE, FAIRFIELD, FRANKLIN, GUERNSEY, LICKING, MADISON, MORGAN, MUSKINGUM, NOBLE, PERRY & PICKAWAY COUNTIES:		
MILLWRIGHTS	20.02	9.20

CARP1311B 06/01/1999

	Rates	Fringes
BROWN, BUTLER, CLERMONT, CLINTON & WARREN COUNTIES:		
CARPENTERS & PILEDRIVERMEN:		
(Does not include Walls & Ceiling Work)	20.50	4.665

CARP1311D 06/01/1998

	Rates	Fringes
GREENE, MIAMI, MONTGOMERY & PREBLE COUNTIES:		
CARPENTERS (Does not include Acoustic Ceiling Installers, Drywall Hangers or Metal Stud Framers) & PILEDRIVERMEN	20.60	4.84

CARP1311G 07/01/1998

	Rates	Fringes
BROWN, BUTLER, CLERMONT, CLINTON & WARREN COUNTIES:		
CARPENTERS & LATHERS: (Walls & Ceiling Work only)	19.80	4.625

CARP1311O 08/15/1998

	Rates	Fringes
GREENE, MIAMI, MONTGOMERY & PREBLE COUNTIES:		
SOFT FLOOR LAYERS	18.05	4.64

CARP1311P 06/01/1998

	Rates	Fringes
GREENE, MIAMI, MONTGOMERY & PREBLE COUNTIES:		
ACOUSTIC CEILING INSTALLERS; DRYWALL HANGERS; LATHERS; & METAL STUD FRAMERS	19.80	4.64

CARP1393A 07/01/1998

	Rates	Fringes
CRAWFORD, HANCOCK, OTTAWA, SANDUSKY, SENECA & WOOD COUNTIES:		
MILLWRIGHTS & PILEDRIVERMEN	20.61	9.35

CARP1393D 07/01/1998

	Rates	Fringes
ALLEN, AUGLAIZE & WYANDOT COUNTIES:		
MILLWRIGHTS & PILEDRIVERMEN	20.58	6.35

CARP1519B 06/01/1998

	Rates	Fringes
ADAMS, FAYETTE, HIGHLAND, HOCKING, JACKSON, PIKE, ROSS, SCIOTO & VINTON COUNTIES:		
MILLWRIGHTS	22.01	8.67

CARP1755C 06/01/1998

	Rates	Fringes
WASHINGTON COUNTY:		
MILLWRIGHTS	21.53	5.79

CARP1871A 05/01/1999

	Rates	Fringes
ASHLAND, ASHTABULA, CUYAHOGA, ERIE, GEAUGA, HURON, LAKE, MEDINA & RICHLAND COUNTIES:		
MILLWRIGHTS	22.80	7.89

CARP1871B 05/01/1999

	Rates	Fringes
ASHLAND, ASHTABULA, CUYAHOGA, ERIE, GEAUGA, HURON, LAKE, MEDINA &		

RICHLAND COUNTIES:

PILEDRIVERMEN	22.80	7.89

CARP1871C 05/01/1999

	Rates	Fringes
BELMONT, HARRISON, & MONROE COUNTIES:		
PILEDRIVERMEN	21.91	7.14

CARP1871D 05/01/1999

	Rates	Fringes
COSHOCTON, HOLMES, KNOX & MORROW COUNTIES:		
PILEDRIVERMEN	18.40	7.35

CARP1871E 05/01/1999

	Rates	Fringes
BELMONT, COLUMBIANA, HARRISON, JEFFERSON & MONROE COUNTIES:		
MILLWRIGHTS	21.91	7.14

CARP1871K 05/01/1999

	Rates	Fringes
COSHOCTON, HOLMES, KNOX & MORROW COUNTIES:		
MILLWRIGHTS	18.40	7.34

CARP1871L 05/01/1999

	Rates	Fringes
TUSCARAWAS & WAYNE COUNTIES:		
MILLWRIGHTS	19.37	6.84

CARP1871M 05/01/1999

	Rates	Fringes
TUSCARAWAS & WAYNE COUNTIES:		
PILEDRIVERMEN	19.37	6.84

CARP2235D 01/01/1999

	Rates	Fringes
COLUMBIANA & JEFFERSON COUNTIES:		
PILEDRIVERMEN	22.00	7.85

CARP2239A 07/01/1998

	Rates	Fringes

CRAWFORD, OTTAWA, SANDUSKY, SENECA & WYANDOT COUNTIES:

CARPENTERS	19.38	7.78

ELEC0008A 06/01/1998

	Rates	Fringes
HANCOCK, OTTAWA, SANDUSKY, SENECA & WOOD COUNTIES:		
ELECTRICIANS:		
Electricians	26.58	6.50
Cable Splicers	27.91	6.55

ELEC0032A 06/01/1998

	Rates	Fringes
ALLEN, AUGLAIZE & WYANDOT (Crawford, Jackson, Marseilles, Mifflin, Ridgeland, Ridge & Salem Townships) COUNTIES:		
ELECTRICIANS	21.05	7.61

ELEC0032B 06/01/1998

	Rates	Fringes
ALLEN & WYANDOT (Crawford, Jackson, Marseilles, Mifflin, Richland, Ridge & Salem Townships) COUNTIES:		
LINE CONSTRUCTION:		
Lineman	22.52	4.31+a
Equipment Operator	20.27	4.12+a
Groundman Truck Driver	14.43	3.63+a

FOOTNOTE:

a. Half a day's Paid Holiday: The last 4 hours of the workday prior to Christmas or New Year's Day

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ELEC0038A 04/27/1998

	Rates	Fringes
CUYAHOGA & GEAUGA (Bainbridge, Chester & Russell Townships) COUNTIES:		
ELECTRICIANS	26.83	7.37

ELEC0064A 05/31/1999

	Rates	Fringes
COLUMBIANA COUNTY (Butler, Fairfield, Perry, Salem & Unity Townships):		
ELECTRICIANS	22.75	8.26

ELEC0071A 05/31/1999

	Rates	Fringes
CUYAHOGA & GEAUGA (Bainbridge, Russell & Chester Townships) COUNTIES:		
LINE CONSTRUCTION:		
Lineman; Cable Splicer	29.95	7.54
Equipment Operator	27.15	7.02
Groundman	20.65	5.82

ELEC0071C 05/31/1999

	Rates	Fringes
ASHLAND, COSHOCTON, CRAWFORD, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GUERNSEY, HIGHLAND, HOCKING, JACKSON (Coal, Jackson, Liberty, Milton & Washington Townships), KNOX, LICKING, MADISON, MONROE, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE (Beaver, Benton, Jackson, Mifflin, Pebble, Peepee, Perry & Seal Townships), RICHLAND, ROSS, TUSCARAWAS (Auburn, Bucks, Clay, Jefferson, Oxford, Perry, Salem, Rush, Washington & York Townships), VINTON (Clinton, Eagle, Elk, Harrison, Jackson, Richland & Swan Townships) & WASHINGTON COUNTIES:		
LINE CONSTRUCTION:		
Linemen; Cable Splicers	23.50	6.35
Equipment Operators	21.15	5.91
Groundmen	15.28	4.83

ELEC0071D 06/01/1998

	Rates	Fringes
AUGLAIZE COUNTY:		
LINE CONSTRUCTION:		
Lineman	22.80	2.80
Equipment Operator	20.52	2.72
Groundman	14.82	2.52

ELEC0082A 11/30/1998

	Rates	Fringes
CLINTON, GREENE, MIAMI, MONTGOMERY, PREBLE & WARREN (Wayne, Clear Creek & Franklin Townships) COUNTIES:		
ELECTRICIANS	22.34	6.84

ELEC0082C 11/30/1998

	Rates	Fringes
CLINTON, GREENE, MIAMI, MONTGOMERY, PREBLE & WARREN (Wayne, Clear Creek & Franklin Townships) COUNTIES:		
LINE CONSTRUCTION:		
Lineman; Cable Splicer; Operator: Hole Digging Equipment, Crane, Hydraulic Lift or Bucket; Technician	23.04	6.16

Operator: Line Truck w/winch or Pole & Steel Handling	17.99	5.97
Operator: Non-Specialized Truck & Miscellaneous Equipment; Groundman-Truck Driver	14.95	5.86

ELEC0129A 03/01/1999

	Rates	Fringes
MEDINA COUNTY (Litchfield & Liverpool Townships):		
ELECTRICIANS	25.70	6.80

ELEC0129B 02/28/1994

	Rates	Fringes
MEDINA COUNTY (Litchfield & Liverpool Townships):		
LINE CONSTRUCTION:		
Lineman; Cable Splicer; & Equipment Operator	22.80	5.75
Truck Driver (Winch) Groundman; & Groundman	14.82	5.47

ELEC0129F 03/01/1999

	Rates	Fringes
ERIE & HURON (Lyme, Ridgefield, Norwalk, Townsend, Wakeman, Sherman, Peru, Bronson, Hartland, Clarksfield, Norwich, Greenfield, Fairfield, Fitchville & New London Townships) COUNTIES:		
ELECTRICIANS	23.90	6.75

ELEC0141C 06/01/1998

	Rates	Fringes
BELMONT COUNTY:		
ELECTRICIANS	22.48	9.38
CABLE SPLICERS	22.73	9.39

ELEC0141D 06/01/1998

	Rates	Fringes
BELMONT COUNTY:		
LINE CONSTRUCTION:		
Lineman; Mechanized Equipment Operator; & Technician	22.53	9.34
Cable Splicer	22.78	9.35
Groundman	18.02	9.18

ELEC0212A 06/01/1999

	Rates	Fringes
BROWN & CLERMONT COUNTIES:		
ELECTRICIANS	21.80	6.91

ELEC0212C 06/01/1997

	Rates	Fringes
BROWN & CLERMONT COUNTIES:		
LINE CONSTRUCTION:		
Lineman; Operator: Mechanized Equipment Operator	20.30	6.56
Groundman	15.23	6.39

ELEC0212D 01/18/1998

	Rates	Fringes
BROWN & CLERMONT COUNTIES:		
ELECTRICAL SIGN & LUMINOUS BUILDING INSTALLER	12.88	1.03+a

FOOTNOTE:
a. 9 Paid Holidays: New Year's Day, Memorial Day, 4th of July, Labor Day, Thanksgiving Day, the Day after Thanksgiving, Christmas Eve, Christmas Day & New Year's Eve

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ELEC0245A 09/01/1997

	Rates	Fringes
HANCOCK, OTTAWA, SANDUSKY, SENECA & WOOD COUNTIES:		
LINE CONSTRUCTION:		
Cable Splicer	28.34	6.93+a
Lineman	24.64	6.34+a
Technician	23.90	6.22+a
Operator - Class 1	19.71	5.55+a
Operator - Class 2	17.25	5.16+a
Groundman	14.73	4.76+a

FOOTNOTE:
a. 6 Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; & Christmas Day providing the employee has been on the payroll prior to the holiday, has worked the scheduled workday, preceding & the scheduled workday following such holiday (except excused absences)

ELEC0246A 12/01/1997

	Rates	Fringes
COLUMBIANA (South of Butler, Fairfield, Knox, Salem & Unity		

Townships), HARRISON & JEFFERSON COUNTIES:

ELECTRICIANS	23.35	11.91+a

FOOTNOTE:
a. 1 1/2 Paid Holidays: The last scheduled workday prior to Christmas & 4 hours on Good Friday

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ELEC0246B 12/01/1998

	Rates	Fringes
COLUMBIANA (Center, Elk Run, Franklin, Hanover, Liverpool, Madison, Middleton, St. Clair, Washington, Wayne, West & Yellow Creek Townships), HARRISON & JEFFERSON COUNTIES:		
LINE CONSTRUCTION:		
Lineman; Truck Driver; Line Equipment Operator	22.00	10.34+a
Groundman	13.40	6.30+a

FOOTNOTE:
a. 1 1/2 Paid Holidays: The last scheduled workday prior to Christmas & 4 hours on Good Friday

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ELEC0306C 06/01/1998

	Rates	Fringes
MEDINA (Brunswick, Chatham, Granger, Guilford, Harrisville, Hinckley, Homer, Lafayette, Medina, Montville, Sharon, Spencer, Wadsworth, Westfield & York Townships) & WAYNE (Baughman, Canaan, Chester, Chippewa, Congress, Green, Milton & Wayne Townships) COUNTIES:		
LINE CONSTRUCTION:		
Lineman	24.00	7.24
Cable Splicer	25.92	7.31
Equipment Operator	18.00	6.10
Groundman; Truck Driver	12.00	4.95

ELEC0306D 06/01/1998

	Rates	Fringes
MEDINA (Brunswick, Chatham, Granger, Guilford, Harrisville, Hinckley, Homer, Lafayette, Medina, Montville, Sharon, Spencer, Wadsworth, Westfield & York Townships) & WAYNE (Baughman, Canaan, Chester, Chippewa, Congress, Green, Milton & Wayne Townships) COUNTIES:		
ELECTRICIANS:		
Electrician	24.00	7.24
Cable Splicer	25.92	7.31

ELEC0317G 06/01/1998

	Rates	Fringes
ADAMS, JACKSON (Bloomfield, Franklin, Hamilton, Lick, Jefferson, Scioto & Madison Townships), PIKE (Camp Creek, Marion, Newton,		

Scioto, Sunfish & Union Townships), SCIOTO & VINTON (Brown, Knox, Madison, Vinton & Wilkesville Townships) COUNTIES:

LINE CONSTRUCTION:		
Linemen	21.42	8.40
Cable Splicers	23.66	8.48
Equipment Operators	17.14	8.25
Groundmen	13.92	8.14

ELEC0411A 06/01/1997

	Rates	Fringes
ASHTABULA (Colebrook, Orwell, Wayne, Williamsfield & Windsor Townships), COLUMBIANA (Butler, Fairfield, Perry, Salem & Unity Townships) & GEAUGA (Auburn, Burton, Middlefield, Parkman & Troy Townships) COUNTIES:		
LINE CONSTRUCTION:		
Lineman; & Cable Splicer	22.10	6.49
Pole Digging Equipment	19.89	6.08
Groundman	17.68	5.67

ELEC0540A 06/07/1999

	Rates	Fringes
COLUMBIANA (Knox Township), HOLMES, TUSCARAWAS (North of Auburn Clay, Rush & York Townships), & WAYNE (South of Baughman, Chester, Green & Wayne Townships) COUNTIES:		
ELECTRICIANS	23.31	9.58

ELEC0540C 06/05/1997

	Rates	Fringes
COLUMBIANA (Knox Township), HOLMES, TUSCARAWAS (North of Auburn, Clay, Rush & York Townships), & WAYNE (South of Baughman, Chester, Green & Wayne Townships) COUNTIES:		
LINE CONSTRUCTION:		
Lineman; & Cable Splicer	21.86	9.01
Line Equipment Operator	19.02	8.69
Groundman; & Truck Driver	14.65	8.18

ELEC0573A 06/01/1999

	Rates	Fringes
ASHTABULA (Colebrook, Wayne, Williamsfield, Orwell & Windsor Townships) & GEAUGA (Auburn, Middlefield, Parkman & Troy Townships) COUNTIES:		
ELECTRICIANS	24.03	7.09

ELEC0575A 06/01/1999

	Rates	Fringes
ADAMS, FAYETTE, HIGHLAND, HOCKING, JACKSON (Bloomfield, Franklin,		

Hamilton, Jefferson, Lick, Madison, Scioto, Coal, Jackson, Liberty, Milton & Washington Townships), PICKAWAY (Deer Creek, Perry, Pickaway, Salt Creek & Wayne Townships), PIKE (Beaver, Benton, Jackson, Mifflin, Pebble, PeePee, Perry, Seal, Camp Creek, Newton, Scioto, Sunfish, Union & Marion Townships), ROSS, SCIOTO & VINTON (Clinton, Eagle, Elk, Harrison, Jackson, Richland & Swan Townships) COUNTIES:

ELECTRICIANS	24.50	6.905

ELEC0648A 08/31/1998

	Rates	Fringes
BUTLER & WARREN (Deerfield, Hamilton, Harlan, Massie, Salem, Turtle Creek, Union & Washington Townships) COUNTIES:		
ELECTRICIANS:		
Electricians	20.98	5.83
Cable Splicers	21.48	5.85

ELEC0648B 08/31/1998

	Rates	Fringes
BUTLER & WARREN (Deerfield, Hamilton, Harlan, Massie, Salem, Turtle Creek, Union & Washington Townships) COUNTIES:		
LINE CONSTRUCTION:		
Lineman	22.35	5.88
Cable Splicer	22.85	5.90
Groundman	15.65	5.65

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* ELEC0673A 05/31/1999

	Rates	Fringes
ASHTABULA (Excluding Orwell, Colebrook, Williamsfield, Wayne & Windsor Townships), GEAUGA (Burton, Chardon, Claridon, Hambden, Huntsburg, Montville, Munson, Newbury & Thompson Townships) & LAKE COUNTIES:		
ELECTRICIANS:		
Electricians	24.03	9.14
Cable Splicers	24.28	9.15

ELEC0673F 06/01/1998

	Rates	Fringes
ASHTABULA (Except Colebrook, Orwell, Wayne, Williamsfield & Windsor Townships), GEAUGA (Chardon, Claridon, Hambden, Huntsburg, Montville, Munson, Newbury & Thompson Townships) & LAKE COUNTIES:		
LINE CONSTRUCTION:		
Lineman	24.38	7.65
Cable Splicer; Equipment Operator	24.63	7.66
Truck Driver (Winch)-Groundman; & Groundman	15.85	7.35

ELEC0683A 06/01/1999

	Rates	Fringes
DELAWARE, FAIRFIELD, FRANKLIN, MADISON & PICKAWAY (Circleville, Darby, Harrison, Jackson, Madison, Monroe, Muhlenberg, Scioto, Walnut & Washington Townships) COUNTIES:		
ELECTRICIANS:		
Electricians	23.25	6.90
Cable Splicers	23.85	6.92

ELEC0688A 06/01/1999

	Rates	Fringes
ASHLAND, CRAWFORD, HURON (Richmond, New Haven, Ripley & Greenwich Townships), KNOX (Liberty, Clinton, Union, Howard, Monroe, Middleberry, Morris, Wayne, Berlin, Pike, Brown & Jefferson Townships), MORROW, RICHLAND & WYANDOT (Sycamore, Crane, Eden, Pitt, Antrim & Tymochtee Townships) COUNTIES:		
ELECTRICIANS	23.05	7.63

ELEC0688B 06/01/1997

	Rates	Fringes
HURON (Richmond, New Haven, Ripley & Greenwich Townships) & WYANDOT (Sycamore, Crane, Eden, Pitt, Antrim & Tymochtee Townships) COUNTIES:		
LINE CONSTRUCTION:		
Lineman	21.68	7.00
Line Equipment Operator	19.51	6.92
Groundman	14.09	6.73

ELEC0867B 06/01/1998

	Rates	Fringes
ERIE & HURON (Lyme, Ridgefield, Norwalk, Townsend, Wakeman, Sherman, Peru, Bronson, Hartland, Clarksfield, Norwich, Greenfield, Fairfield, Fitchville & New London Townships) COUNTIES:		
LINE CONSTRUCTION:		
Lineman; Cable Splicer; & Equipment Operator	20.75	4.09
Truck Driver (Winch) Groundman; & Groundman	13.49	3.87

ELEC0972A 06/01/1999

	Rates	Fringes
MONROE, MORGAN, NOBLE, VINTON (Brown, Knox, Madison, Vinton & Wilkesville Townships) & WASHINGTON COUNTIES:		
ELECTRICIANS:		

Electricians	22.83	11.88
Cable Splicers	23.08	11.89

ELEC1105A 06/01/1998

	Rates	Fringes
COSHOCTON, GUERNSEY, KNOX (Jackson, Clay, Morgan, Miller, Milford, Hilliar, Butler, Harrison, Pleasant & College Townships), LICKING, MUSKINGUM, PERRY & TUSCARAWAS (Auburn, York, Clay, Jefferson, Rush, Oxford, Washington, Salem, Perry & Bucks Townships) COUNTIES:		
ELECTRICIANS	21.83	5.30

ELEV0006C 01/30/1999

	Rates	Fringes
BELMONT & JEFFERSON COUNTIES:		
ELEVATOR MECHANICS	25.87	6.675+a+b

FOOTNOTES:

a. 7 Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; The Day After Thanksgiving; & Christmas Day.

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 years; Employer contributes 6% of regular hourly rate to vacation pay credit for employee who has worked in business less than 5 years.

ELEV0006D 01/30/1998

	Rates	Fringes
ASHTABULA, GUERNSEY, HARRISON, MONROE, NOBLE & WASHINGTON COUNTIES:		
ELEVATOR MECHANICS	24.99	6.405+a+b

FOOTNOTES:

a. 7 Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; The Day After Thanksgiving; & Christmas Day.

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 years; Employer contributes 6% of regular hourly rate to vacation pay credit for employee who has worked in business less than 5 years.

ELEV0011A 06/22/1999

	Rates	Fringes

ADAMS, BROWN, BUTLER, CLERMONT, CLINTON, GREENE, HIGHLAND, MIAMI, MONTGOMERY, PREBLE & WARREN COUNTIES:

ELEVATOR MECHANICS	23.585	6.675+a+b

FOOTNOTES:

a. 7 Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; the Day after Thanksgiving; & Christmas Day

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 years; 6% for less than 5 years' service.

ELEV0017A 07/01/1999

	Rates	Fringes
CUYAHOGA, ERIE, GEAUGA, HURON & LAKE COUNTIES:		
ELEVATOR MECHANICS	27.535	6.675+a+b

FOOTNOTES:

a. 7 Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Day After Thanksgiving; & Christmas Day

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 years; 6% for less than 5 years.

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* ELEV0037A 07/16/1999

	Rates	Fringes
ASHLAND, COSHOCTON, CRAWFORD, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, HOCKING, HOLMES, KNOX, LICKING, MADISON, MORGAN, MORROW, MUSKINGUM, PERRY, PICKAWAY, RICHLAND, ROSS, TUSCARAWAS & VINTON COUNTIES:		
ELEVATOR MECHANICS	24.445	6.935+a+b

FOOTNOTES:

a. 7 Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; the Day after Thanksgiving; & Christmas Day

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 years; 6% for less than 5 years.

ELEV0044A 07/31/1997

	Rates	Fringes
ALLEN, AUGLAIZE, HANCOCK, OTTAWA, SANDUSKY, SENECA, WOOD & WYANDOT COUNTIES:		
ELEVATOR MECHANICS	25.725	6.405+a+b

FOOTNOTES:
a. 7 Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; The Day after Thanksgiving; & Christmas Day

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 yrs.; 6% for less than 5 yrs.

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* ELEV0045A 07/09/1999

	Rates	Fringes
COLUMBIANA, MEDINA & WAYNE COUNTIES:		
ELEVATOR MECHANICS	26.415	6.935+a+b

FOOTNOTES:
a. 7 Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Day after Thanksgiving; & Christmas Day

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 years; 6% for less than 5 years.

ELEV0048C 09/28/1998

	Rates	Fringes
JACKSON, PIKE & SCIOTO COUNTIES:		
ELEVATOR MECHANICS	22.795	6.12+a+b

FOOTNOTES:
a. 7 Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; the Day after Thanksgiving Day; & Christmas Day

b. Employer contributes 8% of regular hourly rate to vacation pay credit for employee who has worked in business more than 5 years; 6% for less than 5 years' service

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ENGI0018A 05/01/1999

	Rates	Fringes
ADAMS, ALLEN, ASHLAND, AUGLAIZE, BELMONT, BROWN, BUTLER, CLERMONT, CLINTON, COSHOCTON, CRAWFORD, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GREENE, GUERNSEY, HANCOCK, HARRISON, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LICKING, MADISON, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PERRY, PICKAWAY, PIKE, PREBLE, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, TUSCARAWAS, VINTON, WARREN, WASHINGTON, WAYNE & WYANDOT COUNTIES:		
POWER EQUIPMENT OPERATORS:		
GROUP 1	23.39	6.80

GROUP 2	23.14	6.80
GROUP 3	22.89	6.80
GROUP 4	22.64	6.80
GROUP 5	22.52	6.80
GROUP 6	21.48	6.80
GROUP 7	20.55	6.80
GROUP 8	15.99	6.80

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1 - Boom & Jib 250' & Over

GROUP 2 - Boom & Jib Over 180' through 249'

GROUP 3 - Boom & Jib 150' through 180'; & Master Mechanic

GROUP 4 - Barrier Moving Machine; Boiler or Compressor Mounted on Crane (Piggy-Back Operation); Boom Truck; Cableway; Cherry Picker; Combination Concrete Mixer & Tower; Concrete Pump with Booms; Crane; Derrick; Dragline; Dredge (Dipper, Clam or Suction) 3 Man Crew; Elevating Grader or Euclid Loader; Floating Equipment; Gradall; Helicopter Operator & Helicopter Winch Operator (Hoisting Builders Materials); Hoe; Hoist (Two or More Drums); Hydraulic Gantry (Lift System); Laser Finishing Machine; Lift Slab or Panel Jack; Locomotive; Maintenance Engineer (Mechanic); Mixer, Paving (Multiple Drum); Mobile Concrete Pump With Boom; Panelboard; Pile Driver; Power Shovel; Prentice Loader; Rail Tamper with automatic lifting & align device; Rotary Drill used on Caisson Work for Foundations &

Substructure work; Side Boom; Slip Form Paver; Straddle Carrier; Trench Machine (Over 24" Wide); & Tug Boat

GROUP 5 - Asphalt Paver; Bobcat-type and/or Skid Steer Loader with Hoe Attachment Greater than 7,000 lbs.; Bulldozer; C.M.I. Type Equipment; Concrete Grinder/Planer; Endloader; Hydro Milling Machine; Kolman Type Loader (Dirt Loading); Lead Greaseman; Mucking Machine; Pettibone-Rail Equipment; Power Grader; Power Scoop; Power Scraper; Push Cat; & Vermeer Type Concrete Saw

GROUP 6 - A-Frame; Air Compressor (Pressurizing Shafts or Tunnels); Asphalt Roller; Bobcat-type and/or Skid Steer Loader with or without Attachments; Concrete Pump without Booms & with 5" System; Highway Drillers with Integral Power; Hoist (One Drum); Boiler (15 lbs. pressure & over); ForkLift (except Masonry); House Elevator (except those automatic call button controlled); Man Lift; Mud Jack; Pressure Grouting; Pump (Installing or Operating Well Points or other Type of Dewatering Systems); Pump (4" and over Discharge); Submersible Pump (4" and over Discharge); Switch & Tie Tamper w/o lifting & aligning device; Trench Machine (24" & under); Utility; Railroad Tie Inserter/Remover; & Rotovator (Lime-Soil Stabilizer)

GROUP 7 - Compressor; Concrete Mixer (Capacity more than one bag); Concrete Mixer (one bag capacity, side loader); Conveyor;

Generator; Gunite Machine; Pavement Breaker (Hydraulic or Cable); Post Driver; Post Hole Digger; Road Widening Trencher; Roller (except Asphalt); Ballast Relocator; Backfiller & Tamper; Bar & Joint Installing Machine; Batch Plant; Bullfloat; Burlap & Curing Machine; Clefplane; Concrete Spreader; Crusher; Deckhand; Drum Fireperson (In Asphalt Plant); Farm-type Tractor (Pulling Attachments); Finishing Machine; Form Trencher; Hydro Seeder; Pressure Pump (over 1/2" discharge); Self-propelled Sub-Grader; Tire Repairman; Tractor (Pulling Sheep Foot Roller or Grader); Vibratory Compactor (with Integral Power); Vac/All; Concrete Pump without Booms with 4" or Smaller System; Self-Propelled Power Spreader; & Shotcrete Machine

GROUP 8 - Boiler (Less than 15 lbs. pressure); Masonry Fork Lift; Inboard & Outboard Motor Boat Launch; Light Plant; Oiler; Power Driven Heater (Oil Fired); Power Scrubber; Power Sweeper; Pump (Under 4" discharge); Signal Person; & Submersible Pump (Under 4" discharge)

ENGI0018B 05/01/1999

	Rates	Fringes
ASHTABULA, CUYAHOGA, ERIE, GEAUGA, HURON, LAKE & MEDINA COUNTIES:		
POWER EQUIPMENT OPERATORS:		
MASTER MECHANIC	25.92	6.76
GROUP 1	25.42	6.76
GROUP 2	25.27	6.76
GROUP 3	24.42	6.76
GROUP 4	23.64	6.76
GROUP 5	23.32	6.76
GROUP 6	17.19	6.76

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1 - A-Frame; Boiler or Compressor Operator, Hydraulic Pump & Power Pacs Mounted on Crane (Piggy-Back Operation); Boom Truck; Cableway; Cherry Picker; Combination Concrete Mixer & Tower; Concrete Pump; Crane; Derrick; Dragline; Dredge (Dipper, Clam or Suction) 3 Man Crew; Elevating Grader or Euclid Loader; Floating Equipment; Gradall; Helicopter Operator & Helicopter Winch Operator (When Hoisting Builders Materials); Hoe; Hoist (Two or More Drums); Lift Slab or Panel Jack Operator; Locomotive; Maintenance Engineer (Mechanic); Mixer Paving (Multiple Drum); Mobile Concrete Pump, with Boom; Panelboard; Pile Driver; Power Shovel; Robotic Equipment; Operator/Mechanic; Rotary Drill used on Caisson Work for Foundations & Substructure Work; Side Boom; Slip Form Paver; Straddle Carrier; Trench Machine (Over 24" Wide); & Tug Boat

GROUP 2 - Asphalt Paver; Bulldozer; C.M.I. Type Equipment; End Loader; Kohlman Type Loader (Dirt Loading); Lead Greaseman; Mucking Machine; Power Grader; Power Scoop; Power Scraper; & Push Cat; Horizontal Directional Drill Locator; Horizontal & Directional Drill Operator

GROUP 3 - Air Compressor (Pressurizing Shafts & Tunnels); Asphalt Roller; Fork Lift; Hoist (One Drum); House Elevator (Except Automatic Call Button-controlled); Man Lift; Mud Jack; Boiler (Over 15 lbs. Pressure); Pressure Grouting; Pump Operator (Installing Well Points or other type of Dewatering system); Trencher (24" & under); & Utility Operator

GROUP 4 - Compressor; Conveyor; Generator; Gunite Machine; Concrete Mixer (Capacity more than one bag); Concrete Mixer (One Bag capacity, Side Loader); Pavement Breaker (Hydraulic or Cable); Post Driver; Post Hole Digger; Road Widening Trencher; & Roller

GROUP 5 - Backfiller & Tamper; Bar & Joint Installing Machine; Batch Plant; Bullfoat; Burlap and Curing Machine; Cleaning Machine (decantamination included); Clefplane; Concrete Spreader Machine; Crusher; Deck Hand; Drum Fireman (In Asphalt Plant); Farm-type Tractor (Pulling attachment); Finishing Machine; Fork Lift (Masonry Work); Form Trencher High Pressure Pump (Over 1/2" discharge); Hydro Seeder; Pump (4" and Over discharge); Sub-mersible Pump (4" and Over discharge); Self-propelled Power Spreader; Self-propelled Sub-grader; Tire Repairman; Tractor (Pulling Sheeps Foot Roller or Grader); & Vibratory Compactor (With Integral Power)

GROUP 6 - Inboard & Outboard Motor Boat Launch; Light Plant Operator; Oiler; Power Driven Heater (Oil Fired); Power Scrubber; Power Sweeper; Power Boiler (Less than 15 lbs.

Pressure); Pump (Under 4" discharge); Submersible Pump (Under 4" discharge); Signalperson; Bob Cat-type and/or Skid Steer Loader; Grade Checker; & VAC/ALL

ENGI0018G 05/01/1999

	Rates	Fringes
WOOD COUNTY:		
POWER EQUIPMENT OPERATORS:		
GROUP 1	24.14	6.80
GROUP 2	23.89	6.80
GROUP 3	23.64	6.80
GROUP 4	23.39	6.80
GROUP 5	23.27	6.80
GROUP 6	22.23	6.80
GROUP 7	21.30	6.80
GROUP 8	16.74	6.80

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1 - Boom & Jib 250' & Over

GROUP 2 - Boom & Jib Over 180' through 249'

GROUP 3 - Boom & Jib 150' through 180'; & Master Mechanic

GROUP 4 - Barrier Moving Machine; Boiler or Compressor Mounted on Crane (Piggy-Back Operation); Boom Truck; Cableway; Cherry Picker; Combination Concrete Mixer & Tower; Concrete Pump with Booms; Crane; Derrick; Dragline; Dredge (Dipper, Clam or Suction) 3 Man Crew; Elevating Grader or Euclid Loader; Floating Equipment; Gradall; Helicopter Operator (Hoisting Builders Materials); Helicopter Winch Operator (Hoisting Building Materials); Hoe; Hoist (Two or More Drums); Hydraulic Gantry (Lift System); Laser Finishing Machine; Lift Slab or Panel Jack; Locomotive; Maintenance Engineer (Mechanic); Mixer Paving (Multiple Drum); Mobile Concrete Pump (With Boom); Panelboard; Pile Driver; Power Shovel; Prentice Loader; Concrete Pump with Boom; Rail Tamper with automatic lifting & align device; Rotary Drill used on Caisson Work for Foundations & Substructure work; Side Boom; Slip Form Paver; Straddle Carrier; Trench Machine (Over 24" Wide); & Tug Boat

GROUP 5 - Asphalt Paver; Bobcat-type and/or Skid Steer Loader with Hoe Attachment Greater than 7,000 lbs.; Bulldozer; Power Grader; C.M.I. Type Equipment; Concrete Grinder/Planer; Endloader; Push Cats; Hydro Milling Machine; Kolman Type Loader (Dirt Loading); Lead Greaseman; Mucking Machine; Pettibone-Rail Equipment; Power Scoop; Power Scraper; & Vermeer Type Concrete Saw

GROUP 6 - A-Frame; Air Compressor (Pressurizing Shafts or Tunnels); Asphalt Roller; Bobcat-type and/or Skid Steer Loader with or without Attachments; Highway Drillers with Integral Power; Hoist (One Drum); Boiler (15 lbs. pressure & over);

Concrete Pump without Booms with 5" System; ForkLift (except Masonry); House Elevator (except those automatic call button controlled); Man Lift; Mud Jack; Pressure Grouting; Pump (Installing or Operating Well Points or other Type of Dewatering Systems); Pump (4" and over Discharge); Submersible Pump (4" and over Discharge); Switch & Tie Tamper w/o lifting & aligning device; Trench Machine (24" & under); Utility; Railroad Tie Inserter/Remover; & Rotovator (Lime-Soil Stabilizer)

GROUP 7 - Compressor; Concrete Mixer (Capacity more than one bag); Concrete Mixer (one bag capacity, side loader); Conveyor; Generator; Gunite Machine; Pavement Breaker (Hydraulic or Cable); Post Driver; Post Hole Digger; Road Widening Trencher; Roller (except Asphalt); Ballast Relocator; Backfiller & Tamper; Bar & Joint Installing Machine; Batch Plant; Bullfloat; Burlap & Curing Machine; Clefplane; Concrete Spreader; Crusher; Deckhand; Drum Fireperson (In Asphalt Plant); Farm-type Tractor (Pulling Attachments); Finishing Machine; Form Trencher; Hydro Seeder; Pressure Pump (over 1/2" discharge); Self-propelled Sub-Grader; Tire Repairman; Tractor (Pulling Sheep Foot Roller or Grader); Vibratory Compactor (with Integral Power); Vac/All; Concrete Pump without Booms & With 4" System or Smaller; Self-Propelled Power Spreader; & Shotcrete Machine

GROUP 8 - Boiler (Less than 15 lbs. pressure); Masonry Fork Lift; Inboard & Outboard Motor Boat Launch; Light Plant; Oiler;

Power Driven Heater (Oil Fired); Power Scrubber; Power Sweeper; Pump (Under 4" discharge); Signal Person; & Submersible Pump (Under 4" discharge)

ENGI0066H 06/01/1999

	Rates	Fringes
COLUMBIANA COUNTY:		
POWER EQUIPMENT OPERATORS:		
HAZARDOUS/TOXIC WASTE PROJECTS:		
GROUP 1	26.93	10.36
GROUP 2	26.60	10.36
GROUP 3	24.73	10.36
GROUP 4	22.39	10.36
GROUP 5	19.44	10.36
ALL OTHER WORK:		
GROUP 1	22.44	10.36
GROUP 2	22.17	10.36
GROUP 3	20.61	10.36
GROUP 4	18.66	10.36
GROUP 5	16.20	10.36

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1 - Rig, Pile Driver or Caisson Type; & Rig, Pile Hydraulic Unit Attached

GROUP 2 - Asphalt Heater Planer; Backfiller with Drag Attachment; Backhoe; Backhoe with Shear attached; Backhoe - Rear Pivotal Swing; Batch Plant-Central Mix Concrete; Batch Plant, Portable Concrete; Berm Builder-Automatic; Boat Derrick; Boat-Tug; Boring Machine Attached to Tractor; Bullclam; Bulldozer; C.M.I. Road Builder & Similar Type; Cable Placer & Layer; Carrier-Straddle; Carryall - Scraper or Scoop; Chicago Boom; Compactor with Blade Attached; Concrete Saw (Vermeer or similar type); Concrete Spreader Finisher; Combination, Bidwell Machine; Crane; Crane - Electric Overhead; Crane - Rough Terrain; Crane - Side Boom; Crane - Truck; Crane - Tower; Derrick-Boom; Derrick-Car; Digger-Wheel (Not Trencher or Road Widener); Double Nine; Drag Line; Dredge; Drill-Kenny or Similar Type; Easy Pour Median Barrier Machine (or similar type); Electromatic; Frankie Pile; Gradall; Grader; Gurry; Gurry, Self-Propelled; Heavy Equipment Robotics Operator/Mechanic; Hoist-Monorail; Hoist - Stationary & Mobile Tractor; Hoist, 2 or 3 Drum; Horizontal Directional Drill Operator; Jackall; Jumbo Machine; Kocal & Kuhlman; Land-Seagoing Vehicle; Loader, Elevating; Loader, Front End; Loader Skid Steer; Locomotive; Mechanic/Welder; Metro Chip Harvester with Boom; Mucking Machine; Paver-Asphalt Finishing Machine; Paver-Road Concrete; Paver, Slip Form (C.M.I. or similar); Place Crete Machine with Boom; Post Driver (Carrier Mounted); Power Driven Hydraulic Pump & Jack (When used in Slip Form or Lift Slab Construction); Pump Crete Machine; Regular-Ballast; Hydraulic Power Unit not attached to Rig for Pile Drillings; Rigs-Drilling; Roto Mill or similar Full Lane (8' Wide &

Over); Roto Mill or similar type (Under 8'); Shovel; Slip Form Curb Machine; Speedwing; Spikemaster; Stonecrusher; Tie Puller & Loader; Tie Tamper; Tractor-Double Boom; Tractor with Attachments; Truck-Boom; Truck-Tire; Trench Machine; Tunnel Machine (Mark 21 Java or Similar); & Whirley (or similar type)

GROUP 3 - Asphalt Plant; Bending Machine (Pipeline or similar type); Boring Machine, Motor Driven; Chip Harvester without Boom; Cleaning Machine, Pipeline Type; Coating Machine, Pipeline Type; Compactor; Concrete Belt Placer; Concrete Finisher; Concrete Planer or Asphalt; Concrete Spreader; Elevator; Fork Lift (Home Building Only); Fork Lift Walk Behind (Hoisting over 1 Buck High); Form Line Machine; Grease Truck Operator; Grout Pump; Gunnite Machine; Horizontal Directional Drill Locator; Single Drum Hoist with or without Tower; Huck Bolting Machine; Hydraulic Scaffold (Hoisting Building Materials); Paving Breaker (Self-propelled or Ridden); Pipe Dream; Pot Fireperson (Power Agitated); Refrigeration Plant; Road Widener; Roller; Sasgen Derrick; Seeding Machine; Soil Stabilizer (Pump Type); Spray Cure Machine, Self-Propelled; Straw Blower Machine; Sub-Grader; Tube Finisher or Broom C.M.I. or Similar Type; & Tugger Hoist

GROUP 4 - Air Curtain Destructor & Similar Type; Batch Plant-Job Related; Boiler Operator; Compressor; Conveyor; Curb Builder, Self-Propelled; Drill Wagon; Fork Lift & Lulls; Generator Set; Generator-Steam; Heater-Portable Power; Hydraulic Manipulator Crane; Jack-Hydraulic Power Driven; Jack

Hydraulic (Railroad); Ladavator; Minor Machine Operator; Mixer-Concrete; Mulching Machine; Pin Puller; Power Broom; Pulverizer; Pump; Road Finishing Machine (Pull type); Saw-Concrete-Self-Propelled (Highway Work); Signal Person; Spray Cure Machine - Motor Powered; Stump Cutter; Tractor; Trencher Form; Water Blaster; Steam Jenny; Syphon; Vibrator-Gasoline; & Welding Machine

GROUP 5 - Brakeperson; Fireperson; & Oiler

IRON0017A 08/01/1998

	Rates	Fringes
ASHTABULA (North of Route #6, starting at the Geauga County Line, proceeding east to State Route 45), CUYAHOGA, ERIE (Eastern 2/3), GEAUGA, HURON (East of a line drawn from the north border through Monroeville & Willard), LAKE & MEDINA (North of Old Rte. #224) COUNTIES:		
IRONWORKERS:		
Ornamental; Reinforcing & Structural	24.42	9.86
Sheeter	24.67	9.86

IRON0044A 06/01/1999

	Rates	Fringes
ADAMS (Western Part), BROWN, BUTLER (Southern Part), CLERMONT, CLINTON (South of a line drawn from Blanchester to Lynchburg),		

HIGHLAND (Excluding eastern one-fifth & portion of county inside lines drawn from Marshall to Lynchburg from the northern county line through E. Monroe to Marshall) & WARREN (South of a line drawn from Blanchester through Morrow to the west county line) COUNTIES:

IRONWORKERS:		
Ornamental; Structural	20.90	9.84
Fence Erector	18.81	9.84

IRON0055A 07/01/1998

	Rates	Fringes
CRAWFORD (Area between lines drawn from where Hwy #598 & #30 meet through North Liberty to the northern border & from said Hwy junction point due west to the border), ERIE (Western one-third), HANCOCK, HURON (West of a line drawn from the northern border through Monroeville & Willard), OTTAWA, SANDUSKY, SENECA, WOOD & WYANDOT (North of Rte. #30) COUNTIES:		
IRONWORKERS:		
Fence Erector	15.46	9.69
Pre-Engineered Metal Building	16.46	10.08
Furnaces & Kilns (Temperature units over 125 degrees Fahrenheit)	22.58	10.08
All Other Work	21.18	10.08

IRON0147B 06/01/1999

	Rates	Fringes
ALLEN COUNTY (Northern half):		
IRONWORKERS	20.40	9.72

IRON0172A 06/01/1999

	Rates	Fringes
COSHOCTON (West of a line beginning at the northwest county line going through Walhonding & Tunnel Hill to the southern county line), CRAWFORD (South of Rte. #30), DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, HIGHLAND (Eastern one-fifth), HOCKING, JACKSON (Northern half), KNOX, LICKING, MADISON, MORROW, MUSKINGUM (West of a line starting at Adams Mill going to Adamsville & going from Adamsville through Blue Rock to the southern border), PERRY, PICKAWAY, PIKE, ROSS, VINTON & WYANDOT (South of Rte. #30) COUNTIES:		
IRONWORKERS	20.95	9.26

IRON0207B 06/01/1999

	Rates	Fringes
ASHTABULA (Southern part starting at the Geauga County line) & COLUMBIANA (E. of a line from Damascus to highlandtown) COUNTIES:		
IRONWORKERS:		

Fence Erector	15.95	10.01
Ornamental; Reinforcing; Structural	23.07	10.01
Layout; Sheeter	24.07	10.01

IRON0290A 06/01/1999

	Rates	Fringes

ALLEN (Southern half), AUGLAIZE, BUTLER (North of a line drawn from east to the west county line going through Oxford, Darrtown & Woodsdale), CLINTON (Excluding south of a line drawn from Blanchester to Lynchburg), GREENE, HIGHLAND (Inside lines drawn from Marshall to Lynchburg & from the northern county line through East Monroe to Marshall), MIAMI, MONTGOMERY, PREBLE & WARREN (Excluding south of a line drawn from Blanchester through Morrow to the west county line) COUNTIES:

IRONWORKERS		
Within 25 mile radius of L.U. #290 Office, Dayton	20.54	9.10
Beyond 25 mile radius of L.U. #290 Office, Dayton	20.69	9.10

IRON0348C 05/01/1999

	Rates	Fringes

ASHTABULA COUNTY (Eastern part from Lake Erie on the north to Route #322 on the south to include Conneaut, Kingsville,

Sheffield, Denmark, Dorset, Cherry Valley, Wayne, Monroe, Pierpont, Richmond, Andover & Williamsfield Townships):

IRONWORKERS:		
Ornamental; Reinforcing; & Structural	21.02	11.30
Sheeter	23.12	11.30

IRON0372A 06/01/1999

	Rates	Fringes

ADAMS (Western Part), BROWN, BUTLER (Southern Part), CLERMONT, CLINTON (South of a line drawn from Blanchester to Lynchburg), HIGHLAND (Excluding eastern one-fifth & portion of county inside lines drawn from Marshall to Lynchburg from the northern county line through E. Monroe to Marshall) & WARREN (South of a line drawn from Blanchester through Morrow to the west county line) COUNTIES:

IRONWORKERS, Reinforcing:		
Up to & including 25-mile radius of Hamilton County Courthouse	20.72	9.05
Beyond 25-mile radius of Hamilton County Courthouse	20.97	9.05

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* IRON0549C 07/01/1999

	Rates	Fringes

BELMONT, GUERNSEY, HARRISON, JEFFERSON, MONROE & MUSKINGUM

(Excluding portion west of a line starting at Adams Mill going to Adamsville & going from Adamsville through Blue Rock to the south border) COUNTIES:

IRONWORKERS	22.24	10.78

IRON0550A 05/01/1999

	Rates	Fringes

ASHLAND, COLUMBIANA (W. of a line from Damascus to Highlandtown), COSHOCTON (E. of a line beginning at NW Co. line going through Walhonding & Tunnel Hill to the South Co. line), HOLMES, HURON (S. of Old Route #224), MEDINA (S. of Old Route #224), RICHLAND, TUSCARAWAS & WAYNE COUNTIES:

IRONWORKERS:		
Ornamental; Reinforcing; & Structural	19.94	9.87
Fence Erector	16.21	9.87

IRON0769C 06/01/1999

	Rates	Fringes

ADAMS (Eastern Half), JACKSON (Southern Half) & SCIOTO COUNTIES:

IRONWORKERS:		
ZONE 1	22.51	10.02
ZONE 2	22.91	10.02
ZONE 3	24.91	10.02

ZONE 1 - Up to 10 mile radius of Union Hall, Ashland, Ky., 1643 Greenup Ave.

ZONE 2 - 10 to 50 mile radius of Union Hall, Ashland, Ky., 1643 Greenup Ave.

ZONE 3 - 50 mile radius & over of Union Hall, Ashland, Ky., 1643 Greenup Ave.

IRON0787B 06/01/1999

	Rates	Fringes

MORGAN, NOBLE & WASHINGTON COUNTIES:

IRONWORKERS	22.23	9.75

LABO0083A 06/01/1999

	Rates	Fringes

ADAMS, HIGHLAND, JACKSON, PIKE, ROSS, SCIOTO & VINTON COUNTIES:

LABORERS:		
GROUP 1	22.11	4.00
GROUP 2	22.36	4.00
GROUP 3	22.61	4.00

LABORER CLASSIFICATIONS

GROUP 1 - Building & Construction; Carpenter Tender; Bottom Man; Mason Tender; Mortar Mixer; Pipe Layer; Plasterer Tender; Sheeting & Shoring Man; & Signalman
GROUP 2 - Air & Machine Driver Tool Operator; Asphalt Raker & Smoother; Burning & Cutting Torch; Chain Saw; Form Setter (Street & Highway); Hand Spiker; & Powered Concrete Buggy
GROUP 3 - Gunnite Machine Operator; Gunnite Nozzle Man; Miner (Tunnel & Caisson); Mucker (Tunnel & Caisson); & Powder Man & Blaster

HAZARDOUS & HIGH WORK IN EXCESS OF 25 FEET ABOVE SOLID BASE - $.25 PREMIUM

WORKERS HANDLING CREOSOTED OR INJURIOUS CHEMICALLY TREATED MATERIALS - $.25 PREMIUM

THE ERECTION, ALTERATION, REPAIR OR DEMOLITION OF REINFORCED CONCRETE CHIMNEYS, MASONRY CHIMNEYS, SILOS, & FURNACES RECEIVE THE FOLLOWING RATES:

0 TO 25 FEET - BASE RATE; 25 TO 100 FEET - $1.00 PREMIUM;
100 TO 150 FEET - $1.25 PREMIUM; 150 TO 200 FEET - $1.50 PREMIUM;
200 TO 250 FEET - $1.75 PREMIUM; OVER 250 FEET - $2.00 PREMIUM

LABO0134A 05/01/1998

	Rates	Fringes
COSHOCTON, HOLMES & TUSCARAWAS COUNTIES:		
LABORERS:		
GROUP 1	16.61	4.00
GROUP 2	16.81	4.00
GROUP 3	17.29	4.00
GROUP 4	17.66	4.00

LABORER CLASSIFICATIONS

GROUP 1 - Building & Construction; Signalman; Flagman; Carpenter Tender; Finisher Tender; Concrete Handler; Utility; Guard Rail Erector; & Hazardous Waste Removal (Level D) Personal Protective Equipment (PPE)
GROUP 2 - Bottom Man; Scaffold Builder; Tunnel; Pipe Layer; Air & Power Driven Tool; Burner on Demolition Work; Swinging Scaffold; Mucker; Caisson Worker; Cofferdam Worker; Powder Man & Dynamite Blaster; Creosote Worker; Form Setter; Plasterer Tender; Hod Carrier; Mason Tender; Mortar Mixer; Stonemason Tender; & Hazardous Waste Removal (Level C) Personal Protective Equipment (PPE)
GROUP 3 - Hazardous Waste Removal (Level B) Personal Protective Equipment (PPE)
GROUP 4 - Gunnite Operator; & Hazardous Waste Removal (Level A) Personal Protective Equipment (PPE)

LABO0245A 05/01/1999

	Rates	Fringes
ASHTABULA COUNTY:		
LABORERS:		
GROUP 1	19.30	4.00
GROUP 2	19.65	4.00
GROUP 3	19.80	4.00
GROUP 4	19.85	4.00
GROUP 5	19.95	4.00
GROUP 6	20.05	4.00
GROUP 7	20.15	4.00
GROUP 8	20.20	4.00

LABORER CLASSIFICATIONS

GROUP 1 - Stonemason Tender
GROUP 2 - Asphalt Raker & Tamper; Building Wrecker; Carpenters' Tender; Concrete Worker; Construction Laborer; Dumpman (Batch Truck); Signalman; Sheeting & Shoring Man; & ALL Laborers not mentioned in other groups
GROUP 3 - Plasterer Or Mortar Mixer; Spreader Box Man (Asphalt); & Squeegee Man
GROUP 4 - Acid & Fire Brick; Air & Machine Driven Tool Operator; Bottom Man (6 feet & over); Burning & Cutting Torch; Industrial Sewer Cleaning; Mud Jacking of Floors; Power Driven Wheelbarrow & Sweeper; & Sewer Pipe Layer

GROUP 5 - Stack Man; & Swinging Scaffold Man
GROUP 6 - Tunnel Laborer
GROUP 7 - Gunnite Operator
GROUP 8 - Powder Blaster; Asbestos & Hazardous Waste Removal of Asbestos

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LABO0265A 06/01/1999

	Rates	Fringes
BROWN, CLERMONT & CLINTON COUNTIES:		
LABORERS:		
GROUP 1	16.55	4.10
GROUP 2	17.55	4.10
GROUP 3	18.20	4.10
GROUP 4	18.30	4.10
GROUP 5	18.35	4.10
GROUP 6	18.40	4.10
GROUP 7	18.70	4.10
GROUP 8	18.95	4.10

LABORER CLASSIFICATIONS

GROUP 1 - Interior Wrecking (Interior demolition of substantial portion of a building, floor, department or section which substantially changes the floor plan or use of the area)
GROUP 2 - Base Wrecking Laborer
GROUP 3 - Building & Common Laborer; Cement Mason Tender; Hand Operated Mechanical Mule; Mechanical Mule; Mechanical Sweeper; Signal Person; & Asbestos Removal

GROUP 4 - Bottom Man; & Pipelayer
GROUP 5 - Burning Torch Operator; Jackhammer; Air Spade; Chipping Hammer; Mechanical & Air Tamper Operator; Mechanical Concrete Buggy; Power Operated Mechanical Mule; Concrete Pump Hose Man; Vibrator Man; & CERCLA Trained Hazardous Material Removal - Levels A, B & C
GROUP 6 - Bottom Jackhammer
GROUP 7 - Tunnel Laborer
GROUP 8 - Gunnite Nozzle Operator

LABO0265C 06/01/1997

	Rates	Fringes
BROWN, CLERMONT & CLINTON COUNTIES:		
PLASTERERS' TENDERS:		
Tender	18.30	3.90
Mixer Pump Operator	18.45	3.90

LABO0265G 06/01/1999

	Rates	Fringes
BROWN, CLERMONT & CLINTON COUNTIES:		
LABORERS, Mason Tenders	19.75	4.10

LABO0310A 05/01/1999

	Rates	Fringes
CUYAHOGA & GEAUGA COUNTIES:		
LABORERS:		
GROUP 1	11.25	7.10
GROUP 2	14.80	7.10
GROUP 3	15.25	7.10
GROUP 4	16.95	7.10
GROUP 5	20.40	7.10
GROUP 6	20.55	7.10
GROUP 7	20.65	7.10
GROUP 8	20.80	7.10
GROUP 9	20.88	7.10
GROUP 10	20.90	7.10
GROUP 11	21.05	7.10
GROUP 12	21.90	7.10

LABORER CLASSIFICATIONS

GROUP 1 - Heat Tender
GROUP 2 - General Landscaping (Construction Sites)
GROUP 3 - Sewer Jet
GROUP 4 - General/Final Clean-up (Excludes Demolition Work)
GROUP 5 - Building & Construction Laborer; Unloading of Furniture & Fixtures; Asbestos Removal - Hazardous Materials
GROUP 6 - Firebrick Tender
GROUP 7 - Air Track & Wagon Drill; & Swinging Scaffold
GROUP 8 - Mason Tender Handling Carbon Block Material
GROUP 9 - Gunite Operating Machines

GROUP 10 - Acid Brick Tender; Blaster, Shooter, Caisson, Well, Cylinder, Cofferdam & Mine Worker without Air
GROUP 11 - Bellman & Bottom Man in Blast Furnace & Stove; & Top Man on Free Standing Radial Stack
GROUP 12 - Lansing Burner

LABO0329A 05/01/1998

	Rates	Fringes
ALLEN & AUGLAIZE COUNTIES:		
LABORERS:		
GROUP 1	16.80	4.00
GROUP 2	16.95	4.00
GROUP 3	17.10	4.00

LABORER CLASSIFICAITONS

GROUP 1 - Building; Signal Person; Power Wheelbarrow or Power Buggy; Removal of Asbestos & Hazardous Waste (Levels C & D)
GROUP 2 - Vibrator; Cement Finisher Tender; Cement Raker; Asphalt Raker; Tamper & Packer; Pump Man Under 4" Discharge; Caisson; Cofferdam; Tunnel Spiker Railroad (By Hand); Pot Tender; Torch Man; Demolition; Machine Driven Tools (Gas, Electric, Air)

GROUP 3 - Mason Tender; Plaster Tender; Mortar Mixer; Cylinder, Shaft; Sewer, Water Conduit; Gas, Oil Pipeline, except Mainlines; Sewer Bottom Man; Sewer Pipe Layer; Manhole Builder; Blaster Tender; Wagon Drill Tender; Jack Hammer; Gunnite Operator; Mucker (Tunnel & Caisson) Free Air; Miner (Tunnel & Caisson) Free Air; Sand Blaster; Blaster-Powder Man; Wagon Drill/Operator; & Removal of Toxic & Hazardous Waste (Levels A & B)

LABO0423A 06/01/1999

	Rates	Fringes
FAIRFIELD, FAYETTE, FRANKLIN, HOCKING, LICKING, MADISON & PICKAWAY COUNTIES:		
LABORERS:		
GROUP 1	17.23	4.00
GROUP 2	17.54	4.00

LABORER CLASSIFICATIONS

GROUP 1 - Carpenter Tender; Cleaning Debris; Cleaning of Material; Conveyor Belt; Flagperson; General Clean-up, including Vacuum Cleaning; General; Grade Checker; Handling & Conveying Materials; Landscaper; Loading & Unloading of Truck; Portable Heater; Scraping & Cleaning of Walls & Floors; Sod Layer; Washing of Windows; Water Pump up to & including 3" intake; Cathodic Protection; & Installation & Removal of Fencing
GROUP 2 - Air or Electrical Pneumatic Tool Operator; Asbestos Abatement; Asphalt & Blacktop Raker; Bottom Man; Brick Tender;

Brush Feeder on Pulverizer; Burner; Caisson Bottom Man; Cement Mason Tender; Concrete Saw Operator; Fork Lift Operator; Gunnite Nozzle Man; Jack Hammer Operator; Mortar Mixer & Operator; Pipelayer; Plasterer Tender; Power Buggy Operator; Power Driven Tool; Power Wheelbarrow Operator; Sand Blasting & Chipping; Sand Blasting of Concrete; Scaffold Builder (Swinging Scaffold); Stone Mason Tender; Vibrator Man; Wagon & Churn Drill Operator; Wall Wrecker & Bar Man on Demolition; Welder on Demolition; Signalperson; Construction Specialist; Pouring & Placement of Concrete; Grade Checker; Bucket Pouring Concrete; & Caisson

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LABO0480A 06/01/1999

	Rates	Fringes
ERIE, HURON, OTTAWA & SANDUSKY COUNTIES:		
LABORERS:		
GROUP 1	19.76	4.05
GROUP 2	19.96	4.05
GROUP 3	20.31	4.05

LABORER CLASSIFICATIONS

GROUP 1 - Building & Construction Laborer; Carpenter Tender; Concrete Handler; Finisher Tender; Guard Rail Erector; Railroad Spur Work; Utility Construction Laborer; Signal Person; & Flagperson

GROUP 2 - Air & Power Driven Tool; Bottom Man; Burner on Demolition Work; Caisson Worker; Cofferdam Worker; Creosote Worker; Form Setter; Hod Carrier; Mason Tender; Mortar Mixer; Mucker; Pipelayer; Plasterer Tender; Powder Man & Dynamite Blaster; Scaffold Builder; Stonemason Tender; Swinging Scaffold; Tunnel Laborer; & Wet & Dry Vacuum Devices

GROUP 3 - Caustic Lime Worker; Dry Sandblast; Gunnite Operator; Radioactive Atmosphere Worker (Special wearing apparel required); Asbestos Removal; & Hazardous Waste Removal

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LABO0496A 05/01/1999

	Rates	Fringes
LAKE COUNTY:		
LABORERS:		
Building & Construction	19.70	4.00
Asbestos Removal; Toxic Waste Removal; & Radiation Worker	19.80	4.00
Fire Brick Tender	19.95	4.00

LABO0500A 07/01/1998

	Rates	Fringes
WOOD COUNTY:		
LABORERS:		

GROUP 1	17.70	5.35
GROUP 2	17.90	5.35
GROUP 3	18.10	5.35
GROUP 4	18.20	5.35
GROUP 5	8.18	5.35
GROUP 6	11.20	5.35

LABORER CLASSIFICATIONS

GROUP 1 - Building & Construction; Signalperson; Flagperson; Carpenter Tender; Utility Construction; Guard Rail Erector; & Hazardous Waste (Level A)
GROUP 2 - Finisher Tender; Concrete Handler; Bottom Man; Scaffold Builder; Tunnel Laborer; Pipelayer; Air & Power Driven Tools; Burner on Demolition Work; Swinging Scaffold; Mucker; Caisson Worker; Cofferdam Worker; Powder Man & Dynamite Blaster; Creosote Worker; Mortar Mixer; Form Setter; Mason Tender; Plasterer Tender; Hod Carrier; Stonemason Tender & Hazardous Waste (Level B)
GROUP 3 - Gunite Operator & Hazardous Waste (Level C)
GROUP 4 - Hazardous Waste (Level D)
GROUP 5 - Landscaping
GROUP 6 - Installation of Fencing

FIREBRICK WORK OVER 50 FEET, EXPEDITERS, HOT PAY, BOTTOM MAN &

TOP MAN - $.75 PER HOUR OVER GROUP 1.

LABO0530A 06/01/1999

	Rates	Fringes
GUERNSEY, MUSKINGUM, NOBLE & PERRY COUNTIES:		
LABORERS:		
GROUP 1	17.07	4.00
GROUP 2	17.32	4.00
GROUP 3	17.47	4.00

LABORER CLASSIFICATIONS

GROUP 1 - Building & Construction; Carpenter Tender; Tree Planter; Landscape Tree Trimmer; & Asbestos Removal, Hazardous Waste Removal
GROUP 2 - Air & Machine Driven Tool Operator; Asphalt Plant Aggremeter Operator; Asphalt Plant Mixer Man; Brick Slinger; Car Pusher; Tunnel; Caulker; Cement Handler; Concrete Puddler (Behind Mixer); Curb Cutter & Setter; Cutting with Burning Torch; Dumpman; Hand Spiker (Railroad); Jackhammer Operator; Mason Tender; Mortar Mixer; Mucker (Tunnel & Caisson); Pipelayer; Plasterer Tender; Proportioning Plant Operator; Pump Man (Under 4"); Road Form Setter; Sewer Bottom Man; Sheeting & Shoring Man; Stone Mason Tender; Vibrator Operator; & Yarner & Wrench Man
GROUP 3 - Brick Dropper; Lock Tender; Powderman or Blaster; & Toxic/Hazardous Waste

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LABO0534A 06/01/1999

BUTLER & WARREN COUNTIES:	Rates	Fringes
LABORERS:		
GROUP 1	18.29	4.00
GROUP 2	18.39	4.00
GROUP 3	18.49	4.00
GROUP 4	18.62	4.00
GROUP 5	18.87	4.00
GROUP 6	18.64	4.00
GROUP 7	18.89	4.00
GROUP 8	18.78	4.00
GROUP 9	18.74	4.00
GROUP 10	18.99	4.00

LABORER CLASSIFICATIONS

GROUP 1 - Building & Common Laborer; Rough Rider - 4" Small Pump; Portable Generator - Bobcat to Cleanup
GROUP 2 - Asphalt Raker; Chisel; Hand Air Pump; Hand Air Tamper; Handling & Laying Precast Concrete Floor & Deck; Power Tamper Operator; Smoother; Switch Assemblies; & Tamper
GROUP 3 - Acetylene Burner; Barco Tamper Man; Bos'n or Cradleman; Bottom Man; Chipping Hammer; Concrete Saw Man; Form Cleanout & Blowout Man; Grade Checker; Jackhammer & Concrete Busterman; Pipelayer; Power Georgia Buggy Man; Power Sweeper Man; Rail Spiker; Red Concrete Coloring Man (Electrical Safety); & Vibrator
GROUP 4 - Mason Tender; Mortar Mixer & Scaffold Builder
GROUP 5 - Forklift for Mason; Work involving Refractory Materials, including Demolition; Asbestos Removal & Hazardous Waste Removal (Handling, control, removal, abatement, encapsulation or disposal of asbestos & hazardous waste)
GROUP 6 - Gunnite Man; Sand Blaster Concrete Pump & Hose Man; & Blast Trac
GROUP 7 - Miner & Mucker, Free Air
GROUP 8 - Powderman or Blaster Above Ground
GROUP 9 - Mortar or Gypsum Machineman
GROUP 10 - Powderman Underground; & Scuba Diva

LABO0574A 05/01/1999

DELAWARE, HANCOCK, SENECA & WYANDOT COUNTIES:	Rates	Fringes
LABORERS:		
GROUP 1	18.55	4.00
GROUP 2	18.85	4.00
GROUP 3	19.05	4.00
GROUP 4	19.25	4.00

LABORER CLASSIFICATIONS

GROUP 1 - Building & Construction; Carpenter Tender; Finisher Tender; Concrete Handler; Utility Construction Laborer; Guard

Rail Erector; Flagperson; Signalperson; & Hazardous Waste (Level A)
GROUP 2 - Bottom Man; Scaffold Builder; Tunnel; Pipelayer; Air & Power Driven Tools; Burner on Demolition Work; Swinging Scaffold; Mucker; Caisson Worker; Cofferdam Worker; Powder Man & Mason Tender; Plasterer Tender; Hod Carrier; Stonemason Tender; & Hazardous Waste (Level B)
GROUP 3 - Gunnite Operator & Hazardous Waste (Level C)
GROUP 4 - Hazardous Waste (Level D)

LABO0639A 06/01/1998

	Rates	Fringes
MONROE, MORGAN & WASHINGTON COUNTIES:		
LABORERS:		
GROUP 1	18.92	4.08
GROUP 2	19.27	4.08

LABORER CLASSIFICATIONS

GROUP 1 - Asphalt Plant Aggremeter; Asphalt Plant Miner Man; Brick Slinger; Building & Construction; Car Pusher & Tunnel Laborer; Carpenter Tender; Cement Handler; Concrete Puddler Behind Mixer; Concrete Smoother; Drum Fireperson; Dump Man

Batch Truck; Flagperson; Landscape Planter; Proportioning Plant Operator; Rammer Man; Spreader Box Man; & Asbestos & Hazardous Waste Removal (Level D)
GROUP 2 - Air, Gas or Machine Driven Tool; Asphalt Raker; Tamper, Forker, Shoveler or Smoother; Caulker, Yarner & Wrenchman; Cement Mason Tender; Curb Setter & Cutter; Form Setter; Jackhammer Operator; Mason Tender; Mortar Mixer; Mucker (Tunnel & Caisson); Pipelayer; Pump Man (4" & Under); Sewer Bottom Man; Sheeting & Shoring Man; Stonemason Tender; Vibrator Operator; Plasterer Tender; Hand Spiker (Railroad); Concrete Buggy Pusher; Georgia Buggy Pusher; Deep Trench Work (Over 6'); Cutting & Burning Torch; Hydro-Water Jet Operator; Brick Dropper; Lock Tender; Miner (Tunnel & Caisson); Powderman or Blaster; Signalperson; & Asbestos & Hazardous Waste Removal (Levels A, B & C)

LABO0809A 07/01/1999

	Rates	Fringes
COLUMBIANA, HARRISON & JEFFERSON COUNTIES:		
LABORERS:		
GROUP 1	19.32	4.00
GROUP 2	19.49	4.00
GROUP 3	19.52	4.00
GROUP 4	19.56	4.00
GROUP 5	19.65	4.00
GROUP 6	19.82	4.00
GROUP 7	19.85	4.00
GROUP 8	20.00	4.00
GROUP 9	20.15	4.00

GROUP 10	20.22	4.00

LABORER CLASSIFICATIONS

GROUP 1 - Carpenter Tender; Flagperson; General; Landscaper; & Hazardous Waste Level D
GROUP 2 - Brick Handler; Tender for Brick Mason, Plasterer & Stonemason; Mortarman for Mason & Plasterer; Man Mixing Cement for Cement Finisher; Scaffold Builder; Mortar Mixer Machine Operator; Fork Lift; Hazardous Waste Level C; Fork Truck; Walk Behind Concrete Saw; Form Setter; Epoxy; Paving Brick; Dry Block; Precast, Lagging, Decorate Blocks & Sand Stone
GROUP 3 - Concrete Buster; Jack Hammer; Air Spade; Chipping Hammer; Air Tamper; Vibrator; Power Buggy; Concrete Saw; Power Saw; Sandblaster; Acetylene Burner; Scuba Diver; Panel Cleaning Machine Operator; Signalman; Power Driven Tool; Air Pump; Air Blow Pipe; Pipelayer & Tender Working in Ditch or Tunnel; Hand Spiker on Railroad & Handling Concrete for Test or Working with Tar, Acid, Creosote & Asbestos, 2" & Under; Skid Steers; Hazardous Waste Level B; Fire Hose; High Pressure Water Hose; Super Sucker; Vacuum Truck & Hose; Core Driller; Drilling For Anchor Bolts; & Dowel Rods & Pins
GROUP 4 - Ditch, Trench, Caisson & Coffer Over 6' deep, Open Top
GROUP 5 - Work Pertaining to or in connection with & Repair of

Stove, Blast Furnace, Basic Oxygen Process Furnace, Basic Oxygen Furnace, Steeple & Stack, Annealing Process Furnace, Kiln, Soaking Pit, Coke Battery on Industrial Work; Hazardous Waste Level A; Ram Cutter; Boiler on Industrial Work & Anything pertaining to, such as Expansion Joints, etc.; Demolition of Stack 50' to 100'; Tunnel; Mucker, including Caisson & Coffer, Horizontal & Underground
GROUP 6 - Demolition of Stack 100' to 150'
GROUP 7 - Miner, including Caisson & Coffer, Horizontal or Underground, Mucking Machine Operator
GROUP 8 - Blasterman & Tender; Bellman & Lancer; Bottom Man in Blast Furnace, Stack, Stove & Dust Catcher; Mud Man & Working with Carbon Brick & Handling Bottom Block on Blast Furnace, Stack, Stove & Dust Catcher
GROUP 9 - Gunnite Nozzleman & Gunnite Machine Operator - Grout Nozzleman & Grout Machine Operator
GROUP 10 - Demolition of Stack over 150'

LABO0894A 06/01/1999

	Rates	Fringes
MEDINA COUNTY:		
LABORERS:		
GROUP 1	20.42	4.10
GROUP 2	20.57	4.10
GROUP 3	20.62	4.10
GROUP 4	20.92	4.10

LABORER CLASSIFICATIONS

GROUP 1 - Carpenter Tender; Building & Construction Laborer; Concrete Bucket Tender; Landscape Laborer; Asbestos Laborer; & Toxic/Hazardous Waste (Level D)
GROUP 2 - Air Driven Boring Machine; Asphalt Raker; Concrete Puddler and Batch Dumper; Mason Tender; Material Mixer; Hook-up on Demolition Work; Paving Bed Maker; Power Tool (Air, Gas or Electric; Scaffold Erector; Structural Precast Erector; Tamper Operator; Wire Mesh Handler; & Hazardous Waste (Level C)
GROUP 3 - Bob Cat, Skid Steer or Similar; Bottom Man; Burner; Form Setter; Hod Carrier; Jackhammer; Mucker - Tunnel; Pipe Layer; Power Buggy or Power Wheelbarrow; Power Saw; Rock Driller; & Hazardous Waste (Level B)
GROUP 4 - Dynamite Man; Gunite Nozzleman; Pump Hose Nozzleman; Structural Precast & Layout; Tunnel Miner; Water link Caulker; & Hazardous Waste (Level A)

LABO1015A 05/01/1998

	Rates	Fringes
WAYNE COUNTY:		
LABORERS:		
GROUP 1	16.95	4.00
GROUP 2	17.15	4.00
GROUP 3	17.45	4.00
GROUP 4	17.55	4.00

LABORER CLASSIFICATIONS

GROUP 1 - Building & Construction; Carpenter Tender; Finisher Tender; Concrete Handler; Utility Construction Laborer; Guard Rail Erector; Flagperson; Signalperson; & Hazardous Waste Removal Level D Personal Protective Equipment
GROUP 2 - Bottom Man; Scaffold Builder; Tunnel Laborer; Pipelayer; Air & Power Driven Tool; Burner on Demolition Work; Swinging Scaffold; Mucker; Caisson Worker; Cofferdam Worker; Powder Man & Dynamite Blaster; Creosote Worker; Form Setter; Plasterer Tender; Hod Carrier; & Hazardous Waste Removal Level C Personal Protective Equipment
GROUP 3 - Mason Tender; Mortar Mixer; Stonemason Tender; & Hazardous Waste Removal Level B Personal Protective Equipment
GROUP 4 - Gunnite Operator; & Hazardous Waste Removal Level A Personal Protective Equipment

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* LABO1149B 07/01/1999

	Rates	Fringes
BELMONT COUNTY:		
GROUP 1	16.27	6.50
GROUP 2	16.57	6.50
GROUP 3	16.92	6.50

LABORER CLASSIFICATIONS

GROUP 1 - Unskilled; Carpenter Tender; Flagperson; Demolition

Worker; Fire Watch; & Landscaper
GROUP 2 - Powderman on Concrete Pump Hose; Semi-skilled Laborer; Scaffold Builder; Grade Checker; Signalperson; Tenders of: Brickmasons, Plasterers, Cement Finishers & Stonemasons; Mortar Mixer; Operators of: Jackhammers, Forklifts, Bobcats, Vibrators, Tampers, Pavement Busters, Chipping & Peening Hammers, Air Siphon & Air Pumps, Concrete Saws, Power Saws, Chain Saws, Motorized Buggies, Post Hole Diggers, Lance and/or Water Blasters & Batch House Scales; Riprap Finisher; Concrete Specialist; Concrete Technician; Sheeter & Shorer; Asphalt Raker; Persons Working with: Mastic Asphalt, Acid Brick, Acid & Creosote; Nozzleman for Gunnite or Sandblasting; Demolition Worker; Ride or Walk Roller Tamper; Deep Ditch Vertical & Manholes 6 ft. or more; Scaffolding Work over 50 ft. (inside or out); Asbestos Abatement; Hazardous Waste Worker; & Environmental Worker
GROUP 3 - Blacksmith; Powderman; Air Track Operator; Pipe Layer; & Burner

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LABO1216A 06/01/1999

	Rates	Fringes
ASHLAND, CRAWFORD, KNOX, MORROW & RICHLAND COUNTIES:		
LABORERS:		
GROUP 1	18.92	4.00
GROUP 2	19.12	4.00
GROUP 3	19.16	4.00

LABORER CLASSIFICATIONS

GROUP 1 - Asbestos Handler; Building & Construction; Carpenter Tender; Concrete Handler; Finisher Tender; Flagperson; Guard Rail Erector; Hazardous Waste (Levels C & D); Signalperson; & Utility Construction Laborer
GROUP 2 - Air & Power Driven Tool; Bottom Man; Burner on Demolition Work; Caisson Worker; Cofferdam Worker; Creosote Worker; Form Setter; Hazardous Waste (Levels A & B); Hod Carrier; Mason Tender; Mortar Mixer; Mucker; Pipe Layer; Plasterer Tender; Powder Man & Dynamite Blaster; Scaffold Builder; Stonemason Tender; Swinging Scaffold; & Tunnel Laborer
GROUP 3 - Gunnite Operator

LABO1410A 06/01/1999

	Rates	Fringes
GREENE, MIAMI, MONTGOMERY & PREBLE COUNTIES:		
LABORERS:		
GROUP 1	14.45	4.00
GROUP 2	16.97	4.00
GROUP 3	17.17	4.00
GROUP 4	17.91	4.00
GROUP 5	18.00	4.00

LABORER CLASSIFICATIONS

GROUP 1 - Landscaping; Sewer Jet; & Final Clean-up
GROUP 2 - Building & Construction; Railroad; Asbestos & Hazardous Waste (Level C & D)
GROUP 3 - Concrete Crew; Form Setter; Pipelayer (Bottom Man); Burner (Cutting Torch); Machine & Power Driven Tools; Sandblaster; & Toxic & Hazardous Waste (Level A & B)
GROUP 4 - Plaster Tender
GROUP 5 - Mason Tender; Flexicore, Firebrick Tender (Blast Furnaces, Soaking Pits, Stoves & Stacks)

OH990029 - 3

PAIN0006A 05/01/1999

	Rates	Fringes
ASHTABULA, CUYAHOGA, GEAUGA & LAKE COUNTIES:		
PAINTERS:		
COMMERCIAL NEW WORK; REMODELING; & RENOVATIONS:		
GROUP 1	22.63	7.43
GROUP 2	22.93	7.43
GROUP 3	23.03	7.43
GROUP 4	23.33	7.43

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Paperhanger; & Roller
GROUP 2 - Swing Stage & Boatswain's Chair
GROUP 3 - Spray; Sandblasting & Buffing; Closed Steel - Man Below 55 feet - Sprayer; Pick Puller, Blower, Sandblaster & Buffer
GROUP 4 - Closed Steel - Man above 55 feet; & Open Structural Steel

COMMERCIAL REPAINT:		
GROUP 1	21.13	7.43
GROUP 2	21.43	7.43
GROUP 3	21.53	7.43

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Paperhanger; & Roller
GROUP 2 - Swing Stage & Boatswain's Chair
GROUP 3 - Spray; Sandblasting; Buffing; Closed Steel Below 55 feet - Sprayer-Pick-Puller-Blower-Sandblaster-Buffer

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PAIN0006G 04/01/1998

	Rates	Fringes
ALLEN & AUGLAIZE COUNTIES:		
PAINTERS:		
Brush; Roller; Drywall Taping; & Lead Abatement	16.90	4.78
Paperhanger	17.15	4.78
Spray; Sandblasting; Pressure		

Cleaning & Drywall (Using stilts & automatic tools)	17.65	4.78

Swing Stage, Chair, Safety Belts, Spiders & Cherry Pickers - $ .25 premium

All Surfaces 40 ft. or over where material is applied to or labor performed on, above ground level (exterior), floor level (interior) - $.50 premium

Applying Coal Tar Products - $1.00 premium

PAIN0006M 05/01/1999

	Rates	Fringes
ASHTABULA, CUYAHOGA, GEAUGA & LAKE COUNTIES:		
PAINTERS, Taper	23.32	7.43

PAIN0006S 05/01/1998

	Rates	Fringes
ASHTABULA, CUYAHOGA, ERIE (Excluding NW tip to Rte. #4), GEAUGA, HURON (NE Part), LAKE & MEDINA (NE Part) COUNTIES:		
GLAZIERS	23.32	6.96

PAIN0006U 06/01/1999

	Rates	Fringes
ERIE, HANCOCK, HURON, OTTAWA (Allen, Bay, Bono, Catawba Island, Clay Center, Curtice, Danbury, Eagle Beach, Elliston, Elmore, Erie, Fishback, Gem Beach & Genoa), SANDUSKY, SENECA & WYANDOT COUNTIES:		
PAINTERS:		
Brush & Roller	18.75	5.16
Paperhanging	19.00	5.16
Structural Steel	19.20	5.16
Drywall	19.25	5.16

WINTER REPAINT: Between December 1 to March 31 - 90% JR

PAIN0007A 07/01/1997

	Rates	Fringes
OTTAWA (Excluding Allen, Bay, Bono, Catawba Island, Clay Center, Curtice, Danbury, Eagle Beach, Elliston, Elmore, Erie, Fishback, Gem Beach & Genova) & WOOD COUNTIES:		
PAINTERS:		
NEW COMMERCIAL BUILDING WORK:		
GROUP 1	19.14	6.35
GROUP 2	19.39	6.35
GROUP 3	19.44	6.35
GROUP 4	19.89	6.35
GROUP 5	19.84	6.35

REPAINT IS 90% OF JR

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Paperhanger; Drywall Taper & Finisher; Spray; Sandblasting; & Pot Tender
GROUP 2 - Refineries; & All Surfaces 30 ft. or over where material is applied to or labor performed on above ground level (exterior), floor level (interior)
GROUP 3 - Swing Stage & Chair
GROUP 4 - Application of Catalized Epoxies and Waterbased Epoxies of 2 or more component materials
GROUP 5 - Spray, Except Spraying of Water for Wetting Purposes; & Any Material applied with a Pressure Device

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PAIN0012E 06/13/1998

	Rates	Fringes
BROWN & CLERMONT COUNTIES:		
PAINTERS:		
GROUP 1	18.85	4.25
GROUP 2	19.35	4.25
GROUP 3	19.60	4.25
GROUP 4	19.85	4.25

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Roller; Paperhanger; & Drywall Taping
GROUP 2 - Spray
GROUP 3 - Sandblasting; & Waterblasting
GROUP 4 - Lead Paint Abatement

PAIN0012N 06/01/1998

	Rates	Fringes
ADAMS, HIGHLAND, JACKSON, PIKE & SCIOTO COUNTIES:		
PAINTERS:		
GROUP 1	18.33	6.17
GROUP 2	19.33	6.17

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Roller; Taping; & Wallcovering
GROUP 2 - Floor Sanding; Power Tools; Sandblasting; Spray; Steam Cleaning; Pressure Washing; Lead Abatement; Hazardous Waste, Toxic Materials; Epoxy & Two Component Materials

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PAIN0012P 05/01/1999

	Rates	Fringes
DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, MADISON, PICKAWAY & ROSS COUNTIES:		

PAINTERS:		
Brush; Paperhanger; Roller; & Wall Washing	19.22	5.27
Drywall Sander	18.97	5.27
Structural Steel & Swing Stage	19.52	5.27
Drywall Taper & Finisher	19.62	5.27
Spray	19.72	5.27
Sandblasting; Steamcleaning; Waterblasting (3500 PSI or Over) & Hazardous Work	19.92	5.27

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* PAIN0093A 06/01/1999

	Rates	Fringes
GUERNSEY, HOCKING, MONROE, MORGAN, NOBLE & WASHINGTON COUNTIES:		
PAINTERS (All Work, except Light Commercial Work):		
GROUP 1 - Brush & Roller	23.58	2.62
GROUP 2 - Spray; Sandblasting; & Power Tool Preparation	24.35	2.62
GROUP 3 - Towers, Stacks & Flag Poles	24.46	2.62
GROUP 4 - Toxic Material Handlers in Confined Areas	25.35	2.62

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* PAIN0093C 07/01/1998

	Rates	Fringes
GUERNSEY, HOCKING, MONROE, MORGAN, NOBLE & WASHINGTON COUNTIES:		
PAINTERS:		
Separate contracts let which are not in excess of $1,000,000.00 total project construction costs	18.17	2.62

PAIN0249A 05/01/1998

	Rates	Fringes
GREENE, MIAMI, MONTGOMERY & PREBLE COUNTIES:		
PAINTERS:		
GROUP 1 - Brush; Roller	18.74	3.85
GROUP 2 - Spackling & Drywall Finishing	19.09	3.85
GROUP 3 - Structural Steel; Swing & Scaffold; High Tension Electrical Equipment; & Hot Pipes	19.14	3.85
GROUP 4 - Vinyl - Paper Wallcovering	19.09	3.85
GROUP 5 - Sandblasting; Spray; Steam Cleaning; & Lead Paint Abatement	19.49	3.85
GROUP 6 - Steeplejack Work - Church Steeples, Smoke Stacks & High Hazardous Work	19.69	3.85
GROUP 7 - Coal Tar	20.24	3.85

PAIN0356A 06/01/1998

	Rates	Fringes
LICKING, MUSKINGUM & PERRY COUNTIES:		
PAINTERS:		
Brush & Roller	15.50	.04
Paperhanger	15.60	.04
Drywall Taper	15.70	.04
Spray	15.90	.04
Drywall With Machines	16.40	.04
Swing Stage, Ladder Jack or Window Jack - $.30 Premium		

PAIN0372A 06/01/1998

	Rates	Fringes
DELAWARE, FAIRFIELD, FAYETTE (East of State Rte. #41), FRANKLIN, HOCKING, JACKSON, LICKING, MADISON, MORGAN, MUSKINGUM, PERRY, PICKAWAY, PIKE, ROSS & VINTON COUNTIES:		
GLAZIERS	19.13	2.02

PAIN0387A 11/25/1998

	Rates	Fringes
ADAMS, BROWN, BUTLER, CLERMONT, CLINTON, FAYETTE (Western part), GREENE, HIGHLAND, MIAMI, MONTGOMERY, PREBLE & WARREN COUNTIES:		
GLAZIERS	19.00	4.85

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* PAIN0406A 06/01/1999

	Rates	Fringes
ASHLAND, CRAWFORD, KNOX, MORROW & RICHLAND COUNTIES:		
PAINTERS:		
GROUP 1 - Drywall, Paperhanger, Wall Coverer & Pot Tender when tending 2 or more Sprayers or Metalizing Workers	18.55	2.00
GROUP 2 - Brush; Cleaner; Roller; & Washer	19.00	2.00
GROUP 3 - Structural Steel; & Hazardous Materials, including Epoxy and/or other materials; Dirty Factory Work; & Lead Abatement	19.50	2.00
GROUP 4 - Riggers on Work more than 30 ft. above base level, includes base level & up work; Spray; & Electrostatic Applications	19.75	2.00
GROUP 5 - Blasting: Sand, Grit, Shot, Water; & Metalizing Workers	20.15	2.00

SWING STAGE, WINDOW JACKS, BOATSWAIN CHAIR, SPIDER, CHERRY PICKER
AND OTHER TYPES OF LIFTS - $.25 PREMIUM

PAIN0438A 07/01/1998

	Rates	Fringes
BELMONT, HARRISON & JEFFERSON COUNTIES:		
PAINTERS:		
GROUP 1	18.31	4.55
GROUP 2	18.97	4.55
GROUP 3	20.13	4.55
GROUP 4	19.97	4.55

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Roll; Drywall Taping; & Spray
GROUP 2 - Brush, Roll & Spray Special Coatings (Anything thinned by MEK, alcohol, hot or experimental thinners, coal tar epoxies & any experimental paints); Waterblast; Sandblast; Power Tools; & Lead Abatement
GROUP 3 - Vinyl Hanging

GROUP 4 - Bazooga & Banjo Tools for Taping

PAIN0476A 06/01/1998

	Rates	Fringes
COLUMBIANA COUNTY:		
PAINTERS:		
GROUP 1	20.35	4.97
GROUP 2	20.50	4.97
GROUP 3	20.52	4.97
GROUP 4	20.56	4.97
GROUP 5	20.60	4.97
GROUP 6	20.62	4.97
GROUP 7	20.70	4.97
GROUP 8	20.85	4.97
GROUP 9	21.02	4.97
GROUP 10	21.35	4.97

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Roller; Waterproofing; Paperhanging (Without tools/equipment); Wall Washing; Hydro Jet Cleaning; & Steam Cleaning
GROUP 2 - Drywall Taping
GROUP 3 - Safety Belts
GROUP 4 - Open Structural Steel
GROUP 5 - Paperhanging (with tools/equipment)
GROUP 6 - Interior Scaffold (over 30 ft.)
GROUP 7 - Dipping (when permitted)
GROUP 8 - Spray; Epoxy - Mastic (Brush or Roller)
GROUP 9 - Swing
GROUP 10 - Epoxy - Mastic (Spray)

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* PAIN0603A 06/01/1999

	Rates	Fringes
COSHOCTON, HOLMES, TUSCARAWAS & WAYNE COUNTIES:		
PAINTERS:		
Brush & Roller	16.75	6.64
Paperhanger	16.85	6.64
Spray	17.25	6.64
Drywall Taper	17.15	6.64
Drywall Taper With Machines	17.50	6.64

Swing Stage, Ladder Jack & Window Jack - $.30 Premium

PAIN0643G 06/14/1997

	Rates	Fringes
BUTLER, CLINTON & WARREN COUNTIES:		
PAINTERS:		
GROUP 1	16.31	5.84
GROUP 2	16.56	5.84
GROUP 3	16.81	5.84
GROUP 4	17.31	5.84

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Roller; Taping; Washing; Paperhanging, Wall Covering & Drywall Finishers (Not furnishing own tools)
GROUP 2 - Paperhanging & Wallcovering (Furnishing own tools)
GROUP 3 - Swinging Scaffolding 40 ft., & above down to impact level; Epoxy or Polyurethanes or any toxic material applied in any area
GROUP 4 - Spray; Sandblasting; Waterblasting; & Hopper Tender

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PAIN0751H 09/01/1997

	Rates	Fringes
BELMONT, COLUMBIANA, GUERNSEY, HARRISON, JEFFERSON, MONROE, NOBLE & WASHINGTON COUNTIES:		
GLAZIERS	22.25	9.78

PAIN0813D 06/01/1998

	Rates	Fringes
VINTON COUNTY:		
PAINTERS:		
GROUP 1	18.43	6.29
GROUP 2	19.72	6.29
GROUP 3	18.95	6.29

PAINTER CLASSIFICATIONS

GROUP 1 - Brush & Roller

GROUP 2 - Spray; Sandblasting; Drywall Finishing & Texturing
GROUP 3 - Wallcovering & Vinyl; Machine, Toolstand & Stilts

PAIN0841A 06/01/1999

	Rates	Fringes
MEDINA COUNTY:		
PAINTERS:		
Nursing Homes, but excluding clinics & hospitals or facilities where residences are provided for patients or clients; Gas stations, fast food restaurants, strip stores, office buildings (1 story) and hotels where the total painting job is less than $40,000.00:		
GROUP 1	19.89	5.80
GROUP 2	20.74	5.80

PAINTER CLASSIFICATIONS

GROUP 1 - Brush & Roller; & Paperhanger
GROUP 2 - Spray Gun Operator of any and all coatings

All Other Work:

GROUP 1	21.24	5.80
GROUP 2	21.89	5.80
GROUP 3	21.99	5.80
GROUP 4	22.09	5.80
GROUP 5	22.49	5.80

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Roller; & Paperhanger
GROUP 2 - Epoxy Application
GROUP 3 - Swing Scaffold, Bosum Chair & Window Jack
GROUP 4 - Spray Gun Operator
GROUP 5 - Drywall Finisher and/or Taper; Dry Wall Finisher; & Follow-up Man Using Automatic Tools; Sandblast; Standpipes, etc. from Swinging Scaffolds; Open Structural Steel; Synthetic Exterior Coatings; & Lead Abatement

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PAIN0898A 07/01/1998

	Rates	Fringes
ALLEN, AUGLAIZE, HANCOCK & WYANDOT (W. part) COUNTIES:		
GLAZIERS	12.55	1.00

PAIN0948A 07/01/1999

	Rates	Fringes
ERIE (NW Tip of County to Route #4), OTTAWA, SANDUSKY, SENECA & WOOD COUNTIES:		
GLAZIERS	20.81	5.56

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* PAIN1162A 06/01/1999

	Rates	Fringes
COSHOCTON, HOLMES, MEDINA (S. Part), TUSCARAWAS & WAYNE COUNTIES:		
GLAZIERS	18.67	5.47

PAIN1195D 11/05/1998

	Rates	Fringes
SCIOTO COUNTY:		
GLAZIERS	21.61	2.02

PAIN1920A 05/01/1998

	Rates	Fringes
ASHLAND, CRAWFORD, HURON (S. part), KNOX, RICHLAND & WYANDOT (E. part) COUNTIES:		
GLAZIERS:		
Outside Replacement	12.08	.51
Outside All Other Work	12.58	.51

PLAS0001M 06/01/1999

	Rates	Fringes
BROWN, BUTLER, CLERMONT, HIGHLAND & WARREN COUNTIES:		
CEMENT MASONS	18.70	4.95

PLAS0001P 06/01/1998

	Rates	Fringes
ASHLAND, CRAWFORD, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, HOCKING, KNOX, LICKING, MADISON, MORGAN, MORROW, MUSKINGUM, PERRY, PICKAWAY, RICHLAND, ROSS & WYANDOT (Excluding Tymochtee, Crawford, Ridge & Richland Townships) COUNTIES:		
PLASTERERS:		
On Exterior Insulation Finish Systems	14.60	4.91
All Other Work	17.83	4.87

PLAS0001Q 06/01/1998

	Rates	Fringes
ASHLAND, CRAWFORD, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, HOCKING, KNOX, LICKING, MADISON, MORGAN, MORROW, MUSKINGUM, PERRY, PICKAWAY, RICHLAND, ROSS & WYANDOT (Excluding the townships of Tymochtee, Crawford, Ridge & Richland) COUNTIES:		
CEMENT MASONS	18.03	5.00

PLAS0001R 06/01/1998

	Rates	Fringes
MONROE, NOBLE & WASHINGTON COUNTIES:		
CEMENT MASONS	17.41	4.93

PLAS0001S 06/01/1998

	Rates	Fringes
MONROE, NOBLE & WASHINGTON COUNTIES:		
PLASTERERS	17.83	4.87

PLAS0001T 05/01/1997

	Rates	Fringes
CLINTON, GREENE, MIAMI, MONTGOMERY & PREBLE COUNTIES:		
PLASTERERS	19.50	5.95

PLAS0001W 06/01/1998

	Rates	Fringes
CLINTON, GREENE, MIAMI, MONTGOMERY & PREBLE COUNTIES:		
CEMENT MASONS	18.43	5.00

PLAS0039A 07/01/1999

	Rates	Fringes
BELMONT, HARRISON & JEFFERSON COUNTIES:		
CEMENT MASONS	19.43	5.83

PLAS0039B 07/01/1999

	Rates	Fringes
BELMONT, HARRISON & JEFFERSON COUNTIES:		
PLASTERERS	19.48	5.60

PLAS0080A 05/01/1999

	Rates	Fringes
CUYAHOGA COUNTY:		
PLASTERERS	24.08	6.60

PLAS0109A 06/01/1999

	Rates	Fringes
MEDINA COUNTY (Excluding Homer, Harrisville, Chatham, Litchfield & Spencer Townships):		
CEMENT MASONS	22.44	6.75

PLAS0109C 06/01/1999

	Rates	Fringes
MEDINA COUNTY (Excluding Homer, Harrisville, Chatham, Litchfield & Spencer Townships):		
PLASTERERS	22.73	6.75

PLAS0132B 06/22/1999

	Rates	Fringes
BROWN, BUTLER, CLERMONT, HIGHLAND & WARREN COUNTIES:		
PLASTERERS:		
Pointing & Taping of Drywall Surfaces, Acoustical Finishes on Concrete & Drywall Surfaces	18.06	2.60
All Other Work	21.25	2.60

PLAS0179A 06/01/1999

	Rates	Fringes
COLUMBIANA COUNTY:		
CEMENT MASONS	21.59	8.66

PLAS0179C 06/01/1999

	Rates	Fringes
COLUMBIANA COUNTY:		
PLASTERERS	21.34	7.89

PLAS0232A 06/01/1998

	Rates	Fringes
ADAMS, PIKE & SCIOTO COUNTIES:		
CEMENT MASONS; PLASTERERS	20.55	6.22

PLAS0404A 05/01/1999

	Rates	Fringes
CUYAHOGA COUNTY:		
CEMENT MASONS	23.01	8.23

PLAS0886A 07/01/1999

	Rates	Fringes
HANCOCK & WOOD COUNTIES:		
CEMENT MASONS	21.98	8.17

PLAS0886C 07/01/1999

	Rates	Fringes

ALLEN & AUGLAIZE COUNTIES:

CEMENT MASONS	20.35	7.00

PLAS0886D 07/01/1999

	Rates	Fringes
ALLEN, AUGLAIZE, HANCOCK & WOOD (Excluding Perry & Bloom Townships) COUNTIES:		
PLASTERERS	22.21	6.67
DRYWALL FINISHERS & TAPERS	20.85	6.67

PLUM0042A 07/01/1999

	Rates	Fringes
ASHLAND, CRAWFORD, ERIE, HURON, KNOX, MORROW, RICHLAND & WYANDOT COUNTIES:		
PIPEFITTERS; PLUMBERS; & STEAMFITTERS	22.91	9.24

PLUM0050A 06/28/1999

	Rates	Fringes
HANCOCK, OTTAWA, SANDUSKY, SENECA & WOOD COUNTIES:		
PIPEFITTERS; PLUMBERS; & STEAMFITTERS	24.75	11.17

PLUM0055A 05/01/1999

	Rates	Fringes
ASHTABULA, CUYAHOGA, GEAUGA, LAKE & MEDINA (N. of Rte. #18 & Smith Road) COUNTIES:		
PLUMBERS	26.15	9.70

PLUM0059A 06/01/1998

	Rates	Fringes
BROWN, CLERMONT & WARREN (Southern third, including Lebanon & South Lebanon) COUNTIES:		
PLUMBERS & GAS FITTERS	22.78	7.74

PLUM0059C 06/01/1998

	Rates	Fringes
BUTLER & WARREN (North of Rte. #63, excluding Lebanon & South Lebanon) COUNTIES:		
PLUMBERS & GAS FITTERS	22.78	7.74

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* PLUM0083A 07/01/1999

	Rates	Fringes
BELMONT & MONROE (North of Rte. #78) COUNTIES:		

PLUMBERS & STEAMFITTERS	21.94	11.50

PLUM0087A 06/01/1998

	Rates	Fringes
COLUMBIANA COUNTY (Excluding Washington & Yellow Creek Townships & Liverpool Township - Sections 35 & 36 - west of County Road #427):		
PIPEFITTERS; PLUMBERS; STEAMFITTERS	20.90	8.75

* PLUM0094A 06/06/1999

	Rates	Fringes
WAYNE COUNTY:		
PIPEFITTERS & PLUMBERS	21.55	9.07

PLUM0095A 06/01/1998

	Rates	Fringes
COSHOCTON, GUERNSEY, HOLMES, MORGAN (South to State Rte. #78 & from McConnelsville west on State Rte. #37 to the Perry County line), MUSKINGUM, NOBLE & TUSCARAWAS COUNTIES:		
PIPEFITTERS; PLUMBERS; & STEAMFITTERS	21.46	7.68

* PLUM0120A 05/01/1999

	Rates	Fringes
ASHTABULA, CUYAHOGA, GEAUGA, LAKE & MEDINA (N. of Rte. #18) COUNTIES:		
PIPEFITTERS	26.62	9.88

* PLUM0120D 05/01/1999

	Rates	Fringes
CUYAHOGA, GEAUGA & LAKE COUNTIES:		
SPRINKLER FITTERS	26.62	9.88

PLUM0162A 06/01/1999

	Rates	Fringes
CLINTON, FAYETTE, GREENE, MIAMI, MONTGOMERY & PREBLE COUNTIES:		
PIPEFITTERS; PLUMBERS; STEAMFITTERS	22.50	8.47

* PLUM0168A 06/01/1999

	Rates	Fringes
MONROE (South of Rte. #78), MORGAN (South of Rte. #78) & WASHINGTON COUNTIES:		

PIPEFITTERS & PLUMBERS	25.73	7.62

PLUM0189A 06/01/1999

	Rates	Fringes
DELAWARE, FAIRFIELD, FRANKLIN, HOCKING, LICKING, MADISON, PERRY, PICKAWAY & ROSS COUNTIES:		
PIPEFITTERS; PLUMBERS; & STEAMFITTERS	24.84	8.60

* PLUM0219A 06/01/1999

	Rates	Fringes
MEDINA COUNTY (Rte. #18 from eastern edge of Medina Co., west to eastern corporate limits of the city of Medina, & on the county road from the west corporate limits of Medina running due west to and through community of Risley to the western edge of Medina County - All territory south of this line):		
PLUMBERS & STEAMFITTERS	25.23	8.70

* PLUM0392A 06/01/1999

	Rates	Fringes
BROWN, BUTLER, CLERMONT & WARREN COUNTIES:		
PIPEFITTERS & PLUMBERS	24.50	6.41

PLUM0490A 06/01/1998

	Rates	Fringes
COLUMBIANA (Washington & Yellow Creek Townships and Liverpool Township - Sections #35 & #36 - west of County Road #427), HARRISON & JEFFERSON COUNTIES:		
PIPEFITTERS; PLUMBERS; & STEAMFITTERS:		
Work not exceeding 35-fixture units (Excluding floor drains), 50 tons air-conditioning or 750,000 BTU/hour heating	19.35	7.24
All Other Work	24.65	9.05

PLUM0577A 06/01/1999

	Rates	Fringes
ADAMS, HIGHLAND, JACKSON, PIKE, SCIOTO & VINTON COUNTIES:		
PIPEFITTERS; PLUMBERS; & STEAMFITTERS:		
Manufacturing Plants, Testing Facilities, Enrichment Plants, Compressor Stations, Power Generating Plants, Coke Plants, Co-Generation Plants, Chemical Plants, Incinerators & Steel		

Mills	24.00	8.96
All Other Work	20.25	8.96

PLUM0776A 07/01/1999

	Rates	Fringes
ALLEN & AUGLAIZE COUNTIES:		
PIPEFITTERS; PLUMBERS; & STEAMFITTERS	23.20	8.20

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* ROOF0042A 08/01/1999

	Rates	Fringes
BROWN, BUTLER, CLERMONT & WARREN COUNTIES:		
ROOFERS:		
Roofers	22.40	4.59
Pitch	23.40	4.59

ROOF0044A 05/01/1998

	Rates	Fringes
ASHTABULA, CUYAHOGA, ERIE, GEAUGA, HURON, LAKE, OTTAWA, SANDUSKY & SENECA COUNTIES:		
ROOFERS	22.63	8.30

ROOF0075A 05/01/1998

	Rates	Fringes
CLINTON, GREENE, HIGHLAND, MIAMI, MONTGOMERY & PREBLE COUNTIES:		
ROOFERS:		
Composition, Damp & Waterproof	18.90	5.26
Slate, Tile & Asbestos	19.12	5.26

ROOF0086A 09/01/1997

	Rates	Fringes
AUGLAIZE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, HOCKING, KNOX, LICKING, MADISON, MORROW, PERRY, PICKAWAY, ROSS & WYANDOT COUNTIES:		
ROOFERS	19.00	6.40

ROOF0088A 06/01/1998

	Rates	Fringes
ASHLAND, COLUMBIANA, COSHOCTON, CRAWFORD, HOLMES, MEDINA, RICHLAND, TUSCARAWAS & WAYNE COUNTIES:		
ROOFERS	19.00	5.51

ROOF0134A 07/01/1998

	Rates	Fringes
ALLEN, HANCOCK & WOOD COUNTIES:		
ROOFERS	20.40	7.28

ROOF0185A 06/01/1999

	Rates	Fringes
ADAMS, JACKSON, PIKE, SCIOTO & VINTON COUNTIES:		
ROOFERS	21.09	5.13

ROOF0188A 07/01/1998

	Rates	Fringes
BELMONT, HARRISON, JEFFERSON & MONROE COUNTIES:		
ROOFERS:		
Roofers	17.97	4.77
Coal Tar Pitch & Waterproofing	18.22	4.77

ROOF0242A 06/01/1999

	Rates	Fringes
GUERNSEY, MORGAN, MUSKINGUM, NOBLE & WASHINGTON COUNTIES:		
ROOFERS	19.81	5.45

SFOH0669A 04/01/1999

	Rates	Fringes
ADAMS, ALLEN, ASHLAND, ASHTABULA, AUGLAIZE, BELMONT, BROWN, BUTLER, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, GREENE, GUERNSEY, HANCOCK, HARRISON, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LICKING, MADISON, MEDINA, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PERRY, PICKAWAY, PIKE, PREBLE, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, TUSCARAWAS, VINTON, WARREN, WASHINGTON, WAYNE, WOOD & WYANDOT COUNTIES:		
SPRINKLER FITTERS	24.90	6.40

SHEE0024A 06/01/1998

	Rates	Fringes
ALLEN, AUGLAIZE, BUTLER, CLINTON, GREENE, MIAMI, MONTGOMERY, PREBLE, WARREN & WYANDOT COUNTIES:		
SHEET METAL WORKERS	20.65	9.07

SHEE0024B 01/01/1997

	Rates	Fringes

BROWN, CLERMONT & HIGHLAND COUNTIES:

SHEET METAL WORKERS	19.45	6.64

SHEE0024G 06/01/1998

	Rates	Fringes

ADAMS, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GUERNSEY, HOCKING, JACKSON, KNOX, LICKING, MADISON, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, ROSS, SCIOTO & VINTON COUNTIES:

SHEET METAL WORKERS	21.10	8.36

SHEE0033A 06/01/1999

	Rates	Fringes

COLUMBIANA COUNTY:

SHEET METAL WORKERS	22.64	8.30

SHEE0033B 07/01/1998

	Rates	Fringes

HANCOCK, OTTAWA, SENECA & WOOD COUNTIES:

SHEET METAL WORKERS	22.53	9.01

SHEE0033C 05/01/1999

	Rates	Fringes

ASHTABULA, CUYAHOGA, GEAUGA & LAKE COUNTIES:

SHEET METAL WORKERS	25.58	9.05

SHEE0033E 06/01/1999

	Rates	Fringes

ASHLAND, COSHOCTON, CRAWFORD, HOLMES, MEDINA, RICHLAND, TUSCARAWAS & WAYNE COUNTIES:

SHEET METAL WORKERS	22.13	8.94

SHEE0033G 06/01/1999

	Rates	Fringes

ERIE, HURON & SANDUSKY COUNTIES:

SHEET METAL WORKERS	22.92	7.41

SHEE0033J 06/01/1998

	Rates	Fringes

WASHINGTON COUNTY:

SHEET METAL WORKERS	22.20	9.16

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* SHEE0033M 07/01/1999

	Rates	Fringes
BELMONT, HARRISON, JEFFERSON & MONROE COUNTIES:		
SHEET METAL WORKERS	21.75	8.63

TEAM0175B 06/01/1999

	Rates	Fringes
WASHINGTON COUNTY:		
TRUCK DRIVERS:		
GROUP 1	18.05	.08+a
GROUP 2	18.15	.08+a
GROUP 3	18.30	.08+a
GROUP 4	18.45	.08+a
GROUP 5	18.70	.08+a
GROUP 6	18.80	.08+a
GROUP 7	18.95	.08+a

FOOTNOTE:
a. $1,072.12 per month

TRUCK DRIVER CLASSIFICATIONS

GROUP 1 - Pick-Up; & Panel
GROUP 2 - Flat Body Material (Straight Jobs); Dump (Up to 5 cu. yds.); Greaser; Washer; Tireman; Mechanic; & Tank (Straight)
GROUP 3 - Dump (5 cu. yds. & over); Semi-Dump; Semi-Trailer (whether Flat, Rack or Pole and hauled or pushed by truck or tractor); Agitator or Mixed (Up to 5 cu. yds.); Tank (Semi); & Monorail
GROUP 4 - Low Boy Trailer; Winch; Fork; Distributor (Front & Back End); Truck Crane; Agitator or Mixer (5 cu. yds. & over); Hydraulic Tail Gate; & Farm Type Tractor
GROUP 5 - Euclid; Dumpster; Turnarocker; Ross Carrier; Athey Wagon or Similar Equipment; A-Frame; Hydrolift;& Dual Purpose
GROUP 6 - Mechanic
GROUP 7 - Master Mechanic (3 or more employed)

TEAM0377A 05/01/1997

	Rates	Fringes
ADAMS, ASHLAND, ASHTABULA, BROWN, BUTLER, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, GREENE, GUERNSEY, HANCOCK (From the southern boundary of the city of Findlay to the northern boundary of Hancock County), HARRISON, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON (South to Short Creek), KNOX, LICKING, MADISON, MEDINA, MIAMI, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PERRY, PICKAWAY, PIKE, PREBLE, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, TUSCARAWAS, VINTON, WARREN, WAYNE, WOOD, & WYANDOT COUNTIES:		
TRUCK DRIVERS:		
GROUP 1	16.29	6.22

GROUP 2	16.34	6.22
GROUP 3	16.39	6.22
GROUP 4	16.49	6.22
GROUP 5	16.76	6.22

TRUCK DRIVER CLASSIFICATIONS

GROUP 1 - Asphalt Distributor; Batch; 4- Wheel Service; 4-Wheel Dump; & Oil Distributor
GROUP 2 - Tandem
GROUP 3 - Tractor-Trailer Combination: Fuel; Pole Trailer; Ready Mix; Semi-Tractor; & Asphalt Oil Spraybar Man
GROUP 4 - 5 Axles & Over; & Asphalt Oiler Spraybar Man When Operated From Cab
GROUP 5 - Belly Dump; End Dump; Articulated Dump; Heavy Duty Equipment; Low Boy; & Truck Mechanic

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TEAM0436A 05/01/1999

	Rates	Fringes
CUYAHOGA, GEAUGA & LAKE COUNTIES:		
TRUCK DRIVERS:		
GROUP 1	20.80	4.80+a
GROUP 2	21.30	4.80+a

TRUCK DRIVER CLASSIFICATIONS

GROUP 1 - Straight & Dump including Asphalt; & Straight Fuel
GROUP 2 - Semi-Fuel; Semi-Tractor; Ready-mix (Agitator or non agitator); Bulk Concrete; Dry Batch; Carry-all; Dart; Double Hook-up Tractor Trailer including Team Track and Railroad Siding; Euclid; Extra Long Trailer & Semi-Pole Trailer; Fork Lift; Hi-Lift; Low Boy; Semi-Tractor & Tri-axle Trailer; Tag Along Trailer; Expandable Trailer; Tandem Tractor & Tandem Trailer; Tandem Trailer & Tri-axle Trailer; Tank; Asphalt Spreader; Tourna-rocker; Load or Towing Requiring Road Permit; & Articuladed End Dump

FOOTNOTE:
a. 7 Paid Holidays: New Year's Day; Decoration Day; Fourth of July; Labor Day; Thanksgiving Day; National Election Day; & Christmas Day

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TEAM0697A 07/01/1999

	Rates	Fringes
BELMONT, JEFFERSON (North to Short Creek) & MONROE COUNTIES:		
TRUCK DRIVERS:		
GROUP 1 - Pickup	18.45	5.675
GROUP 2 - Flatbed Material; Dump & Semi-Dump	18.50	5.675
GROUP 3 - Tank (Straight & Semi)	18.53	5.675
GROUP 4 - Semi-Tractor Trailer	18.55	5.675
GROUP 5 - Pole Trailer	18.65	5.675
GROUP 6 - Agitator & Mixer (Up		

to 5 cu. yds.)	18.73	5.675
GROUP 7 - Euclid; Dumpster; Turnarocker; Ross Carrier; & Athey Wagon	18.78	5.675
GROUP 8 - Agitator & Mixer (Over 5 cu. yds.)	18.81	5.675
GROUP 9 - Lowboy Trailer; Winch; Fork & Distributor (Front & Back End); & Truck Crane	19.08	5.675
GROUP 10 - A-Frame	19.15	5.675
GROUP 11 - Mechanic	19.18	5.675

TEAM0908A 05/18/1997

	Rates	Fringes
ALLEN, AUGLAIZE & HANCOCK (From the southern boundary of the city of Findlay to the southern boundary of Hancock County) COUNTIES		
TRUCK DRIVERS:		
Lowboy	17.45	3.57+a

FOOTNOTE:
a. $61.00 per week

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the

Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor

200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

SMALL BUSINESS SUBCONTRACTING PLAN

DATE: _____

CONTRACTOR: _____

ADDRESS: _____

SOLICITATION OR CONTRACT NUMBER: _____

ITEM/SERVICE: _____

The following, together with any attachments, is hereby submitted as a Small Business Subcontracting Plan to satisfy the applicable requirements of Public Law 95-507.

1. (a) The following goals (expressed in terms of a percentage and dollar values of total planned subcontracting dollars) are applicable to the contract or solicitation cited above.

See page 1a

(b) The following principal products and/or services will be subcontracted under this contract, and the distribution among large business, small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns is as follows: **(Check all that apply)**

IDENTIFIED SUBCONTRACTING ITEMS/ SERVICES	LARGE BUSINESS	SMALL BUSINESS	HUBZone SMALL BUSINESS	SMALL DISADVAN-TAGED BUSINESS	WOMEN-OWNED SMALL BUSINESS

(ATTACHMENT MAY BE USED IF ADDITIONAL SPACE IS REQUIRED)

NOTE: If the contractor proposes zero (0) goals for HUBZone small business firms, the contractor should include a footnote in their subcontracting plan stating the reasons why and that every effort will be made during the life of the contract to identify and solicit certified HUBZone small business firms for subcontracting opportunities.

(c) The following method was used in developing subcontract goals (i.e., Statement explaining how the product and service areas to be subcontracted were established, how the areas to be subcontracted to small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns were determined, and how small business, HUBZone small business, small disadvantaged business and women-owned small business concerns' capabilities were determined, to include identification of source lists utilized in making those determinations).

_____

_____

_____

(d) Indirect and overhead costs (check one):____ have been _____ have not been included in the goals specified in 1(a) and 1(b).

(e) If "have been" is checked, explain the method used in determining the proportionate share of indirect and overhead cost to be allocated as subcontracts to small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

_____

_____

_____

2. The following individual will administer the subcontracting program:

Name & Title: _____

Address & Telephone: _____

This individual's specific duties, as they relate to the firm's subcontracting program, are as follows: General overall responsibility for this company's Small Business Program, the development, preparation and execution of individual subcontracting plans and for monitoring performance relative to contractual subcontracting requirements contained in this plan, including but not limited to:

(a) Developing and maintaining offerors/bidders lists of small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns from all possible sources. Rely on a concern's representation of itself as a small business concern, or a woman-owned small business concern. However, concerning HUBZone small business and small disadvantaged business status, confirmation shall be made through the Small Business Administration's (SBA's) list of Small Disadvantaged Businesses and small HUBZone businesses by accessing the PRO-Net list at http://pro-net.sba.gov/pro-net/search.html and/or by contacting the SBA's office of Small Disadvantaged Business Certification and Eligibility.

(b) Ensuring that procurement packages are structured to permit small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns to participate to the maximum extent possible.

(c) Assuring inclusion of small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all solicitations for products or services that they are capable of providing.

(d) Reviewing solicitations to remove statements, clauses, etc., which may tend to restrict or prohibit small business, HUBZone small business, small disadvantaged business, and women-owned small business participation.

(e) Ensuring periodic rotation of potential subcontractors on bidders' lists.

(f) Ensuring that the bid proposal review board documents its reasons for not selecting low bids submitted by small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

(g) Ensuring the establishment and maintenance of records of solicitations and subcontract award activity.

(h) Attending or arranging for attendance of company counselors at Business Opportunity Workshops, Minority Business Enterprise Seminars, Trade Fairs, etc.

(i) Conducting or arranging for conduct of motivational training for purchasing personnel pursuant to the intent of Public Law 95-507.

(j) Monitoring attainment of proposed goals.

(k) Preparing and submitting periodic subcontracting reports required, which will include Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and SF 295, Summary Subcontract Report, in accordance with the instructions on the forms.

(l) Coordinating contractor's activities during the conduct of compliance reviews by Federal agencies.

(m) Coordinating the conduct of contractor's activities involving its small business, HUBZone small business, small disadvantaged business, and women-owned small business subcontracting program.

(n) Notifying the Contracting Officer or his representative in writing of any substitutions of firms that are not small business, HUBZone small business, small disadvantaged business, or women-owned small business for the firms listed in the subcontracting plan.

(o) Additions to (or deletions from) the duties specified above are as follows:

_____

_____

_____

3. The following efforts will be taken to assure that small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns will have an equitable opportunity to compete for subcontracts:

(a) Outreach efforts will be made by:

(i) Contacts with minority and small business trade associations such as the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce.

(ii) Contacts with business development organizations.

(iii) Attendance at small and minority business procurement conferences and trade fairs.

(iv) Sources will be requested from Small Business Administration's Procurement Marketing and Access Network (PRO-Net).

(b) The following internal efforts will be made to guide and encourage buyers:

(i) Workshops, seminars and training programs will be conducted.

(ii) Activities will be monitored to evaluate compliance with this subcontracting plan.

(c) Small business, HUBZone small business, small disadvantaged business, and women-owned small business concern source lists, guides and other data identifying small, small disadvantaged and women-owned small business concerns will be maintained and utilized by buyers in soliciting subcontracts.

(d) Additions to (or deletion from) the above listed efforts are as follows:

_____

_____

_____

4. The offeror (contractor) agrees that the clause entitled "Utilization of Small Business Concerns" at FAR 52.219-8 will be included in all subcontracts that offer further subcontracting opportunities, and all subcontractors (except small business concerns) who receive subcontracts in excess of $500,000 ($1,000,000 in construction) will be required to adopt and comply with a subcontracting plan similar to this one. Such plans will be reviewed by comparing them with the provisions of Public Law 95-507, and assuring that all minimum requirements of an acceptable subcontracting plan have been satisfied. The acceptability of percentage goals shall be determined on a case-by-case basis depending on the supplies/services involved, the availability of potential small businesses, HUBZone small businesses, small disadvantaged businesses and women-owned small business subcontractors, and prior experience. Once approved and implemented, plans will be monitored through the submission of periodic reports,

and/or, as time and availability of funds permit, periodic visits to subcontractors facilities to review applicable records and subcontracting program progress.

5. The offeror (contractor) agrees to submit such periodic reports and cooperate in any studies or surveys as may be required by the contracting agency or the Small Business Administration in order to determine the extent of compliance by the offeror with the subcontracting plan and with the clause entitled "Utilization of Small Business Concerns," contained in the contract. The above reports will include Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and SF 295, Summary Subcontract Report, in accordance with the instructions on the forms.

The offeror (contractor) further agrees to ensure that its subcontractors agree to submit SF 294 and SF 295.

6. The offeror (contractor) agrees that he will maintain at least the following types of records to document compliance with this subcontracting plan:

(a) Small business, HUBZone small business, small disadvantaged business, and women-owned small business concern source lists, guides and other data identifying SB/SDB concerns.

(b) Organizations contacted for small, HUBZone small, small disadvantaged and women-owned small business sources.

(c) On a contract-by-contract basis, records on all subcontract solicitations over $100,000, indicating on each solicitation (i) whether small business concerns were solicited, and if not, why not; (ii) whether HUBZone small business concerns were solicited, and if not, why not; (iii) whether small disadvantaged business concerns were solicited, and if not, why not; (iv) whether women-owned small business concerns were solicited, and if not, why not; and (v) reasons for the failure of solicited small, small disadvantaged or women-owned small business concerns to receive the subcontract award.

(d) Records to support other outreach efforts: Contacts with Minority and Small Business Trade Associations, etc., and attendance at small and minority business procurement conferences and trade fairs.

(e) Records to support internal activities to guide and encourage buyers: Workshops, seminars, training programs, etc., monitoring activities to evaluate compliance.

(f) On a contract-by-contract basis, records to support subcontract award data to include name and address and business size of each subcontractor. Contractors having commercial plans need not comply with this requirement.

(g) Records to be maintained in addition to the above are as follows:

_____

_____

Signed: _____ Date: _____

Typed Name and Title:

_____

Revised March 23,1999

Plan Accepted by: _____ Date: _____

Contracting Officer

NOTE TO CONTRACTING OFFICER: Upon incorporation of a plan into the contract indicated herein, the estimated dollar value of contract $_____

CONTINUATION OF PARAGRAPH 1(a)

BASIC CONTRACT	**Dollars**	**Percents**
1. Total basic contract price	_____	
2. Total to be subcontracted (to all types of businesses)	_____	100%
a. To large business	_____	_____
b. To small business	_____	_____
i. To nondisadvantaged small business	_____	_____
ii To HUBZone small business	_____	_____
iii. To disadvantaged small business	_____	_____
iv. To women-owned small business	_____	_____

OPTIONS (if required)

NAME OF OPTION:_____

	Dollars	**Percents**
1. Total option price	_____	
2. Total to be subcontracted (to all types of businesses)	_____	100%
a. To large business	_____	_____
b. To small business	_____	_____
i. To nondisadvantaged small business	_____	_____
ii To HUBZone small business	_____	_____
iii. To disadvantaged small business	_____	_____
iv. To women-owned small business	_____	_____

(SUBMIT ADDITIONAL OPTION PAGES FOR EACH OPTION)
OPTIONS (if required)

NAME OF OPTION:_____

	Dollars	Percents
1. Total option price	_____	
2. Total to be subcontracted (to all types of businesses)	_____	100%
a. To large business	_____	_____
b. To small business	_____	_____
i. To nondisadvantaged small business	_____	_____
ii To HUBZone small business	_____	_____
iii. To disadvantaged small business	_____	_____
iv. To women-owned small business	_____	_____

NAME OF OPTION:_____

	Dollars	Percents
1. Total option price	_____	
2. Total to be subcontracted (to all types of businesses)	_____	100%
a. To large business	_____	_____
b. To small business	_____	_____
i. To nondisadvantaged small business	_____	_____
ii To HUBZone small business	_____	_____
iii. To disadvantaged small business	_____	_____
iv. To women-owned small business	_____	_____

APPENDIX CC -- SUBCONTRACTING PLAN EVALUATION GUIDE

PART 1--INTRODUCTION

CC-100 Purpose.

The guide, which starts on page CC-2, provides a methodology for uniform and consistent evaluation of subcontracting plans within the Army. It is designed to facilitate compliance with the mandates of Public Law to increase opportunities for small and small disadvantaged businesses.

CC-101 Applicability.

Except for subcontracting plans for commercial items, use this guide to review all subcontracting plans, including those submitted in response to the conditions described in FAR 19.705-2(d) and DFARS 219.705-2(d). See 19.708(b)(1) for special notices to be inserted in the solicitation regarding submission of subcontracting plans. A copy of the completed evaluation shall be included in the contract file.

CC-102 Goals.

Contracting officers must place special emphasis on negotiating reasonable goals in subcontracting plans. The goals must be realistic, challenging and attainable. The plan must demonstrate a real commitment to, and an active involvement in, providing subcontracting opportunities for small and small disadvantaged businesses.

CC-103 Scoring.

Score subcontracting plans in the context of the particular procurement. For instance, in smaller dollar value contracts, it may be impracticable or not cost effective for offerors to take the type of actions that may be appropriate in contracts for larger dollar values. However, in such cases, offerors must still address each element of the guide and discuss what they intend to do regarding each element. Contracting officers shall then assign appropriate point scores.

CC-104 Modification of guide.

The evaluation guide and scoring system shall not be modified without the approval of the PARC. This approval authority may not be delegated.

CC-105 Use of preaward surveys.

For contracts administered by the Defense Contract Management Command (DCMC), information needed to assess contractor compliance with subcontracting plans in current and previous contracts may be obtained by requesting a preaward survey in accordance with FAR 9.106.

PART 2--SCORING SYSTEM

	Range	Point Assigned	Points
1. Policy statement or evidence of internal guidance to company buyers recognizing commitment to Pub.L. 99-661, Section 1207, and Pub.L. 100-180, Section 806.	0-5		

0 No written policy statement in plan.

1-2 Plan includes a general policy, but no evidence of recognition of special emphasis being placed on subcontracting with SDBs, HBCUs and MIs as a result of Pub.L.s.

3-5 Definitive corporate and management commitment evidenced in individual plan and master plan by specifically referencing the Pub.L.s.

	Point Range	Points Assigned
2. Efforts to broaden SB and SDB active vendor base. (FAR 19.704(a), 52.219-9(d), DFARS Subpart 219.5, 219.704(a)(1), 219.705 and 252.219-7003)	0-10	

0 Description of efforts merely parrots requirements of FAR to maintain listing of vendors.

1-2 Contains evidence that effort is directed at increasing subcontracts to SBs and SDBs for non-complex and general housekeeping supplies or services normally awarded to firms already in existing vendor base.

3-10 Addresses efforts to increase the number of SB and SDB sources awarded subcontracts, establishes plans to use competition restricted to SDBs and gives details about how plans to use competition restricted to SDBs will be accomplished. (DFARS 219.705-4 and Subpart 219.5)

NOTE: After scoring the plan to this point, if zero points have been assigned for Element 2, proceed to Item 3, Outreach. If one or more points have been assigned for this Element 2, proceed to evaluation of the subelements labeled "minus 2" and "minus 3" to determine if points assigned so far must be reduced. Do not reduce points already assigned to less than zero. (No negative points are to be entered under "Points Assigned" for any Element.) These negative scores are additive; if both of the subelements apply, then minus five points are assessed to reduce points already assigned under this element 2.

minus 2 Includes efforts described above which rate 1-2 or 3-10 points but, when it would be appropriate, does not address effort to involve HBCUs and MIs in performing the contract for which the subcontracting plan is submitted. (DFARS 219.704(a)(1) and 219.705-4(d))

minus 3 Includes efforts described above which rate 1-2 or 3-10 points but does not address effort to identify and overcome obstacles which may prohibit award to HBCU and MI sources currently in vendor base.

	Point Range	Points Assigned
3. Outreach (ongoing and planned actions) (FAR 19.704(a), 19.705-4, 52.219-9(d) and 52.219-9(e), DFARS 219.705).	0-10	

0 No mention of outreach.

1-4 Describes efforts to work with organizations in FAR 52.219-9(d)(11)(iv) to identify potential sources for items not traditionally awarded to SB or SDB firms. (FAR 52.219-9(d)(11)(iv) and 52.219-9(e))

5-10 Indicates intent to conduct reviews to determine the competence, ability, experience and capacity available in SB or SDB firms and to provide technical assistance to SBs and SDBs or explains why such reviews or technical assistance are not appropriate. (FAR 19.705-4(c) and 52.219-9(e))

NOTE: After scoring the plan to this point, if zero points have been assigned for Element 3, proceed to Item 4, Description of supplies and services. If one or more points have been assigned for this Element 3, proceed to evaluation of the subelement labeled "minus 3" to determine if points assigned so far must be reduced. Do not reduce points already assigned to less than zero. (No negative points are to be entered under "Points Assigned" for any Element.)

minus 3 Fails to indicate the extent to which HBCU and MI participation will be considered and facilitated in performing the contract for which the subcontracting plan is submitted, or fails to indicate other efforts to increase HBCU and MI participation in future DoD acquisitions. (DFARS 219.705-4(d))

	Point Range	Points Assigned
4. Describes supplies and services to be subcontracted and planned for subcontracting to SBs, SDBs, HBCUs and MIs. (FAR 19.705-4(d), 52.219-9(d)(3), 52.219-9(e) and DFARS 219.705).	0-10	

0 No mention.

1-4 Generic list of routine supplies and services included in materials listing for the specific contract.

5-7 Indicates intent to review major product/system components and key project elements of R&D, construction, service and spare parts contracts for subcontracting to SBs, SDBs, HBCUs and MIs. (FAR 19.705-4(d)(3) and (4), 52.219-9(e)(1) and (2) and DFARS 219.705)

8-10 Substantive plan actually targets specific SBs, SDBs, HCBUs and MIs for review to determine their competence, ability, experience and capacity and identifies specific components or major portions of the acquisition for consideration of SB, SDB, HBCU or MI competition. Also, indicates intent to work with large business subcontractors for major subsystems or key project elements to ensure "flowdown" of this philosophy. (FAR 19.705-4(d) and DFARS 219.705)

	Point Range	Points Assigned
5. Describes specific efforts, based on results of efforts described in Elements No. 3 and No. 4 to ensure that SB, SDB, HBCU and MI concerns have equitable opportunity to participate in acquisitions. (FAR 19.704(a), 19.705-4, 52.219-9(d) and DFARS 219.705).	0-15	

0 No mention.

1-4 Description of efforts merely parrots FAR 19.704(a)(3) and (6) and 52.219-9(d)(8).

5-8 Describes how the company intends to evaluate its own SB and SDB award performance and program effectiveness against the established goals, both company-wide and for the individual plan being negotiated. (FAR 19.704(a)(1) and (6) and 52.219-9(d)(11)(v))

9-12 Includes SBs, SDBs, HBCUs and MIs by name as members of original team for producing specific major components or subassemblies, providing a major service or performing a significant portion of the effort. (DFARS 219.705-2(d))

13-15 Describes special efforts to establish long-range relationships with SBs, SDBs, HBCUs and MIs, including leader-follower techniques, when appropriate. (FAR 19.705-4(d)(4) and DFARS 219.705-2(d))

	Point Range	Points Assigned
6. Development of percentage goal is based on planned subcontracting which is challenging, yet realistic. (FAR 19.705-4(d), DFARS 219.704(a)(1) and 219.705-4).	0-40	

0 Fails to include a specific goal for subcontracting with SBs, SDBs, HBCUs and MIs or proposes zero percent goal without substantive justification.

1-5 Sets small business goal of less than 10 percent and/or SDB/HBCU/MI goal of two percent or less with no significant justification.

6-10 Sets goals of less than 10 percent (SB) and 2 percent (SDB), but contractor shows evidence of reasonable effort, including use of set-asides, to involve SBs, SDBs, HBCUs or MIs in non-traditional areas.

11-20 Sets goals of over 10 percent (SB) and 2 percent (SDB) and also identifies specific SB, SDB, HBCU or MI concerns planned to be subcontractors, including the item or service or effort to be subcontracted. Indicates extent to which firms have participated in proposal preparation or otherwise indicates extent to which subcontracting to these firms may reasonably be assured. Goals are realistic in view of actions stated in other portions of the plan and make-or-buy plan, if applicable.

21-30 Same as for 11-20 points, but proposed percent of goal is reasonable in comparison with prior experience, yet indicates reasonable effort to improve on past experience in terms of dollars, number of SDBs, HBCUs, and MIs involved, and movement into area without previous SDB, HBCU or MI involvement.

31-40 Same as 21-30 points, but includes evidence that if SBs, universities or institutions other than HBCUs or MIs are performing on a major component or subassembly, providing a major service or performing on a key project element, SDBs, HBCUs and MIs will also be given an opportunity to perform. Also, the percentage of the SDB, HBCU, MI goal compares favorably with the percentage of SB goal, consistent with the Government-wide goals of 20 percent to SB with five percent to SDB, or is otherwise explained, and the plan includes a forecast for improvement. (The SB and SDB goals in the subcontracting plan should approximate the ratio between the SB and SDB Government-wide goals.)

	Point Range	Points Assigned
7. Past performance.	0-10	

Extent to which the company has historically been successful in establishing realistic, yet challenging, goals and achieving them. Consider DCMC comments on prime contractor's justifications for prior failure to achieve goals. To avoid penalizing the contractor when there has been no previous defense contract, assign 10 points. (FAR 19.705-4(d)(1) and (d)(2)(iii), 19.706 and DFARS 219.706).

8. Other regulatory and statutory requirements.

If any of the following are answered "NO," the plan is not acceptable and must be revised to comply prior to award:

Does the plan have--

A. A separate goal for SB and SDB? (FAR 19.704(a)(1) and FAR 52.219-9(d)(1) and (2))
YES ____ NO ____

B. A separate goal for the basic contract and, if applicable, each option? (FAR 19.704(c))
YES ____ NO ____

C. The name of the company employee responsible for administration of plan and employee's duties? (FAR 19.704(a)(2) and 52.219-9(d)(7))
YES ____ NO ____

D. A statement affirming intent to comply with subcontracting "flowdown" provisions? (FAR 19.704(a)(4) and 52.219-9(d)(10))
YES ____ NO ____

E. A statement affirming willingness to cooperate in studies and to provide reports? (FAR 19.704(a)(5) and 52.219-9(d)(10))
YES ____ NO ____

F. A statement that indirect costs are either included or excluded from the proposed goals and, if included, how they will be prorated? (FAR 52.219-9(d)(6))
YES ____ NO ____

G. A description of efforts to ensure that SBs and SDBs have an equitable opportunity to participate in the acquisition? (FAR 52.219-9(d)(8))
YES ____ NO ____

H. A recitation of the types of records maintained to demonstrate procedures adopted to comply with the requirements and goal in the plan? (FAR 52.219-9(d)(11))
YES ____ NO ____

AVIONICS RESEARCH LAB PHASE IIIA, WRIGHT-PATTERSON AFB, OHIO

SECTION 01000

PROJECT DESCRIPTION / SCOPE OF WORK

PART 1 - GENERAL

1.1 GENERAL

Through the use of a one phase competitive negotiation procurement process, the U.S. Army Corps of Engineers desires to obtain design, construction and demolition work required to provide a project referred to as Avionics Research Lab Phase IIIA at Wright-Patterson AFB, Ohio. This project consists of construction of a new facility addition and renovation in the existing Sensors Directorate Complex, Building 620. Renovation work involves modifications to existing the Avionics Phase I Addition and to existing B620 Northeast Wing at tie-in locations. The project is divided into Design and Construction Phases. In this procurement procedure consideration will be given simultaneously to the proposals of the Offeror as defined in Section 00130 - PROPOSAL EVALUATION SYSTEM.

Offerors are asked to submit proposals for the design, construction and demolition work of the project which will be evaluated in the categories of qualifications and experience, design and engineering, project management, performance capability, subcontractor plan and contract price through the use of a point and weighted value scoring system. Offerors are furnished the evaluation criteria as part of this Request for Proposals (RFP). Final selection is to be based on this point and weighted value scoring system as well as other salient factors considered to be in the Government's best interests. This is not a low bid award project.

In the response to this RFP, each Offeror shall submit a proposal as defined in Section 00110 - PROPOSAL PREPARATION for all design and construction work. If awarded the contract, the Offeror shall complete the design and construction documents, and construct the buildings and systems, and do any required site demolition as defined in this RFP document.

1.2 GENERAL SCOPE OF WORK:

General: Facility functional requirements are to provide a properly configured, equipped and sized facility to house the secure computer labs, secure work areas, loading dock, van storage, and command center. The addition is to be sited on the northeast quadrant of B620 at Wright Patterson Air Force Base. Supporting facilities include utility, fire protection, landscaping, paved walks and parking, and site improvements. Demolition and renovation work shall be done at the Avionics Research Lab Phase IIIA tie-ins to B620.

1.3 ORGANIZATION OF THIS RFP MANUAL:

1.3.1 General:

This manual is organized in the Construction Specifications Institute (CSI) format and logic. Refer to the Table of Contents for the Outline of this Manual. The general subject matter is included as follows:

1.3.2 Sections 00010 through 00150 - PROPOSAL REQUIREMENTS:

These sections include the requirements for the proposal preparation and are applicable basically to all activity and requirements prior to the award of the final design and construction contract unless otherwise stated.

Section 00100 - INSTRUCTIONS TO OFFERORS provides the offeror with standard information pertaining to proposal submittal requirements.

Section 00115 - PROCEDURES FOR SUBMITTAL OF OFFERS guides the offeror in preparing a proposal for one phase proposals. Included in this section is the description and format of information to be included in each proposal and how and where to submit the proposal.

Section 00130 - PROPOSAL EVALUATION SYSTEM outlines the evaluation criteria and level of importance of the criteria for proposals. The method of evaluation and cost limitations for proposals are explained and the basis of the award is provided.

Section 00150 - THE DESIGN/BUILD PROCESS describes the process and appropriate time line which will be followed from the proposal phase through the construction completion. This section outlines the milestone events of all submittals and reviews including 60% and 100% design.

1.3.3 CONTRACT REQUIREMENTS:

The remainder of this manual includes what will represent the contractual requirements for the finally selected Design/Build Contractor after award of the Contract. All requirements of the manual, however, regardless of location shall be followed in the decision for the preparation of the proposals. Additional selected section explanations are as follows:

Section 00700 - CONTRACT CLAUSES and 00800 - SPECIAL CONTRACT REQUIREMENTS include the standard contract clauses and supplemental specific clauses which represent the General Conditions of the Contract.

Section 01000 - PROJECT DESCRIPTION - STATEMENT OF WORK outlines the general project requirements.

Section 01011 - DESIGN CONCEPT DOCUMENTS identifies documents issued with this RFP which establish the basis for the project design.

Section 01012 - DESIGN SUBMISSION REQUIREMENTS AFTER AWARD includes information and instruction of what is to be provided by the Design/Build Contractor after the award of the Contract. It includes the description of plans, specifications and supporting data and documents to be developed for the 60% and 100% levels of the design.

Section 01013 - GENERAL DESIGN REQUIREMENTS establishes the basic technical design criteria for the total project. This section may include technical criteria for the project and is supplemented by additional performance or descriptive specifications in Divisions 2 through 16 and the drawings included in Appendix B depending on the level of performance criteria to be issued.

Remaining Division 1 (Sections 01100 through 01800) are General Requirements which pertain to the administrative and procedural aspects of the project and temporary facilities and controls. Division 1 sections expand on Contract Clauses and other sections of the Contract. These sections must be included in the Project Manual (Specifications) of the 100% Construction Documents.

Divisions 2 through 16 include technical performance and/or descriptive specifications and expand on Sections 01000 and 01013.

1.3.4 APPENDIX:

The Appendices include attachments and supplemental information which are referred to and incorporated by other parts of the Manual. Drawings, reports, preliminary program, requirements and distribution lists are typical of the type of information included in the Appendices.

1.3.5 RESPONSIBILITY:

Any discrepancies found in these RFP documents by the offeror shall be identified to the Louisville District, Army Corps of Engineers before the submittal of the offeror’s proposal. The Design/Build Contractor as Architect/Engineer-of-Record, is solely responsible for the design intent and the accuracy of the D/B Contractor’s proposal and it’s compliance with all RFP requirements and all referenced codes and criteria. All information contained in the government-provide RFP package is to be considered schematic in nature and is to be verified by the D/B Contractor as part of the development of his design.

PART 2 - (NOT APPLICABLE)

PART 3 - (NOT APPLICABLE)

END OF SECTION

SECTION 01011

DESIGN CONCEPT DOCUMENTS

PART 1 GENERAL

1.1 GENERAL

This section identifies documents issued with this RFP which shall establish concept or basis for the project design. The requirements of these documents are minimum standards and can be exceeded by the Offeror. Deviations from the requirements of these documents may be approved if considered by the Government to be in its best interests.

The extent of development of these requirements in no way relieves the successful Offeror from his responsibility of completing the design, construction documentation, and construction of the facility in conformance with applicable criteria and codes.

1.2 ENGINEERING AND DESIGN CRITERIA

General design requirements are set forth in Section 01013, GENERAL DESIGN REQUIREMENTS. The Specifications Division 02 thru 16 are the primary design criteria for the design and construction of the project. No design criteria will be furnished by the Louisville District except that which may be required for design and is not available from commercial sources or not available on the Huntsville COE web site, <http://www.hnd.usace.army.mil.techinfo/index.htm>. All design, unless otherwise specified, shall be based on nationally recognized industry standard, criteria, and practice.

1.3 DRAWINGS AND APPENDIX DOCUMENTS

Schematic Drawings (Appendix C)

Cover Sheet
C001 Location Map
C101 Existing Conditions Plan
C201 Site Plan
C202 Grading Plan
C203 Utility Plan
A201 Basement Floor Plan
A202 First Floor Plan
A203 Second Floor Plan
A204 Third Floor Plan
A301 Exterior Elevations
A302 Building Sections
A401 Room Finish Schedule
A402 Color Schedule
A901 First Floor Furniture Plan

A902 Second Floor Furniture Plan
A903 Third Floor Furniture Plan
A904 Typical Workstation Plans
E801 Communication Site Plan
E802 Duct Bank Site Plan
E803 Stairewell Conduit Plan
E804 New Conduit Plan
E805 Telecommunications Room Details
E806 Duct Bank Details
E807 Communications Details

Appendices

Appendix A: Preliminary Project Program, Equipment Schedule and Avionics Research Lab Phase IIIA Room Requirements
Appendix B: Preliminary Fire Protection/ Life Safety Review
Appendix C: RFP Drawings
- a. New Schematic Drawings
- b. Selected Existing Phase I Addition and B620 Northeast Wing Drawings

Appendix D: Geotechnical Report and Subsurface Condition Summary
Appendix E: User-Provided Data
Appendix F: Base Facility Standard, WPAFB, OH, September, 1997
Appendix G: Environmental Permit Matrix and WPAFB Hazard Specifications:
- 02081 Removal and Disposal of Asbestos Containing Materials
- 02083C Removal of Lighting Ballasts and Small Capacitors Containing PCB
- 02083D Removal of Mercury-Containing Lamps
- 02084 PCB Spill Cleanup and Site Restoration
- 02085 Removal and Disposal of Asbestos Containing Materials on Underground Utility Lines
- 02090 Removal and Disposal of Paint Containing Lead Material (OSHA Compliance)
- 02091 Refrigerant Recovery

Appendix H: Communication
- a. Communication Statement of Work (Drawings and Specifications included in RFP)
- b. Premises Distribution System Data
- c. Communication Work by Government

Appendix I: CID Information
Appendix J: UPS Information

1.4 SPECIFICATIONS:

Outline specifications included herewith shall be utilized as design criteria and minimum standards for the corresponding construction work. Complete construction specifications shall be developed using the criteria included in these specifications. Specifications sections included in Divisions 2 thru 16 herein shall not be considered complete and suitable for final construction

specifications. Division 0 and 1 specifications shall be considered complete and shall be included in final specifications without change. The Division 0 and 1 specifications contained herein will be furnished on electronic media when requested by the successful Offeror for the production of construction specifications. These specifications shall be submitted together with other required contractor prepared project construction specifications during the Design Phase.

1.5 ORDER OF PRECEDENCE:

Where conflicts in requirements occur, either between this RFP document and the listed criteria or between separate listed criteria, D/B Contractor shall provide the more stringent requirements. And where conflict, duplication, or overlap of design criteria occurs, the following order of precedence shall be followed:

a. Project Drawings (Appendix C).
b. Outline specifications included herein.
c. Geotechnical Report and Subsurface Condition Summary (Appendix D).

1.6 MANDATORY REQUIREMENTS:

Portions of the design documents provide mandatory requirements. Mandatory requirements consists of drawings, schematics, outline specifications and other requirements which shall not be altered or modified for proposal submittal or subsequent final design except for adjustments for to accomodate the structural system, adjustments for project development, adjustments for coordination, modifications required to meet building or life safety requirements, or cost reduction proposals. Non mandatory requirements shall be considered minimum requirements and may be enhanced, improved, or substituted to better suit design requirements or to improve evaluation consideration. Mandatory requirements are as listed below. All other design requirements shall be considered non mandatory.

Site Layout: New addition location, parking location (Bid Option No. 1), mechanical and electrical equipment general locations
Building Floor Plans (general layout)
Building Elevations (general layout)
Structural criteria
Foundation criteria
Pavement Section criteria
Roofing type (BUR or SSSMR option only--no EPDM)
HVAC System types (roof top mechanical equipment is not allowed) .

1.7 ADDITIONAL DOCUMENTS/CRITERIA FURNISHED BY THE GOVERNMENT:

Design Criteria published by the Government such as Technical Manuals (TM), Engineer Manuals (EM), Engineer Technical Letters (ETL) and other documents related to the design referenced herein which are not included on the Huntsville COE web site will be provided by the Louisville COE to the D/B Contractor.

Please note the following:

1. Commercial design criteria and specifications will not be furnished by the Government.

2. Conversion of electronic media to other formats shall be the responsibility of the Design/Build Contractor.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01012

DESIGN SUBMISSION REQUIREMENTS AFTER AWARD

PART 1 – GENERAL

1.1 INTRODUCTION

This section contains information needed after the successful Offeror has been selected. This information is provided to all Offerors as an outline of the Design requirements to be anticipated after award.

The information contained in this section (01012 Design Submission Requirements After Award) applies to the design required for the Avionics Research Lab Phase IIIA at Wright-Patterson AFB, OH.

PART 2 – PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CONTRACTOR DESIGN REQUIREMENTS AFTER AWARD

a. The Contractor shall design and detail a complete and useable facility in metric units as outlined in this solicitation. The design phase of this project shall be in two (2) parts.

Part 1 will include:
100% Site and Foundation Design & 60% Building Design

Part 2 will include:
100% Building Design

b. The submittals shall include specifications, drawings, permit applications, confirmation notices, completed DD Form 1354, and submittal registers.

c. The design shall be completed in accordance with the codes and standards itemized in Section 01013.

3.2 SUBMISSION OF DESIGN DOCUMENTS

a. The Contractor shall submit design documents with cover letter by overnight mail in accordance with the requirements of Section 01013. The letter shall indicate the project name, due date of comments, and where to send the comments. All drawings shall be half-size. Specifications, submittal register, design analysis and other technical information shall be bound.

b. Formal Design Reviews will be held at Wright-Patterson AFB, OH to discuss review comments on the following submittals:

100% Site & Foundation Design & 60% Building Design
100% Unchecked Building Design

c. Design Reviews shall not be taken as an approval and does not relieve the Contractor from responsibility for compliance with the RFP solicitation, Code Regulations, or betterments listed with the contractor's proposal or identified during proposal evaluation.

3.3 GENERAL

a. The Contractor is required to independently prepare and submit for approval a complete Design. The Contractor's Design Professionals shall independently confirm and be responsible for the technical accuracy and adequacy of all aspects of the project design.

b. The project design shall include the items listed in para 1.2.

c. The submission requirements outlined herein are the MINIMUM requirements necessary.

d. Document quantities and delivery addresses are specified at the end of this specification section. Quantities and addresses apply for each submittal.

e. Existing Documents: None.

f. Metric Requirements: All work shall be designed completely, including all drawings, specifications and design analysis in the Metric System International (SI) in conformance with Executive Order 12770; 25 June 1991 and Air Force Policy and guidance on Conversion to Design Metric; 15 Oct. 1992. If the RFP site drawings are furnished in English, they must be converted to metric as part of the Design/Build contractor's work. Combination of English and Metric will not be allowed.

g. CADD Requirements

(1) All drawings shall be in Microstation CADD software by Bentley Systems.

(2) Provide a separate electronic drawing file for each project drawing. Each file shall contain all the data for one complete drawing, including the date and border. Each drawing file must be completely independent of any data in any other file. Drawing files with external references such as reference file attachments or special fonts will not be acceptable. All displayable graphic elements on all levels of the drawing file must be part of the project drawing image. The drawing file may not contain any graphic element that is not part of the drawing image.

(3) Provide a list of all drawings in the set of project drawings together with the name of the electronic file that contains the data for each drawing.

(4) Submitted hard copy drawings must be plotted directly from the electronic file.

h. Specifications and Reports

(1) Provide project specifications and reports in a single electronic document file in Microsoft Word (version 7.0), Windows 95 format. The complete document: including title sheet, table of contents, submittal checklist, and all specification sections; must be assembled into a single electronic document in Word format.

(2) Provide independent page numbering for each specification section. The page number shall incorporate the specification section number (e.g. – 15000-1).

(3) Submitted hard copy documents must be printed directly from the electronic file.

i. Electronic Data

(1) Electronic data of all design documents must be provided with the Certified Final Design Submittal. Data shall be on CD ROM 5-1/4 inch disc.

(2) All furnishings' data including interior signage is to be provided in Microsoft Excel spreadsheet.

j. As-Built Documents: Provide as-built drawings and specifications in accordance with Section 00800, Para.9.

k. Submittal Register: The contractor will be required to prepare a Submittal Register (Engineering Form 4288) identifying all construction submittals. Each submittal item shall be identified and coded in accordance with Section 01331. A completed Engineering Form 4288, approved by the Contracting Officer, will be required prior to commencement of construction.

3.4 SUBMISSION REQUIREMENTS

3.4.1 Design Phase

a. Part 1 (also called 60% Design) will consist of plans, specifications and design analysis for sitework, utilities, and foundations (100% complete) and architectural, structural, mechanical, electrical (60% complete).

b. Part 2 (also called 100% Design) will consist of plans, specifications and design analysis for structures, architecture, mechanical and electrical (100% complete).

c. Review sets will be distributed, by the Contractor, as shown on the attached list. Written comments will be provided to the Contractor and a review meeting to discuss the comments and preliminary responses will be held at Wright-Patterson AFB, OH for each part of the design. The Contractor will keep the minutes of the meetings and forward the minutes and annotated comments to all reviewers within 7 days of the meeting. The annotations will be detailed enough to indicate exactly what the Contractor will do to comply with the comments. The contractor shall assemble the comments received into a complete package. The complete

package of comments and responses shall be transmitted to all offices that received the design submitted.

d. The Government's review is not to be considered a quality control review; the contractor shall provide his own internal quality control as required by contractor Design Quality Controls Plan (01331) before the design is submitted to the Government. It is very important the contractor's entire team agrees with the design before it is submitted to the Government. Each design submittal shall be stamped "approved" by the contractor, major constructors and by the design team prior to submission for review. The Government's review or approval does not relieve the contractor of his responsibility to provide a safe, functional project in accordance with the terms of the contract. All final drawings shall be signed and sealed by the Design Professional. Quality control procedures shall consist of design and/or checking by registered professionals and a review completed by a separate professional. Complete names of designers, checkers, and reviewers shall appear in the drawing title block.

e. The Government's review will likely result in a significant number of comments. The Contractor shall respond to each comment with a response that clearly indicates what action will be taken. Comments that, in the Contractor's opinion, require effort outside the scope of the contract will be clearly indicated as such by the Contractor. The Contractor shall not proceed with work outside the contract until a modification to the contract is properly executed.

f. The Contractor (including appropriate design representatives) will be required to participate in project progress meetings at Wright-Patterson AFB, OH. Meeting requirements include the following:

Monthly Progress Meetings - At a minimum, the Construction Project Manager, Design Project Manager, and appropriate Design Professionals shall attend.

Additional meetings may be required, if in the Government's opinion, they are required to facilitate the design process.

3.4.2 Construction Phase

a. A Clearance-to-Proceed for the Part 1 Design will be issued upon completion and approval of that portion of the design.

b. A separate Clearance-to-Proceed for the Part 2 Design will be issued upon completion and approval of that portion of the design.

c. As the first item of work during each approved construction phase, the Contractor shall furnish to the Government 15 half size sets and 5 full size sets of the approved drawings and 20 sets of the approved specifications for its use during construction.

d. No construction will be allowed on work for which the design has not been reviewed and approved.

e. The Contractor (including appropriate design representatives) will be required to participate in project progress meetings at Wright-Patterson AFB, OH. Meeting requirements include the following:

- Weekly Coordination Meetings - At a minimum, the Construction Project Manager, Project Superintendent, and appropriate sub-contractors shall attend.

- Monthly Progress Meetings - At a minimum the Construction Project Manager and Design Project Manager shall attend.

- Quarterly Senior Advisory Meeting - At a minimum, the Senior Executive Manager for the construction and design team shall attend.

- Additional meetings may be required, if in the Government's opinion, they are required to facilitate the construction process.

f. The Design/Build design team shall be required to visit the site 24 times (including the scheduled meetings) during design and construction. Site visits will be scheduled at the request of the Contractor. Two (2) Design Professionals will be required for each visit.

g. The Designer of Record will be required to review and approve all project submittals.

3.4.3 PART 1 (60% DESIGN) SUBMISSION REQUIREMENTS

a. Part 1 Design will consist of drawings, specifications and design analysis for sitework, utilities, and foundations (100% complete) and architectural, structural, mechanical, electrical (60% complete).

b. Drawings

(1) Submit drawings complete with all RFP requirements incorporated into the documents to provide a complete 100% design for sitework, utilities, and foundations.
(2) Submit drawings complete with the RFP requirements incorporated into the documents to reflect a 60% complete design for architectural, structural, mechanical, and electrical work.
(3) Refer to paragraph 3.4.4 for preliminary listing of drawings to be completed by the D/B Contractor.

c. Design Analysis

(1) The Design Professional shall prepare an independent Design Analysis and calculations necessary to confirm and support all design documents submitted for review. At a minimum, the Design Analysis shall include site civil calculations, the Pavement and Foundation Design Analysis developed by the D/B Contractor based on the Louisville COE-provided Geotechnical Report and Subsurface Condition

Summary, Appendix D, structural calculations, life safety and building code analysis, HVAC analysis and calculations, sprinkler system analysis, electrical load analysis and calculations, electrical short circuit and protective device coordination analysis and calculations.

(2) Analysis and calculations for the sitework, utilities, pavement and Foundation Design Analysis and building foundations shall be 100% complete. Analysis for architectural, structural, mechanical, and electrical work shall be 60% complete.

d. Specifications

(1) The specifications provided with this solicitation state the Government's minimum requirements. The Design Professional shall edit and expand the specifications to insure that all project design requirements, current code and regulatory requirements are met.

(2) Specifications for the sitework, utilities, and building foundations shall be 100% Complete. Specifications for architectural, structural, mechanical, and electrical work shall be 60% complete.

e. Structural Interior Design (SID) with Exterior Color Boards

(1) Interior Finishes Boards

Prepare and submit for approval two different interior building finishes schemes (Scheme A & B) of comparable quality. It is recommended the Contractor meet with and/or discuss the interior finishes with the Government prior to preparation of the individual schemes to be submitted for review and selection. Two (2) copies each of the Scheme A and Scheme B original building finishes boards shall be submitted.

At a minimum, Scheme A & B Building Finishes Color boards shall include original color samples of the following:

All wall finishes (paint, vinyl, tile, etc.). Provide information regarding tile patterns, etc. where applicable.
All flooring finishes (carpet, tile, vinyl composite tile, etc.). Provide information regarding tile patterns where applicable.
All ceiling finishes (acoustic tile, paint, etc.)
All millwork materials and finishes (cabinets, counter tops, wood doors, etc).
All doors, windows and building equipment and accessories

Each item on the Finishes Boards shall be identified and keyed to the floor plans to provide a clear indication of how and where each item will be used.

At the conclusion of the 60% Design Phase (after comments have been incorporated in the design), the Government will select and direct the Contractor to proceed with one of the schemes presented.

(2) Exterior Finish Boards

Prepare and submit for approval two copies (boards) of the proposed exterior building materials.

At a minimum, the Exterior Building Materials Board shall include original color samples of the following:

Roofing Material
Brick Samples
Precast Panel
Granite
Glass
Pavers
Exposed exterior metals (including exposed flashings)
Window & door finishes
Specialty items

Each item on the Exterior Building Materials Board shall be identified and keyed to the building elevations to provide a clear indication of how and where each item will be used.

At the conclusion of the 60% Design Phase (after comments have been incorporated in the design), the Government will direct the Contractor to proceed with the exterior finishes.

f. Comprehensive Interior Design (CID --Bid Option No. 3)

(1) Prepare and submit for approval two copies (3-ring binder format) of the proposed Comprehensive Interior Design. Two schemes of materials color & pattern selections shall be prepared to coordinate with the Building Finishes Schemes A & B.

(2) At a minimum, the CID submittal shall include the following:

i. Floor Plans showing locations and quantities of all *furniture systems workstations and freestanding furniture* proposed for the building. Each room shall be keyed to a large scale Furniture Placement Plan showing the furniture configuration, and providing a detailed inventory (manufacturers product number & description) of all furniture.
ii. Illustration Sheets (keyed to the Furniture Systems Workstation and Freestanding Furniture Plans) shall be provided for each piece of furniture. Illustration sheets shall include the following information: Item name, Room location, Finishes Samples (including product name & number), plan Key code, Description, and Illustration.
iii. Furniture Electrical and Telecommunications Plans. Plans shall include locations and quantities of outlets for each work station (i.e. desk or counter)

and point of connection for service. Electrical outlets and telecommunication receptacles shall be clearly identified to indicate the type of outlet proposed.
iv. Interior Signage Location Plans showing location and quantities of all interior signage. Each interior sign shall be keyed to a quantitative list indicating size, quantity of each type and signage text.

(3) Between the conclusion of the 60% Design Phase (after comments have been incorporated in the design), and a date about a year before the construction completion, the Government may decide whether to award the CID Option to the Design/Build contractor, or procure the CID by other means.

3.4.4 PART 2 (100% DESIGN) SUBMISSION REQUIREMENTS

a. Part 2 will consist of plans, specifications and design analysis for sitework, utilities, structures, architecture, mechanical and electrical (100% complete).

b. Drawings

(1) Submit drawings complete with all RFP requirements incorporated into the documents to provide a complete 100% design (Part 1 & Part 2) reflecting the requirements for the Avionics Research Lab Phase IIIA. All drawings submitted for the final 100% design will be considered an independent and complete design for this project. All drawings submitted shall be designed and reviewed by or under the direct supervision of licensed professionals in the applicable area of expertise.

(2) All Final Design Part 1 & Part 2 Drawings (100%) shall bear the seal of the licensed professional responsible for the design. The Design/Build Contractor as Architect/Engineer-of-Record, is solely responsible for the design intent and the accuracy of the 100% Design Documents and their compliance with all RFP requirements and all referenced codes and criteria. All information contained in the government-provide RFP package is to be considered schematic in nature and is to be verified by the D/B Contractor as part of the development of his design. The 100% Final Design drawings and specifications are to bear the seal or stamp, signature and date of the registered architect or professional engineer responsible for the design. The structural design drawings (including the foundation and superstructure drawings) shall bear the seal or stamp, signature and date of the same professional engineer.

(3) The Corps of Engineers drafting and CADD standards are required and are available from the Louisville Corps of Engineers District Office.

(4) Border and sheet sizes shall be per Louisville Corps of Engineers standards.

The 100% Design Documents (Design Drawings and Project Manual/Specifications) shall include 100% complete and coordinated drawings and specifications. In addition, sealed or

stamped, signed and dated mylar reproducible drawings shall be provided as part of the 100% Design Submittal. Drawings shall generally include the following in the order listed:

3.4.4.1 Civil Drawings:

a. Demolition Plan

b. Site Layout (complete plans and dimensions)

Site layout shall show all surface features including buildings, pavements, roadways, curbs, manholes, fire hydrants, valve boxes, culvert headwalls, utility poles, exterior lighting poles, signs, foundations at grade, fencing, sidewalks, meters, etc.

c. Grading and Drainage Plan

All paved areas should not be graded using only contours. Use spot elevations, profiles, typical sections, or a combination of these three methods.
New and existing grading contours with spot elevations and contours, as necessary. Contours shall not be greater than 0.25 meters.
Complete storm drainage systems with manholes, inlets, headwalls, etc.
Locations of additional required soil borings
Storage area for stockpiled topsoil.
Limits of construction and limits of grading.
Berms, swales, flumes, etc.
Temporary erosion control measures.
Area for Design/Build Contractor's storage, office, parking, and staging.
Temporary Fence.
Retention basins.
Underdrain drainage system.
Set elevations for all buildings, foundations, manholes, etc. to a fixed elevation datum.

d. Site Utility Plan

Routing of sewer, water, gas, telephone, communications, steam, chilled water, electrical and all other utility services.

e. Site Details

Profile of gravity flow systems
Paving section details including transition details between pavement types and pavement edge details
Temporary markings and barricades.
Pavement marking
Identify type of new surfaces and provide joint patterns in new concrete paving
Concrete paving construction, contraction and expansion joints
Details of at-grade foundations
Sidewalk details

Traffic sign details
Drainage inlet and outlet details
Manhole details
Curb details

f. Landscaping

Limits and layout of planting, seeding, sodding, ground cover and irrigation system
Plant Lists
Planting and irrigation system details

3.4.4.2 Structural Drawings:

a. Structural Notes

Design statements shall be made on these drawings such as design loads, design codes, allowable soil loads, etc.

b. Foundation Plans and Details

c. Roof and Wall Framing and Construction Details

d. Steel Details

e. Schedules

3.4.4.3 Architectural Drawings:

a. Plans

Demolition Plans
Overall Floor Plans
Enlarged Floor Plans
Ceiling Plans
Roof Plans
Life Safety Plans
Furniture, Furniture Systems and Equipment Plans
Signage Plans

b. Elevations

Exterior Building
Interior Toilet room, etc.

c. Sections and Details

Building Section

Wall Sections
Windows and Doors Details

d. Schedules

Door and Windows/Hardware
Room Finish
Signage
Furniture and Equipment

3.4.4.4 HVAC Drawings:

a. Plans

Overall floor plans - Layout of A/C units and ductwork, complete under-floor (computer room raised floor areas) piping and equipment plans.
Location of all major equipment requiring HVAC.
Enlarged floor plans - Mechanical rooms, pump rooms, mechanical equipment areas, and any specialty areas.
Demolition plans.
Mechanical roof plan, including all equipment serving user equipment.
Mechanical Site Plans, Including all equipment yards, etc
Mechanical Controls Drawings.

Section and Details

Mechanical rooms.

c. Schedules

Mechanical equipment schedules for all equipment items.

d. Schematics

Chilled and hot water piping schematics.

e. Additional Information

Mechanical Equipment Catalog Cutsheets

3.4.4.5 Plumbing Drawings:

a. Plans

Overall floor plan - Layout of all plumbing and piping, including below concrete and raised computer floor piping plans.
Location of all major equipment requiring plumbing.

Enlarged floor plans - Restrooms and specialty areas.
Demolition plans.

b. Schedules

Plumbing equipment schedules for all items.

c. Schematics

Sewer Piping Schematics
Cold Water piping Schematics
Domestic Hot Water Piping Schematics

3.4.4.6 Fire Protection Drawings:

a. Plans
b. Enlarged plans and sections for fire pump room
c. Schedules
d. Details
e. Schematics

3.4.4.7 Electrical Drawings:

a. Site Electrical Plan

All electrical and communication services shown and sized.
Transformers and vaults.
Exterior equipment such as illuminated signs, etc., shown with service.
Exterior lighting plans and details.
Electrical feeds to all equipment.

b. Lighting Plans

Layout of all lighting fixtures with circuits.
Identification of emergency light fixtures.
Lighting panels and transformer(s). Lighting Panel Schedule.

c. Power Plans

Layout of all receptacles, including junction boxes if required.
Location of electrical disconnects for special equipment.
Power panels and transformer(s). Panel schedules.
Location of all major equipment requiring power.
Preliminary one-line diagram.
Motor Control Center Schedule.

d. Additional Information

Lightning Protection layout and details.
Electrical, Security, Communication Equipment Catalog Cutsheets
Voltage Drop Calculations.
Preliminary light and power load calculations.
Fault calculations
Electrical Fire Detection Plan
Fire Alarm Riser Diagram.
Security System layout and Details
Furniture Systems Panel Plan with Data, Communication & Power.

c. Design Analysis: The Design Professional shall prepare an independent Design Analysis and calculations (Part 1-60% Design & Part 2-100% Design) necessary to confirm and support all design documents submitted for approval. At a minimum the Design Analysis shall include Site civil calculations, structural calculations, life safety & building code analysis, HVAC analysis and calculations, sprinkler system analysis, electrical load analysis and calculations, electrical short circuit and protective device coordination analysis & calculations.

d. Specifications

(1) Specifications for the sitework, utilities, and building foundations shall be 100% Complete. Specifications for architectural, structural, mechanical, and electrical work shall be 60% complete.

(2) Specifications for architectural, structural, mechanical, and electrical work shall be 100% complete.

e. Rendering and Rendering Photography

30 days after award of the D/B Contract, the D/B Contractor shall submit one copy of a 20" x 24" black and white perspective sketch to both WPAFB CE staff and AFMC staff for review and comment.

The final color rendering illustration shall be submitted as part of the 60% Design Submittal. This final rendering shall incorporate changes required by the WPAFB Civil Engineering staff and AFMC staff review comments.

The final architectural illustration shall be prepared in a format that will permit color photographic reproduction with no borders or edges visible. The drawing will be approximately 20" x 24" in size, on illustration board or on rag content paper mounted on illustration board. The perspective will be from an eye-level or low-level aerial point of view that will highlight the most attractive features of the building. The rendering shall show the featured project in accurate perspective view with realistic color, shades, and shadows. Appropriate entourage shall be included to include realistic landscaping, vehicles, personnel or other features at the discretion of the artist. Overall effect of the illustration shall be an attractive and accurate portrayal of the completed project suitable for public display by the Government.

The drawing will be rendered in ink and permanent colors that are conducive to color photography. The Design/Build Contractor shall also furnish and distribute the following:

a. WPAFB Civil Engineering: 1-full-size framed photographic reproduction and 1-35mm color slide of final rendering
b. AFMC: 1-full-size framed photographic reproduction and 1-35mm color slide of final rendering
c. WPAFB Sensors Directorate: 1-framed original of rendering and 1-8 x 10 photographic reproduction and 1-35mm color slide of final rendering
d. WPAFB COE Area Office: 1-8 x 10 photographic reproduction and 1-35mm color slide of final rendering
e. Louisville District COE: 2-8 x 10 photographic reproduction and 1-35mm color slide of final rendering

The prints and slides will be of professional quality and will accurately reproduce the color and detail of the original.

f. Architectural Photography: Within 6 months after building occupancy the Contractor shall provide photography of 4 exterior and 6 interior views as selected by the Government. Three sets of 8 x10 color prints and 35 mm color slides of each view shall be provided.

g. Submittal Register: The Contractor shall prepare the Submittal Register and submit it with his design (see Specification Section 01331). All shop drawings and other construction submittals shall be reviewed and stamped as approved by the appropriate professional in the contractor's design team, before submitted to the Government.

h. Preparation of DD Form 1354 (Transfer of Real Property): This form itemizes the types, quantities and costs of various equipment and systems that comprise the project, for the purpose of transferring the new construction project from the Corps Construction Division to the Installation's inventory of real property. The Project Engineer will furnish the contractor a project specific DD Form 1354 checklist. This checklist will be used as a guide in preparation of the project draft DD 1354. The contractor shall prepare the draft DD 1354, and submit it with the final design. Submit an updated or corrected checklist and draft DD 1354 with the certified final design. The Corps will use these documents to complete the final DD 1354 upon completion of construction.

i. Structural Interior Design (SID) with Exterior Color Boards

(1) Interior Finishes Boards

Prepare and submit two original copies of the interior building finishes approved at the 60% Design. Finishes boards shall incorporate all comments and changes approved at the 60% Design.

At a minimum, Finishes Color boards shall include original color samples of the following:

All wall finishes (paint, vinyl, tile, etc.). Provide information regarding tile patterns, etc. where applicable.
All flooring finishes (carpet, tile, vinyl composite tile, etc.). Provide information regarding tile patterns where applicable.
All ceiling finishes (acoustic tile, paint, etc.)
All millwork materials and finishes (cabinets, counter tops, wood doors, etc).
All doors, windows and building equipment and accessories

Each item on the Finishes Boards shall be identified and keyed to the floor plans to provide a clear indication of how and where each item will be used.

(2) Exterior Finish Boards

Prepare and submit for approval two copies (boards) (8-1/2" x 11", 3-ring binder format) of the exterior building materials approved at the 60% Design. Exterior materials boards shall incorporate all comments and changes approved at the 60% Design.

At a minimum, the Exterior Building Materials Board shall include original color samples of the following:

Roofing Material
Brick Samples
Precast Panel
Granite
Glass
Pavers
Exposed exterior metals (including exposed flashings)
Window & door finishes
Specialty items

Each item on the Exterior Building Materials Board shall be identified and keyed to the building elevations to provide a clear indication of how and where each item will be used.

j. Comprehensive Interior Design (CID)

(1) If the Government has decided to award the CID Option, the D/B Contractor shall prepare and submit for approval two copies (3-ring binder format) of the final updated Comprehensive Interior Design. Submittal should include materials color and pattern scheme approved at the 60% design.

(2) At a minimum, the CID submittal shall include the following:

i. Floor Plans showing locations and quantities of all *furniture systems workstations and freestanding furniture* proposed for the building. Each room shall be keyed to a large scale Furniture Placement Plan showing the furniture configuration, and providing a detailed inventory (manufacturers product number & description) of all furniture.
ii. Illustration Sheets (keyed to the Furniture Systems Workstation and Freestanding Furniture Plans) shall be provided for each piece of furniture. Illustration sheets shall include the following information: Item name, Room location, Finishes Samples (including product name & number), plan Key code, Description, and Illustration.
iii. Furniture Electrical and Telecommunications Plans. Plans shall include locations and quantities of outlets for each work station (i.e. desk or counter) and point of connection for service. Electrical outlets and telecommunication receptacles shall be clearly identified to indicate the type of outlet proposed.
iv. Interior Signage Location Plans showing location and quantities of all interior signage. Each interior sign shall be keyed to a quantitative list indicating size, quantity of each type and signage text.

(3) Final installed project documentation shall include:

Shop Drawings - one set of sepia or mylar drawings capable of reproduction and four sets of prints showing the proposed systems furniture/prewired workstation

Installation for the entire project. The drawings shall be at a scale of 1/4" - 1'-0" and shall include:

a. Floor plans of all floors showing all workstations and all system furniture core units and components. Identify all workstations by workstation type.
b. Dimensioned workstation isometrics or elevations with all components identified by the manufacturer's catalog numbers.
c. Floor plans dimensioned from finished face of walls, columns and partitions and keyed to a furniture schedule describing colors, finishes, sizes and types. Floor plans shall include all power poles, base power inlets, necessary wall mounted molding and all activated electrical outlets.
d. Floor plans showing all EDP wiring and equipment locations.
f. Floor plans showing all local area network wiring and equipment.
g. Manufacturer's Literature:
i. Three sets of product assembly manuals which describe assembly and reconfiguration procedures.
ii. Three sets of product maintenance manuals which describe proper cleaning and minor repair procedures.
iii. Inventory Listing - one complete listing of all installed CID items installed by the Contractor (except waste receptacles and paper management accessories) shall be provided within 60 days after completion of the installation.

3.4.5 NOT USED.

LIST OF ADDRESSES FOR REVIEWS

ORGANIZATION	ABBREVIATION	COPIES (1)	CID	SID
Army Corps of Engrs, Louisville ATTN: CELRL-ED-MA (T Walker) 600 Dr. M. L. King Jr. Place Louisville, KY 40202	CELRL-ED	8	1	1
Army Corps of Engrs WPAO 2475 K Street ATTN: CELRL-CD Bill Gerard, MCLARE Building 52, Room 135, First Floor, Area B WPAFB, OH 45433-7642	CELRL-CD	1	1	1
Air Force Base Engineering ATTN: 88 CEG/CECW (Beth Dobson) 5151 Wright Avenue Wright-Patterson AFB, Ohio 45433-5339	88 CEG	8	1	1
Air Force Base Engineering ATTN: 88 CEG/CECW (D, Tischler) 5151 Wright Avenue Wright-Patterson AFB, Ohio 45433-5339	88 CEG	1		
Air Force Material Command ATTN: HQ AFMC/CECC (M. Bartell) 4225 Logistics Avenue, Room A107 Wright-Patterson AFB, Ohio 45433-5745	HQ AFMC	1		1
Air Force Wright Labs - Sensors ATTN: AFRL/SNOX (Demers) Area B, Bldg 620 2241 Avionics Circle, Ste 18 WPAFB, OH 45433-7320	AFRL/SNOX	2	1	1

Air Force Base Environmental ATTN: 88 ABW/EMP (Sandy Henry) Building 89, Door 8 5490 Pearson Road Wright-Patterson AFB, Ohio 45433-5332	88 ABW/EMP	1

(1) All 60% and 100% design submittal items (drawings, specifications, analyses, cost estimates, etc.) identified herein that are not included in the CID & SID requirements.

END OF SECTION

SECTION 01013

GENERAL DESIGN REQUIREMENTS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

The work consists of the design and construction of a three story with basement handicap accessible (ADA compliant) addition (hereafter called Avionics Research Lab Phase IIIA) to Building 620 at Wright-Patterson Air Force Base, Ohio. The facility shall consist of a minimum of 5962 m^2 total area. The design and construction shall comply with the outline specifications and requirements contained in this Request for Proposals (RFP). The design and technical criteria contained and cited in this RFP establishes minimum standards for design and construction quality. The new addition includes the following:

Basement Area: 151 m^2 basement constructed as two separate areas with one area matching the finish floor of the existing basement in Phase I Addition and the second area matching the finish floor of the existing basement in the B620 Northeast Wing. A utility chase may be required to connect the two basement areas.

First Level: 2008 m^2 area consisting of classified computer laboratory space, a computer center, three SCIF areas, separate Government and Contractor work spaces, and Conference Room. Additional spaces include Secure Receiving area with loading dock, Van Storage, and support spaces. Support spaces include mechanical, communication and electrical rooms, corridors, separate men and women toilet rooms, elevator and elevator equipment room, and two remote exit stairs. Some of these spaces require 450 mm raised computer flooring. The first level is to be designed and constructed for 61 staff personnel, 10 visitors, 2 vehicles and to contain the primary mechanical systems for the addition. The Design-Build Contractor shall relocate utilities in conflict with the design and construction of the Mechanical Louver Well adjacent to the B620 Northeast Wing. An underground communication duct may be in conflict with the louver well. The Design-Build Contractor shall design and construct toilets with accessories, locate fire extinguishers with cabinets and electric water coolers (EWC's) in accordance with the applicable codes. Finish floor of the first level is to match the first level of the adjacent Phase I addition. Two personnel door connection points from the first level of the Avionics Research Lab Phase IIIA to the Phase I addition are required. No personnel connection point is to be made to the B620 Northeast Wing.

Second Level: 1892 m^2 area consisting of classified computer laboratory space, Data Storage, TS/SAR computer laboratory space, six separate TS/SAR work rooms, Combat Command Center with support spaces, Security Waiting Room and Security Office, Government and Contractor work space, and Conference Rooms. Support spaces include mechanical, communication and electrical rooms, corridors, separate men and women toilet rooms, elevator, and two remote exit stairs. Some of these spaces require 450 mm raised computer flooring. The second level is to be designed and constructed for 113 staff personnel and 10 visitors. The Design-Build Contractor shall design and

construct toilets with accessories, locate fire extinguishers with cabinets and electric water coolers (EWC's) in accordance with the applicable codes. Finish floor of the second level is to match the second level of the adjacent Phase I addition. Two personnel door connection points from the second level of the Avionics Research Lab Phase IIIA to the Phase I addition are required. No personnel connection point is to be made to the B620 Northeast Wing.

Third Level: 1892 m^2 area consisting of classified computer laboratory space, a computer center, two separate SAR/SAP area, a SCIF area, classified and non-classified network rooms, and separate Government and Contractor work spaces with separate Government and Contractor Conference Rooms. One 3" conduit shall be run from the Classified Network Room, Room 323, to B620 Control Room. Support spaces include mechanical, communication and electrical room, corridors, separate men and women toilet rooms, elevator, and two remote exit stairs. Some of these spaces require 450 mm raised computer flooring. The third level is to be designed and constructed for 98 staff personnel and 10 visitors. The Design-Build Contractor shall design and construct toilets with accessories, locate fire extinguishers with cabinets and electric water coolers (EWC's) in accordance with the applicable codes. Finish floor of the third level is to match the third level is to match the third level of the adjacent Phase I addition. Two personnel door connection points from the third level of the Avionics Research Lab Phase IIIA to the Phase I addition are required. No personnel connection point is to be made to the B620 Northeast Wing.

Roof Area: The roof is to be the termination point of one of the two new stair towers (the southwest tower, consisting of 19 m^2 area) with direct access onto the roof from a personnel door required. The base bid roof is to contain a 16 m^2 area with 4 tether anchors each for two satellite dishes (weighing approximately 1000 Kg each) with personnel access from the stair tower door. Two 8" communication conduits and cables shall be run from the satellite area through the roof to the Room 207, CCC Control Room. Placement of mechanical equipment on the roof is prohibited.

The base roofing system shall be a built-up roof system. As a bid option (Bid Option No. 2), the Design-Build Contractor shall propose the substitution of a structural standing seam metal roof system (SSSMR). The Design-Build Contractor shall design and construct area for the satellite dishes for the SSSMR bid option on either the new SSSMR or an adjacent B620 roof. The D/B Contractor shall consider transmission losses for the cable connections on the remote area design. EPDM roofing system is prohibited as part of this project.

Sitework: Bid Option No. 1 site work includes the design and construction of the parking lot, sidewalks, parking lot landscaping, lighting and drives north of the Avionics Research Lab Phase IIIA. Parking for a minimum of 149 vehicles plus 4 handicap spaces shall be provided. Two entrances into the parking area from Thirteenth Street are required. Concrete walkways from the parking area to the Phase I Building Entry are required. Base proposal shall include landscaping at the facility. Base proposal shall include sufficient redesign of the north area to provide adequate site storm drainage. Base proposal shall relocate the cooling tower adjacent to the B620 Northeast Wing. Base site

work at the south of the Avionics Research Lab Phase IIIA shall include modifications to the existing service area. The existing electrical transformer shall be relocated. Paved vehicle drives to the new loading dock, Van Storage (2 bays) and Mechanical/ Electrical area shall be provided. Site work includes curbs and gutters, walkways, utility distribution systems and service lines, communication work, traffic signage in and around the north parking lot and south service area, rough and finish grading, excavation and earth work, and surface and underground storm drainage. All new utilities and extensions from existing utilities shall be placed underground. Replacement/relocation (outside the new building footprint) of the subsurface drainage well (currently located within the new facility footprint) is required.

Communication Work: Communication work includes relocation of fiber optic and copper lines from manholes north of the Avionics Research Lab Phase IIIA addition. This portion of the work is described in full in the E801 through E807 drawings included with the drawings in Appendix C and the Statement of Work and specification sections included in Appendix H. The Design-Build Contractor shall construct this portion of the work.

The D/B Contractor shall design and construct the premises distribution system for the LAN system as described elsewhere in this section and in Appendix H. The D/B Contractor shall also provide construction support for the Government purchase and installation of the communication rack in existing Room 133, Phase I Addition. This work is described elsewhere in this section and in Appendix H.

1.2 ADDITIONAL REQUIREMENTS

1.2.1 Design Freedom:

Requirements stated in the RFP are minimums. Preliminary Program in Appendix A and the RFP drawings contained in Appendix C convey the minimum basis for design requirements for the Phase IIIA Addition. Deviations from space and adjacency requirements are discouraged unless the change results from structural system interface or Building Code/Life Safety requirements to the Avionics Research Lab Phase IIIA. Deviations from any requirements should be clearly noted and justified in the proposal.

1.2.2 Design Quality:

The design and construction objectives are to obtain the highest quality, energy efficient building addition compatible to the adjacent building with complimentary site development within the funds available.

1.2.3 Energy Conservation:

The building and systems shall be designed in accordance with ASHRAE Standard 90.1-1989, Energy Efficient Design of New Buildings, System/Component Method.

1.2.4 Recovered Material Requirements for Construction:

The Design/Build Contractor shall comply with Environmental Protection Agency (EPA) mandates contained in RCRA Section 6002(i) for recycled or recovered materials on EPA Designated Items. These EPA requirements are available from the Louisville COE.

1.2.5 Materials of Construction

All materials of construction shall be asbestos free and PCB free. Lead-base paint is not to be used except in accordance with the guidelines described in the specifications.

In addition to meeting Recovered Materials Requirements for Construction guidelines, the selection of finish materials, equipment and systems shall include consideration of maintenance ease and cost. Avoid products that require continuing maintenance.

1.2.5 Technical Criteria:

Technical criteria to be used for the design and construction of this project shall be taken from the most current reference at the date of issue of the Request for Proposal (RFP) and shall only be modified as described herein and in the included specification sections. Where conflicts in criteria or RFP requirements occur, either between this RFP document and the listed criteria or between separate listed criteria, D/B Contractor shall provide the more stringent criteria.

In addition to the standards, bulletins and handbooks referenced in the specifications, the following criteria are to be used for the design and construction of this project:

Corps of Engineers Guide Specifications, Electronically available on the Huntsville COE web site, <http:\\www.hnd.usace.army.mil.techno/index.htm>or other recognized specification formats such as MasterSpec, SpecsIntact or others as approved by the Contracting Officer.

Architect-Engineer Guide for Military Construction, 2 February 1995.

Louisville District Standard Procedure for Architect-Engineer Design Services.

Base Facility Standard, Wright-Patterson AFB, Ohio, September 1997 (to be used for general guidelines where specific guidelines are not provided in this RFP)

GSA Metric Design Guide, 1994.

MIL-HDBK-1008C- Military Handbook: Fire Protection for Facilities Engineering Design and Construction, 1997;

Uniform Building Code; 1997 edition.

1.2.6 Drawings, Specifications, Calculations:

All project design and construction drawings, specifications, and calculations are to be accomplished in hard metric values.

1.2.7 Building Codes, Life Safety:

A complete building code and life safety analysis shall be performed by the Design/Build Contractor as part of this project in accordance with MIL-HDBK 1008C - Military Handbook: Fire Protection for Facilities Engineering Design and Construction using the latest edition of the UBC and NFPA 101, Life Safety Code. Allowable Area, Separation Wall and Egress calculations shall be performed. This required Building Code and Life Safety Analysis shall analyze the impact of the Avionics Research Lab Phase IIIA on the existing Phase I Addition and B620 Northeast Wing building code and life safety systems. Deficiencies in the Phase I Addition and B620 Northeast Wing that require modifications as a result of this analysis shall be made as part of this RFP project.

The area separation walls, floor/ceiling and ceiling/ roof assemblies required between the existing Phase I Building and the Avionics Research Lab Phase IIIA and the B620 Northeast Wing and the Avionics Research Lab Phase IIIA shall be rated assemblies in compliance with the current UBC code requirements. Existing wall construction shall not be construed to meet current fire-rated assembly requirements unless documented to do so by the Design/Build Contractor or waivers are granted by the MAJCOM Fire Protection Authority Having Jurisdiction. In lieu of documentation or AHJ waivers, fire-rated assemblies shall be constructed as required by the Building and Life Safety Code analysis.

Additional area separation and fireproofing may be required in the Avionics Research Lab Phase IIIA based on the preliminary Fire Protection/ Life Safety Review provided in Appendix B and the Design/Build Contractor’s Building and Life Safety Code Analysis.

New egress element and corridor shall be required to be designed and constructed by the D/B Contractor in accordance with UBC and NFPA 101, Life Safety Code, at the northwest corner of the B620 Northeast Wing due to the removal of the existing open fire escape stairs.

1.2.8 Fire Protection:

The Avionics Research Lab Phase IIIA shall be designed and constructed with an approved fire protection system in accordance with NFPA 13. The addition shall be serviced with an approved fire sprinkler system. A preaction system is required. Fire alarm system shall be integrated with the existing B620 fire alarm system. Refer to paragraph 1.12 of this section for additional information.

1.2.9 Environmental:

1.2.9.1 Design Criteria:

1. Executive Order 11514, Protechnical Enhancement of Environmental Quality, march 5, 1970 as amended by Executive Order 11991, May 24, 1977.

2. Public Law 95-217, Clean Water Act of 1977, as amended.

3. Clean Air Act, Public Law 95-90, Clean Air Act, as amended.

4. Solid Waste Disposal Act and Public Law 94-469 as amended.

5. Toxic Substances Control Act, Public Law 94-469 as amended.

6. Executive Order 12088, Federal Compliance with Pollution Control Standards, October 13, 1978.

7. Executive Order 12316, responses to Environmental Damage, August 14, 1981.

8. 42 U.S.C. 9601, Comprehensive Environmental Response, Compensation and Liability Act of 1980.

1.2.9.2 Permits:

The Design/Build Contractor shall develop and maintain the Environment Permit Matrix (sample form included in Appendix G) in accordance with Louisville District, COE standards. Ohio EPA's NPDES General Permit for Construction Sites, including the filing of a Notice of Intent (NOI) and preparation of a site specific Storm Water Pollution Prevention Plan (SWPPP) shall be required by the D/B Contractor as part of the design and construction of this project. Other permits may be required. The Design/Build Contractor shall acquire the proper permitting forms, fill out the permitting forms with the required data and submit the completed forms to the WPAFB Office of Environmental Management, 88 ABW/EMP, for final review and processing. The Design/Build Contractor shall be responsible for the preparation and payment of all required permits. The WPAFB Office of Environmental Management shall obtain the actual permits.

1.2.9.3 Hazardous Materials:

It is anticipated that the design and construction of this Avionics Research Lab Phase IIIA will encounter hazardous materials as described below. When these documented hazardous materials are encountered, standard WPAFB specification sections for the removal and disposal of asbestos-containing materials, PCB's, lead-base paints and refrigerants (included in this RFP as part of Appendix G) shall be utilized. The Design/Build Contractor shall include the work at these known hazards as part of the base proposal. Based on a Hazardous Materials Survey done by WPAFB staff, the following hazardous materials will be encountered in and around B620 Northeast Wing:

1. The floor tile and mastic are positive for asbestos. Design/Build Contractor shall remove tile and mastic where indicated on drawings in accordance with specification section 02081, paragraph 3.1.B.

2. All painted surfaces contain lead-base paint. Work indicated on drawings that requires disturbing existing painted surfaces shall follow specification 02090 and OSHA regulation 29 CFR 1926.62. Any worker disturbing the painted surfaces shall have an Ohio Workers Lead License.

3. All existing underground utilities are considered to contain asbestos. All connection points between new and existing utilities required by the Design/Build Contractor's proposal shall remove asbestos in accordance with the provided specifications.

4. The D/B Contractor shall provide an asbestos competent person (as defined by the Ohio Department of Health training requirements) present during all excavation to identify any suspect asbestos materials on underground utilities. If any suspect asbestos is discovered, the D/B Contractor shall stop work immediately in that work and notify the Contracting Officer.

If any additional hazardous materials are discovered or suspected as part of the required work, work in the contaminated area is to cease and the Contracting Officer is to be notified immediately. Testing and documentation of materials suspected to contain these hazards are to be tested by an independent lab at the direction of the Government. Testing and removal of these additional hazardous materials is to be done in accordance with the provided WPAFB hazardous material specifications as a negotiated modification to the base contract.

1.2.9.4 SHPO Requirements:

Building 620 is designated by the Ohio State Historic Preservation Office (SHPO) as an historic building of the Cold War era. SHPO review and approval of the Avionics Research Lab Phase IIIA is required. An additional 60 days for SHPO review and comments have been added to the review time of the project.

1.2.10 Modifications to the Existing Building

Modifications to the existing construction of both the Phase I Addition and the B620 Northeast Wing is required as part of this contract. Modification work includes but is not limited to the following:

1. Utility connections to Phase I Addition and B620 Northeast Wing. This includes rerouting of any conflicting utilities through the new mechanical louver well.
2. Structural Modifications to Phase I Addition and B620 Northeast Wing at connection points.
3. Structural Modifications to B620 Northeast Wing at new egress element (as required by Design/Build Contractor's proposal).
4. Infilling of windows and louvers to Phase I Addition and B620 Northeast Wing.
5. Replacement of finishes in corridors in Phase I addition along east walls where windows have been infilled.
6. Security System connections and integration with the existing B620 Security system and the WPAFB base-wide system.
7. Fire Protection system including sprinkler system and fire alarm system connection and integration with B620 fire protection systems.
8. Modifications required by Design/Build Contractor's Building and Life Safety Code Analysis.
9. Modifications required by the hazardous materials removal and/or encapsulation.

10. Modifications required to repair existing finishes and conditions in Phase I Addition and B620 Northeast Wing resulting from the completion of the work for the Avionics Research Lab Phase IIIA RFP.
11. Mechanical and electrical upgrades required to serve the Government-provided communication work in the existing B620 Comm. Room. This work is to include repair and replacement to existing structure and finishes.
12. Replacement and repair to existing structure and finishes in B620 Northeast Wing required by Design/Build Contractor construction of communication work described elsewhere in this RFP.
13. Replacement of the subsurface drainage well.
14. Possible modifications to existing roof and structure due to placement of the satellite dishes on existing B620 roof.
15. Any other modifications described elsewhere in this RFP document.

1.2.11 Handicap Accessibility:

The Avionics Research Lab Phase IIIA shall be designed and constructed in accordance with the ADA Accessibility Guidelines for Buildings and Facilities, 1991 edition, and the latest edition of Uniform Federal Accessibility Standards.

1.2.12 QC Plan:

A Quality Control Plan shall be prepared by the Design/Build Contractor indicating steps taken to assure the quality of design and construction.

1.2.13 Interior Design:

1.2.13.1 Design Criteria:

1. Base Facility Standard, WPAFB, OH. September 1997 (to be used for general guidelines where specific guidelines are not provided in this RFP).
2. AF HDBK 32-1084 Facility Requirements, Chapter 12, Interior Design for Administrative Facilities.

1.2.13.2 Structural (SID) and Comprehensive Interior Design (CID--Bid Option No. 3) packages shall be prepared and submitted by the Design/Build Contractor and approved by the Contracting Officer. The SID package shall include interior and exterior structural finish materials, colors, cut sheets, samples and specifications.

The CID package (Bid Option No. 3) shall include furniture systems, equipment (including user-provided equipment) and furniture placement plans and details, and demountable partitions, and furniture finishes, colors, cut sheets, samples and specifications. The Design/Build Contractor shall coordinate with the facility user, WPAFB, CEG staff and UNICOR in developing the CID package. Seating, furniture systems, shelving systems, furniture and accessories are to be D/B Contractor-Furnished / D/B Contractor-Installed through UNICOR unless specifically waived by UNICOR. Any required furniture or furniture systems waived by UNICOR shall be furnished and installed by the Design/Build Contractor through GSA, and if not available from UNICOR and

GSA, through the open market. No furniture or furniture systems are to be purchased by the Design/Build Contractor until the CID package is approved by the Contracting Officer. All mechanical, electrical, security and communication system modifications required from equipment (both user-provided and Design/Build Contractor-provided), furniture, demountable partition and furniture system requirements shall be coordinated, designed and constructed by the Design/Build Contractor.

1.2.13.3 All exterior finishes (factory and field applied) shall be submitted by the Design/Build Contractor to the WPAFB Architectural Compatibility Manager.

1.2.13.4 All non-security related computers, video-conferencing systems, TV and computer monitors, projectors and other electronic equipment are to be provided by the Government, unless specifically noted otherwise in the Avionics Research Lab Phase IIIA Room Requirements and the Equipment Schedule in Appendix A or the specification sections included as part of this RFP document. The D/B Contractor shall design for the weights and sizes of all new and existing equipment, both government-provided and/or contractor-provided.

1.2.14 Energy Meters:

Energy meters, if required, shall be provided in accordance with Federal Energy Standard A10CFR435@ and ETL-94-2, Meter Utilities. Building meters shall be connected to and compatible with the Base Energy Management Center (EMC) in Building 30022. Refer to paragraph “Electrical Metering” for provisions for electrical metering.

1.2.15 Sound Attenuation:

Sound attenuation (soundproofing) shall be required as part of this project. Wall and floor assemblies shall be designed and constructed to the required STC ratings described in this RFP.

1.2.16 Engineering/Equipment Survey:

The existing equipment and engineering systems required to be relocated or replicated as part of the Avionics Research Lab Phase IIIA shall be surveyed and the design requirements incorporated into the design and construction of this project. The D/B Contractor shall locate all user-provided equipment on equipment plans for approval from the user and coordination with other D/B engineers for the purpose of accounting for equipment weight, size, HVAC, security, communication and electrical requirements.. Additionally, systems are to be surveyed in the Classified and Unclassified Network Rooms currently located in WPAFB B18F, the Hot Bench Lab located in B18F, the ECSRL Lab in existing B620 and the existing rooms in B18F containing equipment to be powered by the GF/CI UPS power system.

1.3 YEAR 2000 COMPLIANT EQUIPMENT

Hardware or Software required to process date and time calculations shall be capable to accurately process date/time data (including but not limited to calculating, comparing and sequencing) from, into, and in between the twentieth and twenty-first centuries, including leap year calculations, when used in accordance with the product documentation provided by the

contractor, provided that all products (e.g. hardware, software, firmware) used in combination with other information technology, shall accurately process date/time data if the other information technology properly exchanges date/time data with it.

1.4 SITE PLANNING

This project consists of a building addition between two existing wings. Site work shall include a parking lot, as a bid option, consisting of a minimum of 149 parking spaces and 4 handicap spaces. The new parking lot shall be asphalt with concrete curb & gutter. Thirteenth Street has no curb & gutter, therefore, no curb cut and removal will be required. Concrete sidewalks shall be provided, as a part of the parking lot bid option, to connect the proposed parking lot with the existing Phase I building entry. If the parking lot option (Bid Option No. 1) is not taken, the D/B Contractor shall provide positive drainage away from the existing B620 facility and the proposed Avionics Research Lab Phase IIIA. The service area south of the Avionics Research Lab Phase IIIA will require site development work. This will consist of modifications to the service court including paving the area south of the proposed Avionics Research Lab Phase IIIA for access to the proposed loading dock area.

Imaginative site design is encouraged. However, the site boundaries and project composition are fixed.

1.4.1 General Criteria:

1.4.1.1 Land Use:

Provide an optimum balance of open space and pedestrian and vehicular circulation consistent with good land planning practices and economics. Minimize paving area.

1.4.1.2 Driveways, parking, and walks:

1.4.1.2.1 Drives/Driveways: Driveways shall be at least 7.3 m wide for each lane of traffic. Pavement for the driveways shall be in accordance with soils report. Maximum gradient permitted will be 6 percent.

1.4.1.2.2 Parking: The parking lot shall include two entrances from Thirteenth Street. The entrances shall be two-way drives and shall be designed as a street for paving purposes. Open parking spaces shall be a minimum of 2.7 m x 6 m.

1.4.1.2.3 Pavement Analysis: Design/Build Contractor shall conduct his own geotechnical investigation for parking lot design to develop the Pavement Analysis based on Louisville COE-provided Geotechnical Report, dated November, 1998 and the Subsurface Condition Summary dated March 10, 1998, both included in appendix D.

1.4.1.2.4 Walks: Walks shall be provided to allow pedestrian circulation between the parking lot and the Phase I building entry. Walks shall be a minimum of 1.8 m wide exclusive of curb width, and made of nonreinforced concrete with a minimum thickness of 102 mm. Where walks are adjacent to the curb, the curb width is not to be included as sidewalk.

1.4.1.3 Existing Steam Trench: The existing steam trench runs through the proposed parking lot (bid option). Information regarding the dimensions and wall thickness were not available at the time of preparation of this RFP. It shall be the responsibility of the design/build team to fully investigate the steam trench and design the parking lot so that no damage is done to the steam trench. The existing steel plate access lids shall be replaced with new lids able to withstand traffic loading.

1.4.2 Landscaping:

Landscaping with trees and shrubs is a mandatory requirement for this project. Preservation of existing mature trees is desirable. A complete integrated landscaping design shall be provided for the overall project including the site restoration made necessary by demolition and construction activities as required in paragraph 1.2.1 in Specification Section 02900. Landscaping shall be performed to match the landscaping of the existing historic facility. The landscape design is required to be submitted and approved as part of the SHPO design review at 60%. Landscaping associated with the parking lot option is part of Bid Option No. 1.

1.5. SITE UTILITIES

1.5.1 Water Distribution System:

1.5.1.1 Connection to the Existing Water Distribution System:

Connection to the existing water distribution system shall be made north of the Avionics Research Lab Phase IIIA into the existing 8" water main. A separate fire line and domestic line shall be provided from the existing 8" water main. The Design/Build Contractor shall design and size the fire and domestic lines.

1.5.2 Sanitary Sewage System:

1.5.2.1 Connection to the Existing Sewage Collection System:

The existing sanitary sewer system serving B620 is currently at capacity. A new sanitary sewer has been constructed north of B620 along the north side of Thirteenth Street (also referred to as the “cross-connect” project). The sanitary sewer from the new Avionics Research Lab Phase IIIA shall exit the building from a new sewage ejector located inside the building (see mechanical section for location). The sewage shall then be pumped approximately 90 m into the nearest manhole along the “cross-connect” project.

The sewage system shall be designed and constructed in accordance with the Uniform Plumbing Code, community, and base requirements. All design flow will be calculated using the Manning formula. Manholes are required at all changes of direction and spaced not more than 152 m apart. Mains shall be a minimum of 150 mm in diameter. Curved sewers are prohibited. Pipes shall be designed to flow full and maintain a velocity of 0.6 m per second. If siphons are used, two lines of equivalent capacity shall be used with cleanouts. Force mains shall be sized to minimize pumping head, with a 0.6-1.5 m per second velocity. The area south of the lab addition will be excavated and paved, and the existing sanitary sewer appears to be too shallow to accommodate

the grades needed for the pavement. A lift station shall be provided in this south area. The safety disconnect for this lift station shall be located within sight of the lift station pumps. The controls for this lift station are to be placed in Room 118. The Design/Build Contractor shall provide all necessary studies to size the systems, and then design and construct the sewage ejector on the north and the south lift station.

1.5.3 Storm Drainage System:

The storm drainage system for the parking lot shall connect to the existing inlet located northwest of the proposed lot. Roof drains from the Phase IIIA Lab Addition shall connect to the existing storm drainage manhole located north of the proposed lab.

1.5.3.1 Coordination with Surrounding Properties:

The storm drainage system shall be properly coordinated with surrounding properties to insure that runoff does not cause damage to other properties. All drainage lines, if required, shall remain in conduit to stable grade.

1.5.3.2 Drainage of Roads and Pavements:

Provide a positive crown or sheet drainage to all streets and roads. Open areas shall be drained by field inlets and an underground collection system. Overland flow shall be held to a minimum.

1.5.3.3 Specific Storm Drainage Criteria:

Storm drainage catch basin system shall be designed to carry the 10-year storm based on the Ohio Department of Transportation Drainage Standards. Connections to the existing storm drainage system will be verified for capacity and the existing lines increased to adequate capacity or rerouted as necessary. Sinkholes will not be used to collect storm drainage, unless approved in writing by the Base Engineer.

Subsurface Drainage Well - The existing subsurface drainage well shall be relocated south of the Phase IIIA Lab Addition. The well is for permanently maintaining the water level no higher than elevation 290.63 outside of the basement walls at the subject structure. Drainage pipes shall be placed along the outside of the electrical room in the basement of the Phase IIIA Lab Addition. These pipes shall connect to the existing system that runs along the east side of the Phase I Addition and connect to the new well location. See Appendix D, section b. Subsurface Condition Summary, for more information regarding the existing subsurface drainage well.

1.5.3.4 Minimum Design Velocity:

The minimum velocity of flow in conduits during a design storm shall be 0.75 m per second.

1.5.3.5 Manhole Spacing:

Manholes shall be located at intersections and changes in alignment or grade. Intermediate manhole’s maximum spacing shall be 76 m for pipes 900 mm or less in diameter or box drains

with the smallest dimension less than 900 mm. Maximum spacing for intermediate manholes on larger pipes and drain boxes shall be 152 m.

1.5.3.6 Grates and Covers:

Inlets will have openings sized to carry the inflow but will not have openings large enough to catch a bicycle tire or child's foot. Grates and covers will be secured or locked so as to be non-removable without a special tool.

1.5.4 Gas Distribution System:

Not required at this time.

1.5.5 Electrical Distribution:

1.5.5.1 Connection to Existing System:

Connection to the existing electrical distribution system in Phase I shall be made at the appropriate location(s) which best serve the Avionics Research Lab Phase IIIA.

1.5.5.2 General:

Provide new electrical distribution system as necessary and connect to existing system. Underground distribution shall be in conduit or ducts, unless otherwise directed.

1.5.5.3 Design Criteria:

The electrical on-site distribution system shall be designed in compliance with the rules and recommendations of Wright Patterson Air Force Base Facility Standard, ANSI C2, National Electrical Safety Code, and NFPA 70, National Electrical Code, and applicable local codes.

1.5.5.4 Service Laterals:

Service laterals shall be extended through the existing structure of Building 620 to the adjacent new facility.

1.5.5.5 System Design:

System shall be a normally-open loop system. Secondary feeder cables shall be copper.

1.5.5.6 Service Entrance:

If new service entrance is required, only one service entrance shall be provided for the lab addition. The service entrance conductor shall have a minimum separation of 305 mm from telephone or TV cables. Fault current at the unit service entrance must not exceed 10,000 amps. System shall be designed such that the fault current available at the service entrance equipment will not exceed 10,000 amps.

Relocate existing Distribution Transformer as indicated on Sheet C101. The existing primary feeders will be relocated and reconnected as required by the relocation process. The existing secondary feeders will be relocated and reconnected as required by the relocation process. The relocation process will be coordinated with the Contracting Officer to minimize service interruption to other parts of the B620 complex.

1.5.5.7 Length of Service Laterals:

The length of secondary distribution service laterals from switchboard secondary to building service entrances shall be minimized.

1.5.6 Area Lighting:

Area lighting shall be provided at intervals not exceeding 61 m along area walkways not otherwise illuminated and at all steps in area walkways. Area lighting shall be provided with high pressure sodium lights. Luminaries shall be individually actuated by photoelectric control, and supplied from a multiple circuit originating from the facility switchboard. Lights shall be mounted 9 m above finished grade.

1.5.7 Telephone:

Addressed in Electrical and Communication paragraphs of this Section.

1.5.8 Tracer Wire and Plastic Marking Tape:

Plastic marking tape shall be acid and alkali-resistant polyethylene film, 150 mm wide with minimum thickness of 1 mm. Tape shall have a minimum strength of 12 mPa lengthwise and 10mPa crosswise. The tape shall be of a type specifically manufactured for marking underground utilities. A copper tracer wire shall be placed directly above all non-metallic conduits to provide a means of determining alignment of conduit by metal detecting equipment. The tracer wire shall be brought to the surface at all risers and connection shall be made by split-bolt connectors. Tape color shall be as specified in TABLE 1 and shall bear a continuous printed inscription describing the specific utility. Tape shall be located 300 mm above the pipe in the backfill.

TABLE 1
Tape Color

Red:	Electric
Yellow:	Gas, Oil, Dangerous Materials
Orange:	Telephone, Telegraph, Television, Police, and Fire Communications
Blue:	Water Systems
Green:	Sewer Systems

1.6 ARCHITECTURAL

1.6.1 General Architectural Requirements:

The Avionics Research Lab Phase IIIA shall be designed and constructed by the Design/Build Contractor using the RFP drawings, finish schedule, preliminary program, equipment schedule, Avionics Research Lab Phase IIIA Room Requirements and outline specifications enclosed as part of this RFP as minimum requirements for the development of Construction Documents, and project requirements described throughout this RFP.

1.6.2 Applicable Criteria:

Department of the Army, U.S. Army Corps of Engineers, Louisville District, Architect-Engineer Design Guide for Military Construction, 2 February 1995. Volumes 1 and 2.

BASE FACILITY STANDARD, Wright-Patterson AFB, Ohio, September 1997 (to be used for general guidelines where specific guidelines are not provided in this RFP).

MIL-HDBK 1008C - Military Handbook: Fire Protection for Facilities Engineering Design and Construction, 1994.

1.7 STRUCTURAL

1.7.1 Design Criteria:

Structural design (materials and construction) shall comply with the Uniform Building Code (U.B.C.) and/or as modified herein. Seismic design shall be done in accordance with TI 809-04, Seismic Design for Buildings. Design shall meet the following criteria and the minimum design loads presented herein.

1.7.2 Lateral Resistance:

Walls, when used or required for lateral resistance to wind or earthquake, shall be considered bearing walls and shall have full foundations. Cross bracing or moment resisting frames may be used for lateral resistance provided the horizontal deflection due to wind or seismic forces is limited to the story height divided by 600 for each story.

1.7.3 Construction Tolerances:

Allowable variations from level, or specified slopes, shall be as follows:

For overall length, or surface of 3 m or less: plus or minus 3 mm.

Up to 6 m: plus or minus 6 mm.

Up to 12 m: plus or minus 9 mm.

1.7.4 Embedded Steel:

Nonstructural steel (handrails, etc.) embedded in concrete shall be galvanized steel or painted wrought iron. All damaged galvanized areas shall be repaired prior to embedment.

1.7.5 Minimum Design Loads:

Mechanical Room live load: 7.185 kPa

Receiving & Dock live load: 7.185 kPa

All other floor live loads 4.79 kPa

Partition load 0.96 kPa

Roof live load 0.96 kPa

Ground snow load: 0.72 kPa

Dead load: Actual

*Floor live loads may be reduced as permitted by the U.B.C.

Wind (ANSI/ASCE 7-95):

Wind Velocity: 145 km/hr

Importance Factor: 1.15

Exposure: C

Seismic:

Seismic zone: 1

Seismic Importance Factor: 1.00

1.7.6 Foundations:

Foundation drainage system and waterproofing is required.

Minimum frost penetration depth is 1067 mm. Exercise care that existing foundations are not adversely affected by new construction.

Design/Build Contractor shall conduct his own geotechnical investigation for foundations to develop the Foundation Analysis based on Louisville COE-provided Geotechnical Report, dated

April, 1999 and the Subsurface Condition Summary dated March 10, 1998, both included in appendix D.

1.7.7 Framing System:

Concrete framing, steel framing and load-bearing masonry structural systems are allowable.

Wood and light gage cold-formed members shall not be used for bearing walls or floor/roof systems.

FRT plywood shall not be used in any part of the project.

1.7.8 Depress Structural slabs under all computer floors.

1.7.9 Live Load Deflection Limits:

Roof	Span Length divided by 240.
Floor	Span Length divided by 360.

1.7.10 No columns are allowed in the TS Combat Center on Level two. Arrange all column locations to provide the least interference with the intended usage of each area.

1.7.11 An expansion joint shall be provided between the existing buildings and the new building. No part of the new building shall be supported from the existing buildings.

1.7.12 Demolition/Modifications of Existing Building

Any required removal or modification of existing structural support members shall be accounted for by the strengthening means as determined by a structural analysis performed by a licensed Structural Engineer retained by the contractor. This work includes but is not limited to areas such as near the north stair of Phase 1 and new openings through existing masonry walls.

1.7.13 Additional Design Requirements

It should be noted and considered as part of the Offeror's proposals that the Phase I Addition construction encountered subsurface water. Two drainage wells were constructed as part of the Phase I Addition to alleviate the water, refer to Appendix D, Subsurface Condition Summary. One of these wells shall be relocated as part of this project. Additional drainage well(s) may be required to provide a dry basement for the Phase IIIA Addition.

As part of the requirement for a dry basement and below-grade first floor, the D/B Contractor shall provide a waterproof mud slab or subslab below waterproofed structural slab.

Additional design requirements and criteria are in the Divisions 0 through 16 specifications appendices and the drawings contained in this RFP Manual.

Specific equipment loads are identified in the Avionics Research Lab Phase IIIA Room Requirements in Appendix A. These loads shall be calculated into the design of the facility in addition to general dead load calculations. D/B Contractor shall be responsible for verifying these loads and identifying additional loads.

1.8 THERMAL PERFORMANCE

1.8.1 Thermal Insulation:

Thermal insulation shall have a flame-spread rating of 25 or less and a smoke-development rating of 50 or less exclusive of the vapor barrier when tested in accordance with ASTM E84. A vapor barrier shall be provided on the warm side of exterior wall and ceiling insulation.

1.8.2 Polyurethane

Polyurethane is allowed as an insulation material for slabs and outside concrete or unit masonry walls. It is prohibited as an injected insulation material in walls or floor cavities or within the building envelope.

1.8.3 R values:

The Avionics Research Lab Phase IIIA shall be provided with, as a minimum, R values as calculated in accordance with ASHRAE Standard 90.1-1989.

1.8.4 Air Infiltration:

Air infiltration is a major concern around windows, doors, and mechanical plenums. In this regard, caulking, gaskets or other sealants shall be provided at all exterior walls to prevent leaks at windows, doors, and electrical switches and outlets. Appropriate provisions shall be made in the mechanical load calculations for infiltration.

1.9 MECHANICAL:

1.9.1 General Mechanical Requirements:

The Avionics Research Lab Phase IIIA shall be designed and constructed using the project requirements, system descriptions, Avionics Research Lab Phase IIIA Room Requirements, other appendices and outline specifications enclosed as part of this RFP as minimum requirements. The design build contractor shall use these items as the starting point for developing Construction Documents.

1.9.2 Applicable Criteria:

Refer to Section 15000 for a complete listing of the applicable standard, reference and code criteria.

1.9.3 Mechanical System Description:

The entire facility shall be heated and cooled to the listed criteria. Mechanical spaces shall be heated and ventilated only. Room 118 will be designed and constructed by the D/B Contractor to meet the HVAC requirements of the UPS system. The HVAC system shall utilize central VAV air handling unit(s) with terminal heating. Supply air shall be distributed through ductwork. The return air shall be conveyed through a system of return air plenums, chases and ductwork. Due to constraints of the egress requirements and fire separations dictated by the building code, it will not be possible to use a total return air plenum arrangement. Chilled water will be obtained from the existing chiller system for the Building 620 complex. Steam from the central plant will be converted to heating water for the heating medium. It shall be the responsibility of the Design/build contractor to obtain the system pressures, available flow rates, etc. necessary for the proper design of these systems.

1.9.4 Modification of Existing Room 133 in Building 620:

D/B Contractor shall modify existing Room #133 in B620 to support new telephone switch equipment furnished and installed by the Government. The cooling load for this equipment is approximately 1,900 BTUh. The breakdown of this data is found in Appendix H and is as furnished by the Corps of Engineers. The D/B Contractor shall tap an existing air conditioning duct to cool this room. Room temperature shall be able to be maintained between 59° F and 86° F. The power requirements for this equipment are 208V, single phase, 30 amps each. The D/B Contractor shall tap an existing electrical panel for required power and locate this power in the vicinity of this equipment's location. Refer to additional information in Appendix H.

1.9.5 Relocation of Existing Cooling Tower Serving Building 620:

D/B Contractor shall relocate the existing cooling tower serving building 620 as indicated on sheet C203. D/B Contractor shall be responsible for all associated piping and electrical work involved with reconnecting the cooling tower. The work shall include analyzing the additional length of piping and the effect it has on the pumping hydrology. Any and all corrective work (such as pump replacement and associated electrical and piping work, etc.) required to restore the system to the same flow as it presently has, will be required. The new piping to the new location for the cooling tower will cross below an existing steam tunnel and below and existing concrete encased communications cable duct bank. All due caution shall be exercised when working in these areas so as to not damage the existing utilities or structures.

1.10 ELECTRICAL

The Avionics Research Lab Phase IIIA shall be designed and constructed using the project requirements, system descriptions, Avionics Research Lab Phase IIIA Room Requirements, other appendices and outline specifications enclosed as part of this RFP as minimum requirements. The design/build contractor shall use these items as the starting point for developing the Construction Documents. Based on available information provided by WPAFB personnel, adequate power is available. If this is determined not to be the case by the D/B Contractor, adequate power will be provided by the government. Electrical work described herein shall be above and beyond the requirements listed in the Base Facility Standard.

1.10.1 Conformance to Code:

Perform design and construction in accordance with the latest edition of the following codes and standards. AFR 88-15; AFM 88-19; MIL-HDBK 1190; MIL-HDBK 1008C; NFPA 70, 72, 72E, 72H, and 101; ANSI C2; IEEE Standards 142 and 493; and the IES Lighting Handbook. (Wright-Patterson AFB Standards shall take precedence over the listed standards.)

1.10.2 Service Entrance:

1.10.3 Primary voltage service is not a project requirement. Secondary distribution voltage shall be obtained from an existing switchboard located in the basement of Phase I and shall be 480 Grd Y/277 VAC 3PH4W 60Hz. Connection to the existing switchboard shall require the modification to the existing electrical distribution system by the installation of new circuit breakers in the existing switchboard branch circuit section. The existing switchboard has a power monitor installed to provide the necessary energy metering information. Required down-time for the installation of the new circuit breakers shall be coordinated with the Contracting Officer.

An existing Distribution Transformer will be relocated as indicated on Sheet C101. The relocation and reconnection of the primary and secondary feeders will included in the relocation of the distribution transformer. All required outages will be coordinated with the Contracting Officer to minimize down-time. Complete load calculations shall be provided with the electrical calculations.

1.10.4 Lighting Systems:

Lighting Systems: Interior lighting levels shall be calculated for each room or area using the IES zonal cavity method. Complete tabulation shall be included with the electrical calculations.

General illumination levels shall be provided as follows:

Laboratory areas	753 Lux
Laboratory offices	753 Lux
Corridors	215 Lux
Entry Ways	323 Lux
Mech/Elec Rooms	538 Lux
Comm Rooms	753 Lux
Support Areas	538 Lux

Generally, lighting circuits shall be 277 volt from 20 ampere, single-pole circuit breakers in new 480/277 volt 3-phase 4-wire circuit breaker panelboards, with separate neutral and ground buses. To facilitate lighting control and encourage energy conservation, dual-level light switching shall be provided in the lab areas, and solid-state, electronic ballasts shall be provided in fluorescent fixtures. Fluorescent lamps shall be energy-saving, T-8 type. The Corps of Engineers Standard Fixture Drawing 40-06-04 shall be used to the maximum extent for fixture designations. Provide a standard fixture guideplate for those light fixtures not covered in STD DET 40-06-04.

1.10.5 Power Systems:

Serve the lighting and power loads at the highest voltage practical. Supply fluorescent and high intensity discharge (HID) lighting systems and building power loads with the 480Y/277 volt

system. Provide dry-type transformers to furnish 208Y/120 volt power for incandescent lighting, receptacle, and small equipment loads. Protective devices shall be selectively coordinated for over-load and short-circuit protection. Complete short-circuit and voltage-drop calculations shall be provided with the electrical calculations.

Provide 60 Hz normal power to general purpose loads, receptacles, lighting and other motor equipment. Provide 60 Hz conditioned power to all lab areas and computer centers. Clean and filtered electrical power, utilizing Uninterrupted Power Systems (UPS), will be Government Furnished, Contractor Installed (GF/CI). Clean and filtered electrical power will be provided to Rooms 107, 120, 126, 316, 317, 318 and 320.

1.10.6 Panelboards:

Panelboards: Feeder and Branch circuit panelboards shall be bolt-on circuit breaker equipped, with copper bus bars and nonlinear load type panelboards shall be provided. Panelboards shall conform to NEMA-PB1 and UL 67. Two and three pole circuit breakers shall have a common handle and be mechanically tied. Each panelboard shall be provided with 25% spare spaces and capacity. Where required by the design, non-linear panelboards shall be provided with 200% rated neutrals and rated to carry up to 200% of phase bus current.

Each Laboratory shall be provided with a panelboard to provide 120 VAC power for the Lab Area. Each Panelboard shall be provided with a shunt-trip main breaker for connection to an emergency-off station. Refer to Section 1.10.22.

1.10.7 Light Fixtures:

1.10.7.1 Laboratory Lighting:

Lighting in the Laboratory areas shall be provided with recessed, fluorescent 2' x 4' Parabolic, 18-cell light fixtures, with specular finish. The light fixtures shall be 3-lamp type with T-8 energy-saving lamps, rated 4100K color temperature. Light fixture ballasts shall be solid-state electronic type with THD (Total Harmonic Distortion) rating of 10% or less. Lighting levels shall be 753 lux, maintained.

Lighting illumination level for the laboratory areas shall be 753 lux, maintained. The control of the laboratory light fixtures shall be accomplished with toggle switches only, no special lighting control shall be required.

1.10.7.2 Office Lighting:

Office lighting shall be provided with recessed, fluorescent 2' x 4' Parabolic, 18-cell light fixtures, with specular finish on the cells. The light fixtures shall be 3-lamp type with T-8 energy-saving lamps, rated 4100K color temperature. Light fixture ballasts shall be solid-state electronic type with THD (Total Harmonic Distortion) rating of 10% or less. The lighting illumination level for the office areas shall be 753 lux, maintained. The control of the office lighting shall be accomplished with "dual level switching". Two light switches shall be provided for each office,

one light switch shall control two lamps, and the second light switch shall control the remaining lamp.

1.10.7.3 Emergency Lighting:

Emergency lighting in the new facility area shall be provided by Emergency Battery Packs installed in the light fixtures. The Emergency Battery Pack shall provide 1350 lm with one (1) FO32 4' T8 lamp, and be provided with test switch/monitor. The battery pack shall be replaceable and be high temperature nickel-cadmium. The battery powered emergency lighting shall be provided for egress routes and exit signs, and in accordance with ETL 94-5. The emergency lights shall re-light within 10 seconds after the loss of normal power and shall meet or exceed NFPA 70 requirements, and NFPA 101, Chapter 5, Section 5-9 requirements. The Emergency lighting levels for routes of egress shall be illuminated to 10 lux minimum.

1.10.7.4 Exit Lights:

Exit lights in the new facility shall be vinyl-coated aluminum housing 6V sealed maintenance free battery, with vandal resistant polycarbonate face shield and 80-year LED lamps. The exit lights shall be provided with 6-hour emergency battery run time (with flasher), and 107 lux face illumination to satisfy UL 924 standard illumination requirements. The exit light units shall be provided with a low voltage disconnect, 24-hour recharge time, lockout protection, flasher unit, LED AC indicator, and a push-to-test switch. The exit signs shall be LED and shall conform to the ETL 1110-3-432, and the performance equipments within the ETL.

1.10.7.5 Security Light System:

A security light system shall be provided throughout the new facility to indicate the presence of uncleared personnel present in the area. The system shall consist of a toggle switch and the light fixture(s) shall be red in color, wall-mounted, die-cast copper-free aluminum housing with 100W A-19 lamp and a flasher unit. The unit shall be provided with a thermal shock and impact-resistant glass globe and guard. The unit shall be UL 1572 listed wet location and 55 degree C ambient temperature operation.

1.10.8 Transformers:

ETL 1110-3-412, "Transformer Application Guide", shall be utilized in the selection and application of dry-type transformers. "K-8" factor rated transformers shall be provided and the Contractor shall provide a schedule identifying the "K-8" factor rating for each dry-type transformer. Non-Linear Transformers (K-rated) shall be manufactured and tested in accordance with UL 1561, ANSI/NFPA 70, and NEMA ST20. All insulating materials are to exceed NEMA ST20 standards and be rated 220 degree C at any point in the coils while carrying the full rating of non-sinusoidal load. K-factor rated transformers shall have an impedance range of 3% to 5%, and shall have a minimum reactance of 2% in order to reduce neutral current when supplying loads with large amounts of third harmonic current. Transformers 15 kVA and larger shall have a minimum of 6-2.5% FCAN full capacity primary taps for 480 V primaries, and a minimum of 2-5%FCBN full capacity taps for 208 V primaries. Exact voltages and taps to be as designated on the transformer schedule. Transformer manufacturers shall be registered in accordance with ISO

9001:1994, SIC 3612 (US). (The design and manufacture of low-voltage dry-type power, distribution, and speciality transformers.)

1.10.9 Telephone System:

Unclassified Telephone System: provide the telephone room on the first level with a metal telephone wireway system with screw-down lid under the raised floor area. Provide two (2) wireway systems under the raised floor, one for unclassified communication cable and one for unclassified User LAN/Fiber Optic systems. Wireways shall be minimum of 204 mm wide, 20 mm deep on center. Provide 100 mm conduits from the existing first floor (Room 101A) telephone room in Phase I to the new telephone room in the new facility. Provide metal conduit only, (EMT), for all individual communications conduits. Provide Surge Protection at the new telephone equipment room in accordance with Wright-Patterson AFB communication standards. The telephone system must be installed to meet TEMPEST and SCI installation criteria. Telephones are to be provided by the Government.

All telephone/comm. lines shall be separated from LAN lines by no less than 1 meter.

Provide 2-200 mm conduits from the new satellite dish location to Room 207 in the new facility.

Provide 1-75 mm LAN conduit from both the existing first floor (Room 101A and Room 133) telephone rooms in Phase I to the Room 323 in the new facility.

D/B Contractor shall modify existing Room #133 in B620 to support new telephone switch equipment furnished and installed by the Government. Refer to paragraph “Modification of Existing Room 133 in Building 620" under the major heading of “Mechanical” for the provisions for cooling this room. The power requirements for this equipment are 208V, single phase, 30 amps each. The D/B Contractor shall tap an existing electrical panel for required power and locate this power in the vicinity of this equipment’s location. Refer to additional information in Appendix H.

Premises distribution system shall be designed and constructed by the D/B Contractor. Refer to Appendix H for User-provided data. The Design/Build Contractor shall design, construct and coordinate the premises classified and unclassified inside plant horizontal, riser and backbone distribution system with the Louisville District Army Corps of Engineers, the 88th Civil Engineering Group and Communications Group, WPAFB Tempest Officer, the WPAFB Special Security Officer (SSO) and the WPAFB Systems Telecommunications Engineering Manager (STEM) as required prior to completion of the 60% Design Submittal.

Required modifications of existing comm. lines and system are to be constructed by the D/B Contractor as part of this project. Design of this work is included as part of Appendix H.

1.10.10 Security System:

The Design/Build Contractor shall install wiring and equipment under the Security section of the RFP. The Design/Build Contractor shall closely coordinate the design with the User.

Refer to the Security Section 1.11 provided as part of this section.

1.10.11 Public Address System:

The Contractor shall expand the existing Public Address system in Bldg 620 to the new facility via new conduits, junction boxes and wiring. New speakers and devices shall match the existing PA system and be installed in the main corridors and branch corridors. The P.A. system shall be designed and installed to meet TEMPEST and SCI installation criteria.

1.10.12 Fire Alarm System:

Fire Alarm System: The fire alarm and detection system shall be a complete, supervised fire alarm system and shall be integrated into the existing fire alarm system in Bldg 620. Design and Construction shall be in accordance with the latest edition of the following codes and standards:

NFPA 72	National Fire Alarm Code
NFPA 90A	Installation of Air Conditioning and Ventilating Systems
ADA	Americans with Disabilities Act
UFAS	Uniform Federal Accessibility Standards

Alarm initiating devices shall be connected to signal line circuits in accordance with NFPA 72. The fire alarm system must be designed and installed to meet TEMPEST and SCI installation criteria. The Fire Alarm System shall be a Pre-Action system designed in conjunction with the Fire Sprinkler System. The new Fire Alarm System shall be compatible with the existing CERBERUS System located in the existing Control Room.

A two-loop conduit system shall be provided such that, if any one conduit and all conductors contained in that conduit are severed, all indicating appliance circuits and all signal line circuits shall remain functional. Wiring for this type of system shall not use the same raceway and shall not follow the same path. The contractor shall provide a training schedule for the User, as recommended by the Fire Alarm manufacturer. The following information shall be shown on the project drawings:

On communication floor plans, indicate location of control panel, batteries and charger, annunciator, primary power supply, remote trouble device, remote annunciator, detectors, indicating devices, and each alarm initiating device.

In computer centers with raised floors, smoke detectors shall be provided at the ceiling and under the raised floors.

Show single-line fire alarm riser diagram, zones or zone schedule. Each device on the riser shall be provided with a device number indicating zone location (room number, etc.). Indicate connection of equipment by circuit runs or conduit runs.

Shop drawings and as-built drawings shall be prepared by, or under the supervision of, a qualified technician. A Qualified Technician shall be an individual who is experienced with the type of work specified within, and is currently certified by the National Institute for Certification in Engineering

Technologies (NICET), as an Engineering Technician with minimum Level-III certification in Fire Alarm System Program. Design/Build Contractor shall submit data showing the name and certification of the Technician at or prior to submittal of drawings.

The Design/Build Contractor shall provide documentation demonstrating that its fire detection and alarm installer is currently certified by the National Institute for Certification in Engineering Technologies (NICET) as an Engineering Technician with minimum Level-III certification in Fire Alarm System Program.

1.10.13 Grounding:

Grounding: The ECSRL area shall be provided with a ground plane, providing a minimum of 10 ohms to ground resistance. The ground plane design must be equal in design to a Tempest "Red and Black" design. All ground connections shall be accomplished with compression lugs and fusion welding methods. Fall-of-potential ground testing shall be used to validate grounding. Due to the sensitivity of equipment, the grounding electrode system shall have a maximum resistance of 10 ohms to ground. The contractor shall coordinate with the Contracting Officer if ground resistance of any single grounding electrode is greater than 25 ohms as required (NFPA 70, Article 250-84).

Grounding: The WL/SNA area shall be provided with a counterpoise grounding system connected to the grounding system of the new facility. Single point grounding shall be provided. Fall-of-potential ground testing shall be used to validate grounding. Due to the sensitivity of equipment, the grounding electrode system shall have a maximum resistance of 10 ohms to ground. The contractor shall coordinate with the Contracting Officer if ground resistance of any single grounding electrode is greater than 25 ohms as required (NFPA 70, Article 250-84).Provide grounding conductors in all raceways containing power and lighting conductors.

1.10.14 Lightning Protection System:

A lightning protection system is required for this project and shall be integrated with the existing building lightning protection system. The lightning protection system shall conform to NFPA 70 and 78, and UL 96A, except where requirements in excess thereof are specified. The system furnished shall consist of the standard products of a manufacturer regularly engaged in the production of lightning protection systems and shall be the manufacturer’s latest UL approved design.

1.10.15 Power Conditioning Systems:

Secure & Conditioned Power: The secure & conditioned power requirements for the lab area and computer rooms shall be provided by UPS unit(s) located in the mechanical-electrical room (Room 118). The UPS unit(s), furnished by the Government-installed by the D/B Contractor (GF/CI), shall be similar to Liebert UDA63225A27A073. New unit shall be 480Y/277V-3PH-4W unit, with Input Filter Type B and 15 minute battery back-up. The D/B Contractor shall design and construct all required UPS distribution systems from the UPS unit in Room 118 to the designated rooms complete with disconnect switches (if required by user). Room 118 will be designed and constructed by the D/B Contractor to meet the HVAC, power and lighting

requirements of the UPS system. The UPS unit(s) shall be designed and provided in accordance with ETL 1110-3-403, "Electrical Power Systems for Nonlinear Loads", dated 30 June 1989; IEEE Std. 1100 "Powering and Grounding Sensitive Electronic Equipment", IEEE Std. 519, "Practices and Requirements for Harmonic Control in Electrical Power Systems". Refer to Appendix J for additional UPS information.

1.10.16 Explosion-proof Fixtures:

Explosion-proof light fixtures or devices are not required in this project.

1.10.17 Standby or Emergency Generators:

Standby or Emergency Generators are not required in this project.

1.10.18 Cathodic Protection:

Cathodic protection is required in this project for all metallic piping installed underground. Refer to ETL 1110-3-474, Cathodic Protection, available on the Huntsville COE web site.

1.10.19 Electrical Metering:

The power for the new facility shall be provided from an existing switchboard, therefore electrical metering is not required in this project. Energy metering is provided from an existing power monitor installed in the existing main switchboard.

1.10.20 Wiring Devices:

Receptacles: All receptacles in the lab areas shall be "quadplex" type, (2-duplexes in a common enclosure). Each duplex receptacle shall be rated 125V-20A-3W-grounded, specification grade and contractor shall provide special power receptacles as required by the User. Wiring devices shall not be mounted back-to-back through walls. General purpose receptacles in all other areas shall be duplex type mounted in a single gang box with stainless steel cover plates and provided with non-shared neutrals. Generally, one (1) duplex receptacle shall be mounted on each wall of a room. In rooms where walls exceed three (3) meters, provide an additional duplex receptacle for each additional 3 meters of wall surface or fraction there of. Receptacle spacing shall not exceed 3 meters.

Each LAN at furniture system or computer installation shall be provided with an additional well-defined adjacent duplex receptacle on an independent single phase (20 ampere, 120 volt) circuit having not more than four (4) duplex receptacles and a non-shared neutral. Provide independent circuits for FAX and copy equipment and laser printers and coordinate all locations with the User. Telephone/Comm lines shall be separated from LAN lines by a minimum of 1 meter.

Light Switches: All light switches shall be rated 120/277V-20A, specification grade, quiet-action type, back & side wired and conforming to NEMA WD-1.

Wiring terminations: All wire terminations shall be rated a minimum of 75 degree C. The use of 75 degree C. conductors on circuits with protective device terminals rated for 60 degree C. is unacceptable.

1.10.21 Non-Linear Loads:

This project contains a multitude of computer and electronic equipment which produces high harmonic currents. Validate the non-linear load requirements for each equipment function category and identify the multiplier for equipment and building wire size. Drawings shall indicate which circuits will serve non-linear loads, such as electronic and computer equipment. Provide larger (full size minimum) or multiple neutrals and ground conductors to accommodate the resulting harmonic currents. Do not share non-linear circuits with other circuits. (See Corps of Engineers ETL 1110-3-403.) In areas with high non-linear load, K-factor rated transformers shall be provided. Provide a schedule identifying the K-rated transformers. Provide non-linear panelboards and switches where required.

1.10.22 Emergency Shutdown Systems:

Provide emergency shutdown systems for all power (except lighting) where required by the User. In each room requiring emergency shutdown, with the exception of lighting circuits, activation of any emergency switch will shut down all power, including duplex receptacles, within the room. All control devices used for emergency shutdown system and power restoration shall be of industrial grade and quality. Emergency shutdown systems shall be capable of fully resetting the system back to operation.

1.10.23 Cable Trays and Wireways:

Wireways shall be provided under raised floor for communication systems conductors. Communication room cable wireways shall be 204 mm x 204 mm, 153 mm x 153 mm or 102 mm x 102 mm. Cable trays for power circuits shall be of the ventilated trough type with rungs a minimum of 102 mm wide and a maximum of 102 mm gap between the rungs. Trays and wireways shall be in accordance with the requirements of NFPA 70, National Electrical Code.

Install cable trays to allow 150 mm of clear space above the trays for access by cable installers. Cable tray fill shall not exceed NEC, Table 318-9. Communication room wireways shall be routed around the periphery of the room with 305 mm clearance from the wall. Routing of communication wireways to second floor and beyond shall be through communication rooms. The D/B Contractor shall coordinate with the User on communication routing throughout the facility, and for all other requirements.

1.10.24 Conduits:

Conduits and raceways shall be provided and installed in accordance with the National Electrical Code. Minimum trade size for power, lighting, and control raceways shall be 16 mm and minimum trade size for communication raceways shall be 21 mm. In general, interior wiring must be installed in rigid conduit or electrical metallic tubing (EMT). PVC conduits are not permitted for communication raceways, under floor or below slab. Aluminum conduit shall be used for 400 Hz

raceways only. Rigid nonmetallic conduit, electrical nonmetallic tubing and metal-clad tubing (Type MC), shall not be used for interior wiring. Metal enclosed feeder or plug-in busways or surface metal raceways may be used where necessary. Surface metal raceways will only be used where specifically called for, or where approved by the Contracting Officer. No exposed conduits or piping shall be permitted on the exterior of the building surface. All exposed conduit shall be painted to match wall finish. All conduits and fittings shall be steel compression type couplings and fittings. Set screw couplings and fittings will not be used.

1.10.25 Motors:

Motors shall be high efficiency type and conform to the requirements of CEGS 16415, "Electrical Work, Interior", paragraph, "Motor Efficiencies". Motors larger than 2.2 kW (3 HP) shall be provided with phase reversal and phase loss relays. Relays shall be integral part of starter and will not require a separate enclosure. Connections shall be provided to all motors where not furnished under the electrical work, coordinate requirements with the Mechanical work.

1.10.26 Exterior Electrical:

The new Parking Lot shall be provided with new lighting fixtures/pole bases to match the existing light fixtures. The existing pad-mounted transformer and related primary and secondary conductors shall be relocated as indicated on RFP drawings. The exact relocation site shall be coordinated with the Contracting Officer. Provide all electrical work to other work required as part of this RFP. The existing underground telephone circuits, manholes and pedestals shall be located and relocated to new location, as indicated by the Communication Drawings in Appendix H. Extreme caution shall be used to avoid buried fiber optic lines and buried copper lines.

Site and parking lot illumination levels shall be in accordance with the recommended levels of the Illumination Engineering Society (IES) for parking lots and area lighting. Provide 5 lux average computed in one-half meter intervals for general areas and 10 lux for handicapped and staff areas. Illumination sources for area and parking lot shall be High Pressure Sodium (HPS) and control of lighting sources shall be accomplished by photoelectric controls.

1.10.27 Qualifications:

Shop drawings and as-built drawings shall be prepared by, or under the supervision of, a qualified technician. A Qualified Technician shall be an individual who is experienced with the type of work specified within, and is currently certified by the National Institute for Certification in Engineering Technologies (NICET), as an Engineering Technician with minimum Level-III certification in Fire Alarm System Program. Design/Build Contractor shall submit data showing the name and certification of the Technician at or prior to submittal of drawings.

1.10.28 Tests:

After the interior-wiring-system installation is completed, and at such time as the Contracting Officer may direct, the Contractor shall conduct an operating test for approval. The equipment shall be demonstrated to operate in accordance with the requirements of the specifications.

Continuity test shall be conducted on the telephone wiring system. The test shall be preformed in the presence of the Contracting Officer. The Design/Build Contractor shall furnish all instruments and personnel required for the tests, and the Government will furnish the necessary electric power. Provide test to demonstrate resistance to ground. Test reports shall indicate the location of the rod and the resistance and the soil conditions at the time the test was preformed.

Provide tests to indicate that all receptacles are connected correctly with regards to polarity and grounding.

Tests shall include the meggering of main feeders and grounding conductors to determine that the system is free from grounded, shorted, or open circuits. The megger test shall be conducted prior to the installation of the fire alarm equipment. If deficiencies are found, corrections shall be made and the system shall be retested to assure that it is functional.

1.11 SECURITY

1.11.1 Security Requirements:

Security requirements associated with the storage, processing and testing of classified information will be governed by the applicable documents relating to classified material including DoD5200.1-R/ARF205-1. Security requirements for secure compartmented information facilities (SCIFs) will be governed by DCID 1/21 dated 29 July 1994 and specification sections included as part of this RFP document. The D/B Contractor shall comply with the WPAFB requirements for FSTC 50 wall construction. The following regulations may also provide design and implementation guidance:

- DoD 5200.1-R, Chapter 6 and Appendix G
- AFI 31-401, Chapter 5
- MIL HDBK-1013/1A

1.11.2 Facility Access: Facility access control system shall integrate fully with the existing site security monitoring system. Control for security devices is to be placed in B620 Control Room and Building 168. The wiring and connections to these building locations will be provided by the Government. Integration of new and existing systems shall occur in Phase IIIA Security Office, Room 204. The D/B Contractor shall coordinate final location and connections with the Government. The new security system shall be compatible with existing WPAFB and B620 systems.

1.11.3 Contractor Responsibility: Contractor shall supply control badging system including video badging, as an integral part of the access control system.

1.11.4 Access Control Credential: Shall be a medium range read proximity card.

1.11.5 Walls required to meet FSTC 50 classification are indicated on the drawings, Appendix C. Design/Build Contractor shall construct all FSTC 50 walls in accordance with DCID 1/21, July 1994 requirements. FSTC walls (including door openings and penetrations) shall be tested by WPAFB personnel with testing procedures outlined in the DCID 1/21 test requirements and as

outlined in the WPAFB Acoustical Sound Testing Procedures described below. Any walls deemed to fail these testing procedures shall be reconstructed by the Design/Build Contractor (at Design/Build Contractor's expense) and retested by WPAFB personnel until the wall meets the testing requirements. Ceilings and floors are not required to meet FSTC classification requirements and will not be tested by WPAFB personnel.

1.11.6 Acoustical Sound Testing

1. To be approved for classified discussions, a room must meet specific criteria. Approval will be either unamplified or amplified discussions at the TOP SECRET or SECRET level. Unamplified discussions at the TOP SECRET or SECRET level require a rating of 45 dB. Amplified discussions at the TOP SECRET or SECRET level require a rating of 50 dB. Rooms achieving the required STC rating will be issued an ASC 2367, Classified Storage/Conference Room Inspection, which will indicate the level the room was approved for and any special requirements.

2. Sound measurements are taken from test points located at ten-foot intervals within the room. The equipment is first calibrated on cycle by the equipment manufacturer and then each time by the users prior to commencing each test. The sound source is positioned 10 feet away from the test point. A reading is taken at the sound source to determine the dB level. Then another reading is taken halfway between the sound source and the test point. This reading must be 12 dB lower than the one at the sound source. If necessary, the meter is moved to get the 12 dB drop. Once the 12 dB drop is achieved a measurement is taken. The inside reading will be taken first and the reading on the outside of the test point is taken. The outside reading will be subtracted from the inside reading using a program installed on a laptop computer. The program will average out all of the readings from the 125 - 4000 Hz range and the result will be a Sound Transmission Class (STC) rating. The lowest rated test point in the room will be the overall rating.

3. Testing is conducted in accordance with ASTM E-336, Measurement of Airborne Sound in Buildings, as modified for security purposes and plotted per ASTM E-413, Determination of Sound Transmission Class. Test results are expressed as Noise Isolation Class (NIC), a single number rating derived from measured values of noise reduction as though they were values of transmission loss, IAW ASTM E-413. To determine the NIC of a test area, noise reduction values in 16 specific test bands (1/3 octave bands) are compared to those of a reference contour. The sum deficiencies (deviations below the contour) cannot be greater than 32 dB and the maximum deficiency at a single test band shall not exceed 8 dB. It provides an estimate of sound isolation between two areas that are acoustically connected by one or more sound paths. It includes the combined effects of perimeter materials used, quality of construction and aperture treatments such as doors, ventilation systems, and electrical and plumbing penetrations. To achieve the required STC rating, 6 dB is added to the NIC rating.

4. Test Equipment:

a. IVIE PC40 Audio Spectrum Analyzer

b. Bruel and Kjaer Sound Source Type 4224

1.12 FIRE SUPPRESSION:

1.12.1 The building shall be fully sprinklered as described in specification section 15000 and paragraph 1.2.8 of this section.

1.12.2 Occupancy Hazard Classification:

Occupancy hazard classifications shall basically be in compliance with the requirements of MIL-HDBK-1008C and WPAFB Facility Standards as noted below:

1.12.3 No areas will be designated as Light Hazard Occupancy.

1.12.4 The following areas will be designated as Ordinary Hazard, Group 1:

Administrative areas
Waiting areas
Break rooms
Toilets
Conference rooms
Computer laboratories
Storage areas
Mechanical rooms (housing air handling equipment)
Communications rooms
Janitor closets
Electrical rooms

1.12.5 The following areas will be designated as Ordinary Hazard, Group 2:

Elevator equipment rooms
Van Storage

PART 2 NOT APPLICABLE

PART 3 NOT APPLICABLE

END OF SECTION

LRL-01021 (February 1999)

SECTION 01021

DESIGN SUBMISSION REQUIREMENTS AFTER AWARD
2/99

PART 1 – GENERAL

1.1 INTRODUCTION

This section contains information needed after the successful Offeror has been selected. This information is provided to all Offerors as an outline of the Design requirements to be anticipated after award.

The information contained in this section (01021 Design Submission Requirements After Award) applies to the design required for the Avionics Lab Phase IIIA Addition at Wright-Patterson AFB, OH.

PART 2 – PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CONTRACTOR DESIGN REQUIREMENTS AFTER AWARD

a. The Contractor shall design and detail a complete and useable facility in metric units as outlined in this solicitation. The design phase of this project shall be in two (2) parts.

Part 1 will include:
- 100% Site and Foundation Design & 65% Building Design

Part 2 will include:
- 100% Building Design

b. The submittals shall include specifications, drawings, permit applications, confirmation notices, completed DD Form 1354, and submittal registers.

c. The design shall be completed in accordance with the codes and standards itemized in Section 01010.

3.2 SUBMISSION OF DESIGN DOCUMENTS

a. The Contractor shall submit design documents with cover letter by overnight mail in accordance with the requirements of Section 01010. The letter shall indicate the project name, due date of comments, and where to send the comments. All drawings shall be half-size. Specifications, submittal register, design analysis and other technical information shall be bound.

b. Formal Design Reviews will be held at Wright-Patterson AFB, OH to discuss review comments on the following submittals:

- 100% Site & Foundation Design & 65% Building Design
- 100% Unchecked Building Design

c. Design Reviews shall not be taken as an approval and does not relieve the Contractor from responsibility for compliance with the RFP solicitation, Code Regulations, or betterments listed with the contractor's proposal or identified during proposal evaluation.

3.3 GENERAL

a. The Contractor is required to independently prepare and submit for approval a complete Design. The Contractor's Design Professionals shall independently confirm and be responsible for the technical accuracy and adequacy of all aspects of the project design.

b. The project design shall include the items listed in para 1.2.

c. The submission requirements outlined herein are the MINIMUM requirements necessary.

d. Document quantities and delivery addresses are specified at the end of this specification section. Quantities and addresses apply for each submittal.

e. Existing Documents: None.

f. Metric Requirements: All work shall be designed completely, including all drawings, specifications and design analysis in the Metric System International (SI) in conformance with Executive Order 12770; 25 June 1991 and Air Force Policy and guidance on Conversion to Design Metric; 15 Oct. 1992. If the RFP site drawings are furnished in English, they must be converted to metric as part of the Design/Build contractor's work. Combination of English and Metric will not be allowed.

g. CADD Requirements

(1) All drawings shall be in Microstation CADD software by Bentley Systems.

(2) Provide a separate electronic drawing file for each project drawing. Each file shall contain all the data for one complete drawing, including the date and border. Each drawing file must be completely independent of any data in any other file. Drawing files with external references such as reference file attachments or special fonts will not be acceptable. All displayable graphic elements on all levels of the drawing file must be part of the project drawing image. The drawing file may not contain any graphic element that is not part of the drawing image.

(3) Provide a list of all drawings in the set of project drawings together with the name of the electronic file that contains the data for each drawing.

(4) Submitted hard copy drawings must be plotted directly from the electronic file.

h. Specifications and Reports

(1) Provide project specifications and reports in a single electronic document file in Microsoft Word (version 7.0), Windows 95 format. The complete document: including title sheet, table of contents, submittal checklist, and all specification sections; must be assembled into a single electronic document in Word format.

(2) Provide independent page numbering for each specification section. The page number shall incorporate the specification section number (e.g. – 15010-1).

(3) Submitted hard copy documents must be printed directly from the electronic file.

i. Electronic Data

(1) Electronic data of all design documents must be provided with the Certified Final Design Submittal. Data shall be on CD ROM 5-1/4 inch disc.

(2) All furnishings' data including interior signage is to be provided in Microsoft Excel spreadsheet.

j. As-Built Documents: Provide as-built drawings and specifications in accordance with Section 00800, Para.9.

k. Submittal Register: The contractor will be required to prepare a Submittal Register (Engineering Form 4288) identifying all construction submittals. Each submittal item shall be identified and coded in accordance with Section 01331. A completed Engineering Form 4288, approved by the Contracting Officer, will be required prior to commencement of construction.

3.4 SUBMISSION REQUIREMENTS

3.4.1 Design Phase

a. Part 1 will consist of plans, specifications and design analysis for sitework, utilities, and foundations (100% complete) and architectural, structural, mechanical, electrical (65% complete).

b. Part 2 will consist of plans, specifications and design analysis for structures, architecture, mechanical and electrical (100% complete).

c. Review sets will be distributed, by the Contractor, as shown on the attached list. Written comments will be provided to the Contractor and a review meeting to discuss the comments and preliminary responses will be held at Wright-Patterson AFB, OH for each part of the design. The Contractor will keep the minutes of the meetings and forward the minutes and annotated comments to all reviewers within 7 days of the meeting. The annotations will be detailed enough to indicate exactly what the Contractor will do to comply with the comments. The contractor shall assemble the comments received into a complete package. The complete package of comments and responses shall be transmitted to all offices that received the design submitted.

d. The Government’s review is not to be considered a quality control review; the contractor shall provide his own internal quality

control as required by contractor Design Quality Controls Plan (01331) before the design is submitted to the Government. It is very important the contractor's entire team agrees with the design before it is submitted to the Government. Each design submittal shall be stamped "approved" by the contractor, major constructors and by the design team prior to submission for review. The Government's review or approval does not relieve the contractor of his responsibility to provide a safe, functional project in accordance with the terms of the contract. All final drawings shall be signed and sealed by the Design Professional. Quality control procedures shall consist of design and/or checking by registered professionals and a review completed by a separate professional. Complete names of designers, checkers, and reviewers shall appear in the drawing title block.

e. The Government's review will likely result in a significant number of comments. The Contractor shall respond to each comment with a response that clearly indicates what action will be taken. Comments that, in the Contractor's opinion, require effort outside the scope of the contract will be clearly indicated as such by the Contractor. The Contractor shall not proceed with work outside the contract until a modification to the contract is properly executed.

f. The Contractor (including appropriate design representatives) will be required to participate in project progress meetings Scott AFB, IL. Meeting requirements include the following:

- Monthly Progress Meetings - At a minimum, the Construction Project Manager, Design Project Manager, and appropriate Design Professionals shall attend.

- Additional meetings may be required, if in the Government's opinion, they are required to facilitate the design process.

3.4.2 Construction Phase

a. A Notice-to-Proceed for the Part 1 Design will be issued upon completion and approval of that portion of the design.

b. A separate Notice-to-Proceed for the Part 2 Design will be issued upon completion and approval of that portion of the design.

c. As the first item of work during each approved construction phase, the Contractor shall furnish to the Government 15 half size sets and 5 full size sets of the approved drawings and 20 sets of the approved specifications for its use during construction.

d. No construction will be allowed on work for which the design has not been reviewed and approved.

e. The Contractor (including appropriate design representatives) will be required to participate in project progress meetings at Scott AFB, IL. Meeting requirements include the following:

- Weekly Coordination Meetings - At a minimum, the Construction Project Manager, Project Superintendent, and appropriate sub-contractors shall attend.

- Monthly Progress Meetings - At a minimum the Construction Project Manager and Design Project Manager shall attend.

- Quarterly Senior Advisory Meeting - At a minimum, the Senior Executive Manager for the construction and design team shall attend.

- Additional meetings may be required, if in the Government's opinion, they are required to facilitate the construction process.

f. The Design/Build design team shall be required to visit the site 24 times (including the scheduled meetings) during design and construction. Site visits will be scheduled at the request of the Contractor. Two (2) Design Professionals will be required for each visit.

g. The Designer of Record will be required to review and approve all project submittals.

3.4.3 PART 1 SUBMISSION REQUIREMENTS

a. Part 1 Design will consist of drawings, specifications and design analysis for sitework, utilities, and foundations (100% complete) and architectural, structural, mechanical, electrical (65% complete).

b. Drawings

(1) Submit drawings complete with all RFP requirements incorporated into the documents to provide a complete 100% design for sitework, utilities, and foundations.

(2) Submit drawings complete with the RFP requirements incorporated into the documents to reflect a 65% complete design for architectural, structural, mechanical, and electrical work.

c. Design Analysis

(1) The Design Professional shall prepare an independent Design Analysis and calculations necessary to confirm and support all design documents submitted for review. At a minimum, the Design Analysis shall include site civil calculations, structural calculations, life safety and building code analysis, HVAC analysis and calculations, sprinkler system analysis, electrical load analysis and calculations, electrical short circuit and protective device coordination analysis and calculations.

(2) Analysis and calculations for the sitework, utilities, and building foundations shall be 100% complete. Analysis for architectural, structural, mechanical, and electrical work shall be 65% complete.

d. Specifications

(1) The specifications provided with this solicitation state the Government’s minimum requirements. The Design Professional shall edit and expand the specifications to insure

that all project design requirements, current code and regulatory requirements are met.

(2) Specifications for the sitework, utilities, and building foundations shall be 100% Complete. Specifications for architectural, structural, mechanical, and electrical work shall be 65% complete.

e. Structural Interior Design (SID)

(1)Interior Finishes Boards

Prepare and submit for approval two different interior building finishes schemes (Scheme A & B) of comparable quality. It is recommended the Contractor meet with and/or discuss the interior finishes with the Government prior to preparation of the individual schemes to be submitted for review and selection. Two (2) copies each of the Scheme A and Scheme B original building finishes boards shall be submitted.

At a minimum, Scheme A & B Building Finishes Color boards shall include original color samples of the following:

- All wall finishes (paint, vinyl, tile, etc.). Provide information regarding tile patterns, etc. where applicable.
- All flooring finishes (carpet, tile, vinyl composite tile, etc.). Provide information regarding tile patterns where applicable.
- All ceiling finishes (acoustic tile, paint, etc.)
- All millwork materials and finishes (cabinets, counter tops, etc).

Each item on the Finishes Boards shall be identified and keyed to the floor plans to provide a clear indication of how and where each item will be used.

At the conclusion of the 65% Design Phase (after comments have been incorporated in the design), the Government will select and direct the Contractor to proceed with one of the schemes presented.

(2) Exterior Finish Boards

Prepare and submit for approval two copies (boards) of the proposed exterior building materials.

At a minimum, the Exterior Building Materials Board shall include original color samples of the following:

- Roofing Material
- Brick Samples
- Precast Panel
- Granite
- Glass
- Pavers

- Exposed exterior metals
- Window & door finishes
- Specialty items

Each item on the Exterior Building Materials Board shall be identified and keyed to the building elevations to provide a clear indication of how and where each item will be used.

At the conclusion of the 65% Design Phase (after comments have been incorporated in the design), the Government will direct the Contractor to proceed with the exterior finishes.

f. Comprehensive Interior Design (CID – Furnishings, Etc.

(1) Prepare and submit for approval two copies (3-ring binder format) of the proposed Comprehensive Interior Design. Two schemes of materials color & pattern selections shall be prepared to coordinate with the Building Finishes Schemes A & B.

(2) At a minimum, the CID submittal shall include the following:

- Floor Plans showing locations and quantities of all *freestanding furniture* proposed for the building. Each room shall be keyed to a large scale Furniture Placement Plan showing the furniture configuration, and providing a detailed inventory (manufacturers product number & description) of all furniture.
- Floor Plans showing the locations and quantities of all *systems furniture* proposed for the building. Each workstation shall be keyed to a large scale Systems Furniture Inventory Drawing showing the workstation configuration, and providing a detailed inventory (manufacturers product number & description) of all workstation components and amenities.
- Illustration Sheets (keyed to the Freestanding Furniture Plans) shall be provided for each piece of furniture. Illustration sheets shall include the following information: Item name, Room location, Finishes Samples (including product name & number), plan Key code, Description, and Illustration.
- Artwork Placement Plans showing the location, quantities of all proposed artwork. Each piece of artwork shall be keyed to a quantitative listing describing the type of artwork, size, theme and any special requirements.
- Interior Signage Location Plans showing location and quantities of all interior signage. Each interior sign shall be keyed to a quantitative list indicating size, quantity of each type and signage text.
- Interior Window Shade Plans showing location and quantities of all interior shades. Each interior shade shall be keyed to a list indicating the window type, shade size, and shade type.

(3) Between the conclusion of the 65% Design Phase (after comments have been incorporated in the design), and a date about a year before the construction completion, the Government may decide

whether to award the CID Option to the Design/Build contractor, or procure the CID by other means.

3.4.4 PART 2 SUBMISSION REQUIREMENTS

a. Part 2 will consist of plans, specifications and design analysis for sitework, utilities, structures, architecture, mechanical and electrical (100% complete).

b. Drawings

(1) Submit drawings complete with all RFP requirements incorporated into the documents to provide a complete 100% design (Part 1 & Part 2) reflecting the requirements for the Youth Center. All drawings submitted for the final 100% design will be considered an independent and complete design for this project. All drawings submitted shall be designed and reviewed by or under the direct supervision of licensed professionals in the applicable area of expertise.

(2) All Final Design Part 1 & Part 2 Drawings (100%) shall bear the seal of the licensed professional responsible for the design.

c. Design Analysis:The Design Professional shall prepare an independent Design Analysis and calculations (Part 1 & Part 2) necessary to confirm and support all design documents submitted for approval. At a minimum the Design Analysis shall include Site civil calculations, structural calculations, life safety & building code analysis, HVAC analysis and calculations, sprinkler system analysis, electrical load analysis and calculations, electrical short circuit and protective device coordination analysis & calculations.

d. Specifications

(1) Specifications for the sitework, utilities, and building foundations shall be 100% Complete. Specifications for architectural, structural, mechanical, and electrical work shall be 65% complete.

(2) Specifications for architectural, structural, mechanical, and electrical work shall be 100% complete.

e. Rendering and Rendering Photography

Thirty (30) days after of contract, the Contractor shall submit a full sized black and white perspective sketch of the proposed rendering to both WPAFB 88 CEG and AFMC for review and comment. As Part 2 final design submittal, provide a color rendering, in either CAD or tempura media, and photos of the building exterior as follows:

- 1 - 18″ x 24″ color original framed & matted behind glass
- 2 - 18″ x 24″ color copy framed & matted behind glass
- 3 - 8″ x 10″ color view graph slides
- 3 - 35mm color slides
- 3 - 35mm color negatives

• 5 - Framed 8” x 10” color photographs framed & matted behind glass

f. Architectural Photography: Within 6 months after building occupancy the Contractor shall provide photography of 4 exterior and 6 interior views as selected by the Government. Three sets of 8x10 color prints and 35mm color slides of each view shall be provided.

g. Submittal Register: The Contractor shall prepare the Submittal Register and submit it with his design (see Specification Section 01331). All shop drawings and other construction submittals shall be reviewed and stamped as approved by the appropriate professional in the contractor’s design team, before submitted to the Government.

h. Preparation of DD Form 1354 (Transfer of Real Property): This form itemizes the types, quantities and costs of various equipment and systems that comprise the project, for the purpose of transferring the new construction project from the Corps Construction Division to the Installation’s inventory of real property. The Project Engineer will furnish the contractor a project specific DD Form 1354 checklist. This checklist will be used as a guide in preparation of the project draft DD1354. The contractor shall prepare the draft DD 1354, and submit it with the final design. Submit an updated or corrected checklist and draft DD 1354 with the certified final design. The Corps will use these documents to complete the final DD 1354 upon completion of construction.

i. Structural Interior Design (SID)

(1) Interior Finishes Boards

Prepare and submit two original copies of the interior building finishes approved at the 65% Design. Finishes boards shall incorporate all comments and changes approved at the 65% Design.

At a minimum, Finishes Color boards shall include original color samples of the following:

- All wall finishes (paint, vinyl, tile, etc.). Provide information regarding tile patterns, etc. where applicable.
- All flooring finishes (carpet, tile, vinyl composite tile, etc.). Provide information regarding tile patterns where applicable.
- All ceiling finishes (acoustic tile, paint, etc.)
- All millwork materials and finishes (cabinets, counter tops, etc).

Each item on the Finishes Boards shall be identified and keyed to the floor plans to provide a clear indication of how and where each item will be used.

(2) Exterior Finish Boards

Prepare and submit for approval two copies (boards) (8-1/2" x 11", 3-ring binder format) of the exterior building materials approved at the 65% Design. Exterior

materials boards shall incorporate all comments and changes approved at the 65% Design.

At a minimum, the Exterior Building Materials Board shall include original color samples of the following:

- Roofing Material
- Brick Samples
- Exposed exterior metals
- Window & door finishes
- Specialty items

Each item on the Exterior Building Materials Board shall be identified and keyed to the building elevations to provide a clear indication of how and where each item will be used.

j. Comprehensive interior Design (CID)

(1) If the Government has decided to award the CID Option, the shall prepare and submit for approval two copies (3-ring binder format) of the final updated Comprehensive Interior Design. Submittal should include materials color and pattern scheme approved at the 65% design.

(2) At a minimum, the CID submittal shall include the following:

- Floor Plans showing locations and quantities of all *freestanding furniture* proposed for the building. Each room shall be keyed to a large scale Furniture Placement Plan showing the furniture configuration, and providing a detailed inventory (manufacturers product number & description) of all furniture.
- Illustration Sheets (keyed to the Freestanding Furniture Plans) shall be provided for each piece of furniture. Illustration sheets shall include the following information: Item name, Room location, Finishes Samples (including product name & number), plan Key code, Description, and Illustration.
- Furniture Electrical and Telecommunications Plans. Plans shall include locations and quantities of outlets for each work station (i.e. desk or counter) and point of connection for service. Electrical outlets and telecommunication receptacles shall be clearly identified to indicate the type of outlet proposed.
- Interior Signage Location Plans showing location and quantities of all interior signage. Each interior sign shall be keyed to a quantitative list indicating size, quantity of each type and signage text.
- Interior Window Shade Plans showing location and quantities of all interior shades. Each interior shade shall be keyed to a list indicating the window type, shade size, and shade type.

(3) Final installed project documentation shall include:

Shop Drawings - one set of sepia or mylar drawings capable of reproduction and four sets of prints showing the proposed systems furniture/prewired workstation

Installation for the entire project. The drawings shall be at a scale of 1/4" - 1'-0" and shall include:

a. Floor plans of all floors showing all workstations and all system furniture core units and components. Identify all workstations by workstation type.

b. Dimensioned workstation isometrics or elevations with all components identified by the manufacturer's catalog numbers.

c. Floor plans dimensioned from finished face of walls, columns and partitions and keyed to a furniture schedule describing colors, finishes, sizes and types. Floor plans shall include all power poles, base power inlets, necessary wall mounted molding and all activated electrical outlets.

d. Floor plans showing all EDP wiring and equipment locations.

e. Floor plans showing all local area network wiring and equipment.

f. Manufacturer's Literature:

- Three sets of product assembly manuals which describe assembly and reconfiguration procedures.

- Three sets of product maintenance manuals which describe proper cleaning and minor repair procedures.

- Inventory Listing - one complete listing of all installed CID items installed by the Contractor (except waste receptacles and paper management accessories) shall be provided within 60 days after completion of the installation.

3.4.5 NOT USED.

LIST OF ADDRESSES FOR REVIEWS

ORGANIZATION	ABBREVIATION	COPIES (1)	CID	SID
Army Corps of Engrs, Louisville ATTN: CELRL-ED-MA (A. Atherton) 600 Dr. M. L. King Jr. Place Louisville, KY 40202	CELRL-ED	8	1	1
Army Corps of Engrs WPAFB ATTN: CELRL-CD (Bill Gerard) 2700 'D' Street, Suite #1 Building 22B, Area B WPAFB, OH 45433	CELRL-CD	1	1	1
Air Force Base Engineering ATTN: 88 CEG/CECW (Beth Dobson) 5151 Wright Avenue Wright-Patterson AFB, Ohio 45433-5339	88 CEG	8	1	1
Air Force Base Engineering ATTN: 88 CEG/CECW (D, Tischler) 5151 Wright Avenue Wright-Patterson AFB, Ohio 45433-5339	88 CEG	1		
Air Force Material Command ATTN: HQ AFMC/CECC (M. Bartell) 4225 Logistics Avenue, Room A107 Wright-Patterson AFB, Ohio 45433-5745	HQ AFMC	1		1
Air Force Wright Labs - Sensors ATTN: AFRL/SNOX (Demers) Area B, Bldg 620 2241 Avionics Circle, Ste 18 WPAFB, OH 45433-7320	AFRL/SNOX	2	1	1
Air Force Base Environmental ATTN: 88 ABW/EMP (Sandy Henry) Building 89, Door 8 5490 Pearson Road Wright-Patterson AFB, Ohio 45433-5332	88 ABW/EMP	1		

(1) All design submittal items (drawings, specifications, analyses, etc.) identified herein that are not included in the CID & SID requirements.

SECTION 01100

SPECIAL PROJECT PROCEDURES

PART 1 GENERAL

1.1 SAFETY AND HEALTH REQUIREMENTS MANUAL (EM 385-1-1, October 1992).

In accordance with CONTRACT CLAUSE Paragraph "ACCIDENT PREVENTION", this manual applies to all work under this contract. There are submittals and testing required by this manual which required Government Approval (GA) before certain phases of work can begin.

1.2 MANAGEMENT OF CONTRACTOR-GENERATED HAZARDOUS WASTES AND PETROLEUM PRODUCTS (40 CFR, part 262)

Contractors generating hazardous wastes and petroleum products on the military base on which this contract is performed shall be responsible for their management responsibilities as described in 40 CFR, part 262 and with the Ohio State Industrial Waste Management Regulations.

1.3 MONTHLY EXPOSURE REPORT

A monthly report of accident and exposure data shall be submitted by the Contractor. The report shall be submitted on "MONTHLY EXPOSURE REPORT OF OPERATIONS AND ACTIVITIES" which will be provided to the Contractor at the pre-construction conference.

1.4 HAZARDOUS MATERIAL REPORTING

The Contractor shall submit completed Contractor Hazardous Material Reports (CHMR) (included at the end of this section) for the duration of the contract in accordance with the following instructions:

a. Complete a CHMR for each hazardous material on site.

b. Attach the corresponding Material Safety Data Sheet (MSDS) with each CHMR.

Monthly:

a. Complete Section 3 of the CHMR for each hazardous material on site.

b. Provide a new CHMR for each new hazardous material brought on site during the reporting period.

Hazardous materials are defined as all materials listed in OSHA and EPA regulations, including but not limited to cleaners, solvents, paints, compressed gases, fuels, glues, and chemicals. The CHMRs shall be submitted by the 15th of each month. A Hazardous Material Tracking Form (included at the end of this section) shall also be submitted each month with the CHMR and

MSDS.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

LRL-01331 (February 1999)

SECTION 01331

SUBMITTAL PROCEDURES FOR DESIGN/BUILD
2/99

PART 1 GENERAL

1.1 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.1.1 Design Submittals

Administrative Contracting Officer review is required for all design. Government review will be for conformance with the technical requirements of the solicitation and shall take place on all design submittals. Section 01021, "DESIGN SUBMISSION REQUIREMENTS AFTER AWARD", covers the design submittal and review process in detail.

1.1.2 Construction Submittals

1.1.2.1 Submittal Definitions

The submittals described below are those required and further described in other sections of the specifications. Submittals required by the CONTRACT CLAUSES and other non-technical parts of the contract are not included in this section.

SD-01 Data

Work to be Performed by Contractor

Submittal Registers

Submittals which provide calculations, descriptions, or documentation regarding the work

SD-04 Drawings

Submittals which graphically show relationship of various components of the work, schematic diagrams of systems, details of fabrication, layouts of particular elements, connections, and other relational aspects of the work.

As-Built Drawings

Equipment Layout Drawings

SD-06 Instructions

Preprinted material describing installation of a product, system or material, including special notices and material safety data sheets, if any, concerning impedances, hazards, and safety precautions.

SD-07 Schedules

- Progress Schedules

- Schedules for Construction Contracts

- Contractor Prepared Network Analysis

- Tabular lists showing location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the work.

SD-08 Statements

- Accident Prevention Plan

- Hazard Analysis Plan

- Environmental Protection Plan

- Submittal Register

- A document, required of the Contractor, or through the Contractor, from a supplier, installer, manufacturer, or other lower tier Contractor, the purpose of which is to confirm the quality or orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel, qualifications, or other verifications of quality.

SD-09 Reports

Reports of inspections or tests, including analysis and interpretation of test results. Each report shall be properly identified. Test methods used shall be identified and test results shall be recorded.

SD-13 Certificates

Statement signed by responsible official of a manufacturer of a product, system or material, attesting that the product, system or material meets specified requirements. The statement must be dated after the award of the contract, must name the product, and must list the specific requirements which are being certified.

SD-14 Samples

Samples, including both fabricated and unfabricated physical examples of materials, products, and units of work as complete units or as portions of units of work.

SD-18 Records

Documentation to record compliance with technical or administrative requirements.

SD-19 Operation and Maintenance Manuals

Data which forms a part of an operation and maintenance manual.

1.1.2.2 Designer or Engineer of Record (EOR) Submittal Review

The EOR must review all submittals before they are provided to the Government. Each submittal must show evidence of this review by being stamped or labeled in some fashion. The review labeling must show the name of the individual who performed the review and identify the EOR.

1.1.2.3 Designer or Engineer of Record (EOR) Approved Submittals

EOR approval is required for extensions of design, critical materials, any deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer's Representative. Extensions of design are those engineering and design efforts required to be completed by a Contractor sub or supplier. Such efforts are typically required when project features as covered by the contract specifications are expressed in terms of performance standards with certain design details remaining to be completed by the Contractor. Critical materials are defined as materials which must meet specific quality performance standards required by design parameters, the failure of which will have a major impact on the operation, maintenance, quality of life, or life safety of the system. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings." The Contractor shall provide the Government the number or copies, designated in paragraph 3.2.4, of all EOR approved submittals. The Government may review any or all EOR approved submittals for conformance to the Solicitation and Accepted Proposal. The Government will review all submittals designated as deviating from the Solicitation or Accepted Proposal, as described below.

1.1.2.4 Government Approved Construction Submittals

Administrative Contracting Officer approval is required for any deviations from the Solicitation or Accepted Proposal and other items as designated by the Contracting Officer's Representative. Within the terms of the Contract clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.1.2.5 Government Reviewed Extension of Design

Government review is required for extension of design construction submittals, used to define contract conformity. Review will be only for conformance with the contract requirements. Included are only those construction submittals for which the Designer of Record design documents do not include enough detail to ascertain contract compliance. Government review is not required for extensions of design such as structural steel or reinforcement shop drawings.

1.1.2.6 Information Only

All submittals not requiring Designer of Record or Government approval will be for information only.

1.2 GOVERNMENT REVIEWED OR "APPROVED" SUBMITTALS

The Contracting Officer's Representative conformance review or approval of submittals shall not be construed as a complete check, but will indicate only that the design, general method of construction, materials, detailing and other information appear to meet the Solicitation and Accepted Proposal. Government Review or approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Design and CQC requirements of this contract is responsible for design, dimensions, all design extensions, such as the design of adequate connections and details, etc. and the satisfactory construction of all work. After submittals have been reviewed for conformance or approved, as applicable, by the Contracting Officer's Representative, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.3 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer's Representative, obtain the Designer of Record's approval, when applicable, and promptly furnish a corrected submittal in the form and number of copies specified in paragraph 3.2.4. Any "information only" submittal found to contain errors or unapproved deviations from the Solicitation or Accepted Proposal shall be resubmitted as one requiring "approval" action, requiring both Designer of Record and Government approval. If the Contractor considers any correction indicated by the Government on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer's Representative.

1.4 WITHHOLDING OF PAYMENT

No payment for materials incorporated in the work will be made if required Designer of Record or required Government approvals have not been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 DESIGN SUBMITTALS

The Contractor shall provide design documents submittals in accordance with Section 01021.

3.1.1 SUBMITTAL REGISTER (ENG Form 4288)

The Contractor's Designer(s) of Record shall develop a complete list of submittals required during construction. The Designer of Record shall identify required submittals in the specifications. The list is to be used in preparing ENG Form 4288 Submittal Register or a computerized equivalent. The list is not all inclusive and additional submittals may be required by other parts of the contract. The Contractor is required to complete ENG Form 4288, attached at the end of Section 00800, (including columns "a" through "r") and submit to the Contracting Officer for approval within 30

calendar days after Notice to Proceed. The approved submittal register will serve as a scheduling document for submittals and will be used to control submittal actions throughout the contract period. The submit dates and need dates used in the submittal register shall be coordinated with dates in the contractor prepared progress schedule. Updates to the submittal register showing the contractor action codes and actual dates with government action codes and actual dates shall be submitted monthly or until all submittals have been satisfactorily completed. When the progress schedule is revised, the submittal register shall also be revised and both submitted for approval.

3.1.2 Draft 1354

The DD Form 1354 Data Sheets contain a summary of project information used to transfer the facility to the owner agency. The data sheet is divided into two parts; Facility and Features within the 5 foot line and Features outside the 5 foot line. The Contractor shall meet with Government representatives (Construction Office Representative and installation representative) at the start of design to get direction and example documents, on the format and content of the Draft DD Form 1354. The draft form will be prepared as part of the final design documents and reviewed by the Government. The Contractor will then revise the form to reflect the comments received. At time of construction completion, the Draft DD Form 1354 will be updated by the Contractor to reflect as-constructed information. The final form is then submitted to the Government.

3.2 CONSTRUCTION SUBMITTALS

3.2.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer's Representative may require submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections at no additional cost to the Government . Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. See Section 00800, Para. 9, for electronic submittal requirement for some shop drawings and other submittals. Prior to submittal, the Contractor's Quality Control (CQC) representative, and the Designer of Record, as applicable, shall check, approve and stamp, sign, and date each item, indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

3.2.2 Scheduling

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted

concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

3.2.3 Transmittal Form (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) attached at the end of Section 00800 shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These blank forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

3.2.4 Submittal Procedure

Submittals shall be made as follows:

The Contractor shall submit to the Contracting Officer eight (8) copies of all submittals of items requiring shop inspection and six (6) copies of all other submittals as called for under the various headings of these specifications.

3.2.4.1 Procedures

Detailed submittal procedures will be further discussed with the Contractor at the pre-construction conference.

3.2.4.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. As stated above, the Contractor's Designer of Record's approval is required for any proposed deviation. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

3.2.5 Control of Submittals

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register" so the material needed date is not threatened.

3.2.6 Government Conformance Review and Approved Submittals

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Four copies of the submittal will be retained by the Contracting Officer's Representative and two copies of the submittal will be returned to the Contractor. If the Government performs a conformance review of other Designer of Record approved submittals, the submittals will be so identified and returned, as described above.

3.2.7 Information Only Submittals

Normally submittals for information only will not be returned. Approval of the Contracting Officer's Representative is not required on information only submittals. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer's Representative from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe. Four (4) copies of information only submittals will be retained by the Government.

3.2.8 STAMPS

Stamps used by the Contractor's Designer of Record and the Contractor's designated Quality Control person on the submittal data to certify that the submittal meets contract requirements shall be similar to the following (use two stamps for submittals reviewed by both):

CONTRACTOR (Firm Name)
_____ Approved
_____ Approved with corrections as noted on submittal data and/or sheet(s).
SIGNATURE: _____
TITLE: (DESIGNER OF RECORD)_____
DATE: _____

SECTION 01415

METRIC MEASUREMENTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 380	(1993) Practice for Use of the International System of Units (SI)
ASTM E 621	(1994) Practice for Use of Metric (SI) Units in Building Design and Construction

1.2 GENERAL

This project requires the use of metric units of measurements. The metric units used shall be the International System of Units (SI) developed and maintained by the General Conference on Weights and Measures (CGPM); the name International System of Units and the international abbreviation SI were adopted by the 11th CGPM in 1960. A number of circumstances require that both metric SI units and English inch-pound (I-P) units be included in a section of the specifications. When both metric and I-P measurements are included, the section may contain measurements for products that are manufactured to I-P dimensions and then expressed in mathematically converted metric value (soft metric) or, it may contain measurements for products that are manufactured to an industry recognized rounded metric (hard metric) dimensions but are allowed to be substituted by I-P products to comply with the law. Dual measurements are also included to indicate industry and/or Government standards, test values or other controlling factors, such as the code requirements where I-P values are needed for clarity or to trace back to the referenced standards, test values or codes.

1.3 USE OF MEASUREMENTS

Measurements shall be in hard metric SI units unless otherwise authorized. The Contractor shall be responsible for all associated labor and materials when authorized to substitute one system of units for another and for the final assembly and performance of the specified work and/or products.

1.3.1 Hard Metric:

A hard metric measurement is indicated by an SI value with no expressed correlation to an I-P value, i.e., where an SI value is not an exact mathematical conversion of an I-P value, such as the

use of 100 mm in lieu of 4 inches. Hard metric measurements are often used for field data such as distance from one point to another or distance above the floor. Products are considered to be hard metric when they are manufactured to metric dimensions or have an industry recognized metric designation.

1.3.2 Soft Metric:

a. A soft metric measurement is indicated by an SI value which is a mathematical conversion of the I-P value shown in parentheses (e.g. 38.1 mm (1-1/2 inches)). Soft metric measurements are used for measurements pertaining to products, test values, and other situations where the I-P units are the standard for manufacture, verification, or other controlling factor. The I-P value shall govern while the metric measurement is provided for information.

b. A soft metric measurement is also indicated for products that are manufactured in industry designated metric dimensions but are required by law to allow substitute I-P products. These measurements are indicated by a manufacturing hard metric product dimension followed by the substitute I-P equivalent value in parentheses (e.g., 190 x 190 x 390 mm (7-5/8 x 7-5/8 x 15-5/8 inches)).

1.3.3 Neutral:

A neutral measurement is indicated by an identifier which has no expressed relation to either an SI or an I-P value (e.g., American Wire Gage (AWG) which indicates thickness but in itself is neither SI nor I-P).

1.4 COORDINATION

Discrepancies, such as mismatches or product unavailability, arising from use of both metric and non-metric measurements and discrepancies between the measurements in the specifications and the measurements in the drawings shall be brought to the attention of the Contracting Officer for resolution.

1.5 RELATIONSHIP TO SUBMITTALS

Submittals for Government approval or for information only shall cover the SI or I-P products actually being furnished for the project. The Contractor shall submit the required drawings and calculations in the same units used in the contract documents describing the product or requirement unless otherwise instructed or approved. The Contractor shall use ASTM E 380 and ASTM E 621 as the basis for establishing metric measurements required to be used in submittals.

END OF SECTION

SECTION 01451

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(1996) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1995b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the

proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.

3.2 QUALITY CONTROL PLAN - DESIGN

The Contract shall furnish for review by the government, not later than 10 days after Notice to Proceed, the Contractor Quality Control Plan for the design portion of the contract. The professional quality, technical accuracy and the coordination of all design documents and other services to be provided by the prime Contractor and subcontractor/consultants is of major importance. A logical and functional quality control program requiring technical and interdisciplinary reviews to eliminate errors and deficiencies in the design documents is required. As a minimum, the design Quality Control Plan will address the following elements:

Management Approach - Define the specific management-methodology to be followed during the design phase of the work including the relationship between prime contractor and subcontractors/consultants. Address coordination, quality control, communications and lines of responsibility.

Management Structure - Delineate the organizational structure and interrelationship of management and the design team including all subcontractor and consultants. Identify the key design and review team members showing their specific responsibilities. Either the designer or the reviewer must be a registered professional for the Architectural, Civil, Structural, Mechanical and Electrical disciplines.

List submittals required, dates for submittal, dates for completion of Government review and products required to be submitted.

Designer or Engineer of Record (EOR) - The registered professional ultimately responsible and liable for adequacy and safety of the design. The EOR for each discipline must apply their professional registration seal (stamp) to the cover sheet of the drawing set, and EOR signature is required on all shop drawings.

3.3 QUALITY CONTROL PLAN

3.3.1 General

The Contractor shall furnish for review by the Government, not later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.3.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01331 SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.3.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.3.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.4 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 30 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4.1 Subcontractor CQC Orientation

Before a Subcontractor begins work on the jobsite, the CQC System Manager will train the Subcontractor by showing the video tape entitled "CQC - A Bridge (or Pathway) to Success" and answering any questions pertaining to quality control operations. This requirement is waived only if a Subcontractor attended the initial coordination meeting described above. A copy of this video can be borrowed from the Contracting Officer. A record of the orientation shall be documented in the QC Report.

3.5 QUALITY CONTROL ORGANIZATION

3.5.1 General

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

3.5.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate

engineer, graduate architect, or a graduate of construction management, with a minimum of 5 years construction experience on construction similar to this contract, or a construction person with a minimum of 10 years Quality Control experience in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.5.3 Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed and passed the course entitled "Construction Quality Management For Contractors". This course is periodically offered by the Associated Builders and Constructors, Inc., the Associated General Contractor, Inc., and the Louisville District Corps of Engineers.

3.5.4 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.6 SUBMITTALS

Submittals shall be made as specified in Section 01331 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

3.7 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.7.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after

all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications.

b. A review of the contract drawings.

c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Resolve all differences.

k. Discussion of the initial control phase.

l. The Government shall be notified at least 24 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the

preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.7.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.7.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of

additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.7.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

3.8 TESTS

3.8.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the

Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.8.2 Testing Laboratories

3.8.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.8.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of $1375.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.8.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.8.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the U.S. Army Engineer Waterways Experiment Station, f.o.b., at the following address:

Commander and Director
U.S. Army Engineer Waterways Experiment Station
ATTN: CEWES-GS
3909 Halls Ferry Road

Vicksburg, MS 39180-6199

Coordination for each specific test, exact delivery location, and dates will be made through the Area Office.

398 COMPLETION INSPECTION

3.9.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager shall conduct an inspection of the work and develop a punch list of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.9.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

3.9.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting

Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.10 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals reviewed, with contract reference, by whom, and action taken.

g. Off-site surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

k. These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

<HL1>l. Deficiency Tracking System. The Contractor shall maintain a cumulative list of deficiencies identified for the duration of the project. Deficiencies to be listed include those failures, Government oral observations and Notifications of Noncompliance. The list shall be maintained at the project site. Copies of updated listings shall be submitted to the Government at least every 30 days.</HL1>

3.11 SAMPLE FORMS [GENERATED BY RMS SOFTWARE]

Sample forms for Daily Construction Quality Control Report and Deficiency List are enclosed at the end of Section 00800 as well as other forms the Contractor may utilize during this project.

3.12 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made

the subject of claim for extension of time or for excess costs or damages by the Contractor.

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

1.1.1 Site Plan:

The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

1.1.2 Identification of Employees:

The Contractor shall be responsible for furnishing to each employee, and for requiring each employee engaged on the work to display, identification as approved and directed by the Contracting Officer. Prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon release of any employee. When required, the Contractor shall obtain and provide fingerprints of persons employed on the project. Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.

1.1.3 Employee Parking:

Contractor employees shall park privately owned vehicles in an area designated by the Contracting Officer. This area will be within reasonable walking distance of the construction site. Contractor employee parking shall not interfere with existing and established parking requirements of the military installation.

1.2 AVAILABILITY AND USE OF UTILITY SERVICES

1.2.1 Payment for Utility Services:

The Government will make all reasonably required utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the Government or, where the utility is produced by the Government, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

1.2.2 Meters and Temporary Connections:

The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall provide and maintain necessary temporary connections, distribution lines, and meter bases (Government will provide meters) required to measure the amount of each utility used for the purpose of determining charges. The Contractor shall notify the Contracting Officer, in writing, 5 working days before final electrical connection is desired so that a utilities contract can be established. The Government will provide a meter and make the final hot connection after inspection and approval of the Contractor's temporary wiring installation. The Contractor shall not make the final electrical connection.

1.2.3 Advance Deposit:

An advance deposit for utilities consisting of an estimated month's usage or a minimum of $50.00 will be required. The last monthly bills for the fiscal year will normally be offset by the deposit and adjustments will be billed or returned as appropriate. Services to be rendered for the next fiscal year, beginning 1 October, will require a new deposit. Notification of the due date for this deposit will be mailed to the Contractor prior to the end of the current fiscal year.

1.2.4 Final Meter Reading:

Before completion of the work and final acceptance of the work by the Government, the Contractor shall notify the Contracting Officer, in writing, 5 working days before termination is desired. The Government will take a final meter reading, disconnect service, and remove the meters. The Contractor shall then remove all the temporary distribution lines, meter bases, and associated paraphernalia. The Contractor shall pay all outstanding utility bills before final acceptance of the work by the Government.

1.2.5 Sanitation:

The Contractor shall provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer. Government toilet facilities will not be available to Contractor's personnel.

1.2.6 Telephone:

The Contractor shall make arrangements and pay all costs for telephone facilities desired.

1.3 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be

protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

1.3.1 Barricades:

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.4 CONTRACTOR'S TEMPORARY FACILITIES

1.4.1 Administrative Field Offices:

The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

1.4.2 Storage Area:

The Contractor shall construct a temporary[1.8 m (6 foot)] high chain link fence around trailers and materials. The fence shall include plastic strip inserts, colored brown, so that visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site but within the military boundaries. Trailers, equipment, or materials shall not be open to public view with the exception of those items which are in support of ongoing work on any given day. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, shall be parked within the fenced area at the end of each work day.

1.4.3 Supplemental Storage Area:

Upon Contractor's request, the Contracting Officer will designate another or supplemental area for the Contractor's use and storage of trailers, equipment, and materials. This area may not be in close proximity of the construction site but shall be within the military boundaries. Fencing of materials or equipment will not be required at this site; however, the Contractor shall be responsible for cleanliness and orderliness of the area used and for the security of any material or equipment stored in this area. Utilities will not be provided to this area by the Government.

1.4.4 Appearance of Trailers:

Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers on base shall be of a neutral color; tool and storage trailers shall not have graphics or logos. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on the military property.

1.4.5 Maintenance of Storage Area:

Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas which are not established roadways, such areas shall be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways; gravel gradation shall be at the Contractor's discretion. Grass located within the boundaries of the construction site shall be mowed for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers shall be edged or trimmed neatly.

1.4.6 New Building:

In the event a new building is constructed for the temporary project field office, it shall be a minimum3.6 m (12 feet) in width, 5 m (16 feet) in length and have a minimum of 2.1 m (7 feet) headroom. It shall be equipped with approved electrical wiring, at least one double convenience outlet and the required switches and fuses to provide 110-120 volt power. It shall be provided with a work table with stool, desk with chair, two additional chairs, and one legal size file cabinet that can be locked. The building shall be waterproof, shall be supplied with heater, shall have a minimum of two doors, electric lights, a telephone, a battery operated smoke detector alarm, a sufficient number of adjustable windows for adequate light and ventilation, and a supply of approved drinking water. Approved sanitary facilities shall be furnished. The windows and doors shall be screened and the doors provided with dead bolt type locking devices or a padlock and heavy duty hasp bolted to the door. Door hinge pins shall be non-removable. The windows shall be arranged to open and to be securely fastened from the inside. Glass panels in windows shall be protected by bars or heavy mesh screens to prevent easy access to the building through these panels. In warm weather, air conditioning capable of maintaining the office at 50 percent relative humidity and a room temperature 11 degrees C (20 degrees F) below the outside temperature when the outside temperature is 35 degrees C (95 degrees F), shall be furnished. Any new building erected for a temporary field office shall be maintained by the Contractor during the life of the contract and upon completion and acceptance of the work shall become the property of the Contractor and shall be removed from the site. All charges for telephone service for the temporary field office shall be borne by the Contractor, including long distance charges up to a maximum of $75.00 per month.

1.4.7 Security Provisions:

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own equipment; in addition, the Contractor

shall notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

1.5 GOVERNMENT FIELD OFFICE

1.5.1 Resident Engineer's Office:

The Contractor shall provide the Government Resident Engineer with an office, approximately 19 square meters (200 square feet) in floor area, located where directed and providing space heat, electric light and power, and toilet facilities consisting of one lavatory and one water closet complete with connections to water and sewer mains. A mail slot in the door or a lockable mail box mounted on the surface of the door shall be provided. At completion of the project, the office shall remain the property of the Contractor and shall be removed from the site. Utilities shall be connected and disconnected in accordance with local codes and to the satisfaction of the Contracting Officer.

1.5.2 Trailer-Type Mobile Office:

The Contractor may, at its option, furnish and maintain a trailer-type mobile office acceptable to the Contracting Officer and providing as a minimum the facilities specified above. The trailer shall be securely anchored to the ground at all four corners to guard against movement during high winds.

1.6 PLANT COMMUNICATION

Whenever the Contractor has the individual elements of its plant so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as telephone or other suitable devices. The devices shall be made available for use by Government personnel.

1.7 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, the Contractor shall furnish and erect temporary project safety fencing at the work site. The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 1.1 m (42 inches) high, supported and tightly secured to steel posts located on maximum 3 m (10 foot) centers, constructed at the approved location. The safety fencing shall be maintained by the Contractor during the life of the contract and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site.

1.8 CLEANUP

Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities which are salvageable shall be stored

within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

1.9 RESTORATION OF STORAGE AREA

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

END OF SECTION

SECTION 01560

ENVIRONMENT PROTECTION

PART 1 GENERAL

1.1 SUMMARY (Not Applicable)

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section C-01331 SUBMITTALS.

SD-08, Statements

Environmental Protection Program; GA.

Within 10 calendar days after Notice to Proceed and prior to commencement of the work at the site, the Contractor shall submit in writing his detailed proposal for implementing requirements for environmental pollution control specified herein.

Within 10 calendar days after Notice to Proceed and prior to commencement of the work at the site, the Contractor shall:

1. Submit in writing his detailed proposal for implementing the requirements for environmental pollution control specified herein.

2. Meet the representatives of the Contracting Officer to review and alter his proposal as needed for compliance with the environmental pollution control program.

Preconstruction Survey; FIO.

Prior to start of any onsite construction activities, the Contractor and the Contracting Officer shall make a joint condition survey, after which the Contractor shall prepare a brief report indicating on a layout plan the condition of trees, shrubs, and grassed areas immediately adjacent to the site of the work and adjacent to his assigned storage area and access routes(s) as applicable. This report will be signed by both the Contracting Officer and Contractor upon mutual agreement as to its accuracy and completeness.

Waste Disposal Scheme; FIO.

As part of his proposed implementation under Paragraph 3.2, and prior to onsite construction, the Contractor shall submit a description of his scheme for disposing of waste materials resulting from the work under this contract. If any waste material is dumped in unauthorized area, the

Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed areas. Where directed, contaminated ground shall be excavated, disposed of as approved, and replaced with suitable fill material, all at the expense of the Contractor.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall perform all work in such manner as to minimize the pollution of air, water, or land, and shall, within reasonable limits, control noise and the disposal of solid waste materials, as well as other pollutants.

3.2 IMPLEMENTATION

Within 10 calendar days after Notice to Proceed and prior to commencement of the work at the site, the Contractor shall meet the representatives of the Contracting Officer to review and alter his proposal as needed for compliance with the environmental pollution control program.

3.3 PROTECTION OF LAND AREAS

Except for any work on storage areas and access routes specifically assigned for the use of the Contractor under this contract, the land areas outside the limits of permanent work performed under this contract shall, in accordance with CONTRACT CLAUSE: PROTECTION OF EXISTING VEGETATION, STRUCTURE, UTILITIES AND IMPROVEMENTS, be preserved in their present condition. Contractor shall confine his construction activities to areas defined for work on the plans or specifically assigned for his use. In accordance with CONTRACT CLAUSE: OPERATIONS AND STORAGE AREAS, storage and related areas and access routes required temporarily by the Contractor in the performance of the work will be assigned by the Contracting Officer. No other areas on Government premises shall be used by the Contractor without written consent of the Contractor Officer.

3.4 PROTECTION OF TREES AND SHRUBS

CONTRACT CLAUSE: PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES AND IMPROVEMENTS, is hereby supplemented as follows: The Contractor shall not deface, injure or destroy trees or shrubs, nor remove or cut them without special authority. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage.

3.4.1 Tree Protective Structures:

Where, in the opinion of the Contracting Officer, trees may possibly be defaced, bruised, injured or otherwise damaged by the Contractor's equipment or by his other operations, he may direct the Contractor to provide temporary protection of such trees by placing boards, plans, or poles around them.

3.4.2 Restoration of Damaged Trees:

Any tree scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense. All scars made on trees not designated on the plans to be removed by construction operations shall be coated as soon as possible with an approved tree wound dressing. Trees that are to remain, either within or outside established clearing limits, that are damaged by the Contractor so as to be beyond saving in the opinion of the Contracting Officer, shall be immediately removed, if so directed, and replaced with a nursery-grown tree of the same species and size.

3.5 PROTECTION OF WATER RESOURCES

The Contractor shall control the disposal of fuels, oils, bitumens, calcium chloride, acids, or harmful materials, both on and off the Government premises, and shall comply with applicable Federal, State, County and Municipal laws concerning pollution of rivers and streams while performing work under this contract. Special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, herbicides and insecticides from entering public waters. Water used in onsite material processing, concrete curing, foundation and concrete cleanup, and other waste waters shall not be allowed to reenter a stream if an increase in the turbidity of the stream could result therefrom.

3.6 ACTIVITY ENVIRONMENTAL ANALYSIS

Before starting any major phase of the work, an Activity Environmental Analysis shall be developed by the contractor and reviewed with the Government Representative. A major phase of the work is defined as an operation involving a type of work not previously experienced which presents possible sources of adverse environmental effects. This analysis will evaluate potential environmental consequences of the activity and the techniques which will be utilized to accomplish the work in an acceptable manner. This analysis included: (1) the phase or activity or work; (2) the potential environmental consequences of the activity; (3) precautionary actions to prevent adverse environmental impacts; (4) actions in the event of an environmental incident; and (5) the appropriate reference to Federal, State, or Local standards, regulations, or laws.

3.7 BURNING

Air pollution restrictions applicable to this project are as follows. Materials shall not be burned on the Government premises. If the Contractor elects to dispose of waste materials off the Government premises, by burning, he shall make his own arrangements for such burning area and shall, as specified in CONTRACT CLAUSE: PERMITS AND RESPONSIBILITIES, conform to all local regulations.

3.8 DUST CONTROL

The Contractor shall maintain all excavations, stockpiles, access roads, waste areas, and all other work free from excess dust to such reasonable degree as to avoid causing a hazard or nuisance to the Using Service or to others. Approved temporary methods consisting of sprinkling, chemical

treatment, or similar methods will be permitted to control dust. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

3.9 EROSION CONTROL

Surface drainage from cuts and fills within the construction limits, whether or not completed, and from borrow and waste disposal areas, shall be graded to control erosion within acceptable limits. Temporary control measures shall be provided and maintained until permanent drainage facilities are completed and operative. The area of bare soil exposed at any one time by construction operations, should be held to a minimum. Refer to Section 00800 - 81 for Pollution Prevention Plan for runoff.

3.10 WASTE DISPOSAL

a. Scrap metals shall be delivered to the convenience centers for recycling. The metals can be steel, aluminum, brass, copper and bronze. Containers (55 gallon drums, 5 gallon cans, etc.) that have contained petroleum, antifreeze, paint, acid, etc., cannot be accepted as scrap metal at this time. The containers shall be emptied of any liquid contents in accordance with applicable regulations and then flattened and placed in dumpsters at the convenience centers.

b. Wooden pallets and cardboard must be segregated from debris going to the Government construction landfill. The wooden pallets must be transported the convenience center.

c. The cardboard must be taken to the recycle plant or to the convenience center mentioned above.

d. The Government construction and debris landfill will not accept debris contaminated with wood pallets or cardboard. The contractor is responsible for separation of these materials or transportation to an off-post landfill.

3.11 CORRECTIVE ACTION

The Contractor shall, upon receipt of a notice in writing of any noncompliance with the foregoing provisions, take immediate corrective action. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs of damages by the Contractor unless it was later determined that the Contractor was in compliance.

3.12 POST-CONSTRUCTION CLEANUP OR OBLITERATION

In accordance with CONTRACT CLAUSE: CLEANING UP, the Contractor shall, unless other wise instructed in writing by the Contracting Officer, obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures,

stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed areas shall be graded and filled and the entire area seeded.

3.13 PAYMENT

No separate payment or direct payment will be made for the cost of the work covered under this section, and such work will be considered as a subsidiary obligation of the Contractor.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 INVENTORY OF INSTALLED PROPERTY

A list shall be made of equipment or units of equipment that require electrical power, water, or fuel, or that may require periodic or eventual removal or replacement. Such items shall include, but not limited to, air handling units; fans; air conditioners; compressors; condensers; boilers; thermal exchangers; pumps; cooling towers; tanks; fire hydrants; large plumbing fixtures such as sinks water closets, lavatories, urinals, and showers; fire suppression systems (sprinkler heads by type, etc.); and light fixtures. The list shall be kept up to date as items are installed or claimed for payment as material on hand. The list will be reviewed periodically by the Government to ensure completeness and accuracy. Partial payment may be withheld for equipment not incorporated in the list at the discretion of the Contracting Officer. The list shall include on each item as applicable: description, manufacturer, model or catalog No., serial No., input (power, voltage, BTU, tons, etc.), size or capacity (e.g. tanks), installation location, net inventory costs; any other data necessary to describe item. Final list shall be turned over to the Contracting Officer 60 days prior to prefinal inspection.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 WARRANTY OF CONSTRUCTION (APR 1984)

1.1.1 General

See Paragraph "Warranty of Construction" in Section 00800 - SPECIAL CONTRACT REQUIREMENTS

1.2 PREWARRANTY CONFERENCE

Prior to contract completion and at a time designated by the Contracting Officer or his representative, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of Paragraph: WARRANTY OF CONSTRUCTION. The Contracting Officer shall establish communication procedures for Contractor notification of warranty defects, priorities with respect to the type of defect and reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty.

1.3 AS-BUILT DRAWINGS

1.3.1 General:

The Contractor shall prepare the as-built drawings for this project. The as-built drawings shall be a record of the construction as installed and completed by the Contractor. They shall include the information shown on the contract set of drawings and a record of deviations, modifications, or changes from those drawings, however minor, which were incorporated into the work, additional work not appearing on the contract drawings, and changes which are made after final inspection of the work. If additional work changes the as-built conditions after submission of the as-built drawings, the Contractor shall furnish revised or additional drawings to depict as-built conditions.

1.3.2 Preliminary As-Built Drawings:

The Contractor shall maintain one set of paper prints which shall show the as-built conditions and which shall be kept current and available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. The as-built marked prints shall be jointly inspected for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. The drawings shall show the following information, but not be limited thereto:

a. The location and description of utility lines or other installations of any kind or description known to exist within the construction area. Exterior utilities shall be located in both the horizontal and vertical planes. Dimensions shall be within an accuracy of approximately 6 inches. Vertical location shall be referenced to finished grade or floor level and the horizontal location referenced to a permanent structure such as the face of a building or street curb.

b. The location and dimensions of changes within the building or structure.

c. Correct grade or alignment of roads, structures, or utilities if changes were made from contract plans.

d. Correct elevations if changes were made in site grading.

e. Changes in details of design or additional information obtained from shop drawings prepared or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

f. The topography and grades of drainage constructed or affected as a part of the construction.

g. Changes or modifications resulting from the final inspection.

h. Where contract drawings or specifications allow options, the option selected for construction shall be shown on the as-built drawings.

1.3.3 Submittal to Contracting Officer for Review and Approval:

Two copies of the preliminary as-built marked prints shall be delivered to the Contracting Officer at the time of final inspection for his review and approval. Upon approval, one copy of the as-built marked prints will be returned to the Contractor. If upon review, the drawings are found to contain errors or omissions, they will be returned to the Contractor for corrections. The Contractor will complete the corrections and return the drawings to the Contracting Officer within 10 calendar days.

1.3.4 Final As-Built Drawings:

Upon approval of the preliminary as-built prints, the Contractor shall provide the final as-built drawings in MicroStation Ver. 5.0.95 or later CADD format, with a print of each drawing for the Contracting Officers approval. The final digitized drawings shall be modified to bring them into agreement with the preliminary as-built prints. If additional drawings are required, they shall be prepared using the same software. The Graphic and Data Base standards developed by Wright-Patterson Air Force Base shall be followed to the greatest extent possible. A documentation handbook shall be submitted with the database. The handbook shall contain a description of the database, it's naming conventions, layering schemes, and all other pertinent information needed to construct and use the database.

1.3.4.1 Media:

Digital Data Format shall be as listed below in order of preference. Compression is optional on Compact Disc and Bernoulli.

More than 20 mb of uncompressed data

1. 5-1/4" Compact Disc utilizing DOS or Windows Backup software.
2. Bernoulli Disk utilizing DOS or Windows Backup software.
3. 8 mm magnetic tape cartridge (5.0 gb max.) utilizing NT Backup software.
4. 8 mm magnetic tape cartridge (2.3 gb) utilizing UNIX SCPIO Backup software.
5. 1/4" magnetic tape cartridge utilizing UNIX SCPIO Backup software.
6. 3.5-in. High-density diskette(1.44 mb) utilizing DOS, Windows Backup or Pkzip software.

Less than 20 mb of uncompressed data.

1. 5-1/4" Compact Disc utilizing DOS or Windows Backup software.
2. Bernoulli Disk utilizing DOS or Windows Backup software.
3. 3.5-in. High-density diskette (1.44 mb) utilizing DOS, NT, Windows Backup or Pkzip software.

1.3.4.2 Draftsmanship:

Only personnel proficient in the preparation of engineering drawings, in the specified format, to standards satisfactory and acceptable to the Government shall be employed in producing the final as-built drawings. All additions and corrections shall be neat, clean, and legible and shall match the adjacent existing linework and lettering being annotated in type, density, size, and style.

a. Final as-built revisions of each drawing shall have the words "DRAWING OF WORK AS-BUILT" in letters at least 3/16 inch high placed below the title block between the border and the trim line. The date of completion and the words "REVISED AS-BUILT" shall be placed in the revision block above the latest existing revision notation. All marking highlighting previous revisions shall be removed.

b. The title block for additional as-built drawings shall be similar to that used on the original drawings.

1.3.5 Final Submittal:

Not later than 60 days after the contract completion date, the Contractor shall provide to the Contracting Officer the final as-built drawings on tape media specified hereinbefore together with the approved preliminary as-built marked prints, and a final print of each drawing as-built. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

1.4 OPERATING AND MAINTENANCE INSTRUCTIONS

1.4.1 General:

Operating and maintenance (O&M) instructions shall be furnished for equipment and systems as required in the Section 01800 - EQUIPMENT OPERATING, MAINTENANCE, AND REPAIR MANUALS.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01800

EQUIPMENT OPERATING, MAINTENANCE, AND REPAIR MANUALS

PART 1 GENERAL

1.1 SUMMARY (Not Applicable)

1.2 General Requirements

The Contractor shall provide 6 complete copies of the Equipment Operating, Maintenance, and Repair Manuals. Separate manuals shall be provided for each utility system as defined hereinafter. Operations and Maintenance manuals shall be submitted and approved before field training or 90 days before substantial completion (whichever occurs earlier), and as specified in Special Contract Requirement 10. An amount of $10,000 shall be withheld until submittal and approval of O&M manuals is complete.

1.3 Definitions

1.3.1 Equipment:

A single piece of equipment operating alone or in conjunction with other equipment to accomplish a system function.

1.3.2 System:

A combination of one or more pieces of equipment which function together to accomplish an intended purpose (i.e. HVAC system is composed of many individual pieces of equipment such as fans, motors, compressors, valves, sensors, relays, etc.)

1.3.3 Hard Cover Binders:

The manuals shall be hard cover with posts, or 3-ring binders, so sheets may be substituted easily. The following identification shall be printed on the cover: the words "EQUIPMENT OPERATING, MAINTENANCE, AND REPAIR MANUALS," the project name, building number, and an indication of utility or systems covered, the name of the Contractor, and the Contract number. Manuals shall be approximately 8-1/2 by 11-inches with large sheets folded in and capable of being easily pulled out for reference. All manuals for the project must be similar in appearance, and be of professional quality.

1.3.4 Warning Page:

A warning page shall be provided to warn of potential dangers (if they exist, such as high voltage, toxic chemicals, flammable liquids, explosive materials, carcinogens, high pressures, etc.). The warning page shall be placed inside the front cover and in front of the title page. Also, any necessary Material Safety Data Sheets (MDSD) shall be included here.

1.3.5 Title Page:

The title page shall include the same information shown on the cover and show the name of the preparing firm and the date of publication.

1.3.6 Table of Contents:

Each volume of the set of manuals for this project shall include a table of contents, for the entire set, broken down by volume.

PART 2 PRODUCTS (Not Used.)

PART 3 EXECUTION

3.1 GENERAL

Manuals shall be organized according to the following format, and will include information for each item of equipment (NOTE: This includes any equipment which may have been omitted from the items listed in Paragraph 3.2, System/Equipment Requirements.) A draft outline and table of contents shall be submitted for approval at 50% contract completion.

TABLE OF CONTENTS

PART I. Introduction.

(a) Equipment Description.
(b) Functional Description.
(c) Installation Description.

PART II. Operating Principles.

PART III. Safety.

PART IV. Preventive Maintenance

(a) Preventive Maintenance Checklist. Lubrication
(b) Charts and Diagrams.

PART V. Spare Parts Lists

(a) Troubleshooting Guide
(b) Adjustments
(c) Common Repairs and Parts Replacement

PART VI. Illustrations

3.1.1 Part I-Introduction:

Part I shall provide an introduction, equipment or system description, functional description and theory of operation, and installation instructions for each piece of equipment. Complete instructions for uncrating, assembly, connection to the power source and pre-operating lubrication shall be included in the installation instructions as applicable. Illustrations, including wiring and cabling diagrams, are required as appropriate in this section. Halftone pictures of the equipment should be included in the introduction and equipment description, as well as system layout drawings with each item of equipment located and marked. Copies of previously submitted shop drawings shall not be used in these manuals.

3.1.2 Part II-Operating Principles:

Part II shall provide complete instructions for operating the system, and each piece of equipment. Illustrations, halftone pictures, tables, charts, procedures, and diagrams are required when applicable. This will include step-by-step procedures for start-up and shutdown of both the system and each component piece of equipments, as well as adjustments required to obtain optimum equipment performance, and corrective actions for malfunctions. Performance sheets and graphs showing capacity data, efficiencies, electrical characteristics, pressure drops, and flow rates shall be shown here, also. Marked-up catalogs or catalog pages do not satisfy this requirements. Performance information shall be presented as concisely as possible and contain only data pertaining to equipment actually installed. Actual test data collected for Contractor performance shall be included here.

3.1.3 Part III-Safety:

Part III shall contain the general and specific safety requirements peculiar to each item of equipment. Safety information should be repeated as notes cautions, and warnings in other sections where appropriate to operations described.

3.1.4 Part IV-Preventive Maintenance:

Part IV shall contain a troubleshooting guide, including detailed instructions for all common adjustments and alignment procedures, including a detailed maintenance schedule. Also, include a diagnostic chart showing symptoms and solutions to problems. Include test hookups to determine the cause, special tools and test equipment, and methods for returning the equipment to operating conditions. Information may be in chart form or in tabular format with appropriate headings. Instructions shall be included for the removal, disassembly, repair, reassembly, and replacement of parts and assemblies where applicable and the task is not obvious.

3.1.5 Part V-Spare Parts List:

Part V shall contain a tabulation of description data and parts location illustrations for all mechanical and electrical parts. The heading of the parts list shall clearly identify the supplier, purchase order number, and equipment. The unit price for each part shall be included, also. Parts shall be listed by major assemblies, and the listing shall be arranged in columnar form. Also, names and addresses of the nearest manufacturer's representatives will be included, as well as any

special warranty information. A list of spare parts that are recommended to be kept in stock by the Government installation shall be provided.

3.1.6 Part VI-Illustrations:

Part VI shall contain assembly drawings for the complete equipment or system and for all major components. Complete wiring diagrams and schematics shall be included. Other illustrations, such as exploded views, block diagrams, and cutaway drawings, are required as appropriate.

3.1.7 Framed Instructions:

Framed instructions under glass or in laminated plastic, including wiring and control diagrams showing the complete layout of the entire system, including equipment, ductwork, piping valves, dampers, and control sequence, shall be posted at a location near the equipment described. Condensed operating instructions explaining preventive maintenance procedures methods of checking the system for normal safe operation, valve schedule and procedures for safely starting and stopping the system shall be prepared in type form, framed as specified above for the wiring and control diagrams and posted beside the diagrams. Proposed diagrams, instructions, and other sheets shall be submitted prior to posting. The framed instructions shall be posted before field training.

3.1.8 Field Training:

Contractor shall conduct a training course for the operating staff for each particular system. The training period, a total of ... hours of normal working time, shall start after the system is functionally completed. The field instructions shall cover all of the items contained in the Equipment Operating, Maintenance and Repair Manuals. The training will include both classroom and "hands-on" training. The Contractor shall submit a lesson plan outlining the information to be discussed during training periods. This lesson plan will be submitted 90 days before contract completion and approved before the field training occurs. Training shall be videotaped on one-half inch VHS cassettes and shall be furnished to the Government within ten (10) days following training. Training shall be documented by the Contractor and a list of attendees shall be furnished to the Government.

3.2 SYSTEM/EQUIPMENT REQUIREMENTS

3.2.1 Facility Heating System:

Information shall be provided on the following equipment: boilers, water treatment, chemical feed pumps and tanks, converters, heat exchangers, pumps, unit heaters, fin-tube radiation, air handling units (both heating only and heating and cooling), and valves (associated with heating systems).

3.2.2 Air-Conditioning Systems:

Provide information in chillers, packaged air-conditioning equipment, towers, water treatment, chemical feed pumps and tanks, air-cooled condensers, pumps, compressors, air handling units,

and valves (associated with air-conditioning systems).

3.2.3 Temperature Control and HVAC Distribution Systems:

Provide all information described for the following equipment: valves, fans, air handling units, pumps, boilers, converters and heat exchangers, chillers, water cooled condensers, cooling towers, and fin-tube radiation, control air compressors, control components (sensors, controllers, adapters and actuators), and flow measuring equipment.

3.2.4 Central Heating Plants:

Provide the information described for the following equipment: boilers, converters, heat exchangers, pumps, fans, steam traps, pollution control equipment, chemical feed equipment, control systems, fuel handling equipment, deaerators, tanks (flash, expansion, return waters, etc.), water softeners, and valves.

3.2.5 Heating Distribution Systems:

Provide the information described for the following equipment: valves, fans, pumps, converters and heat exchangers, steam traps, tanks (expansion, flash, etc.), and piping systems.

3.2.6 Exterior Electrical Systems:

Information shall be provided on the following equipment: power transformers, relays, reclosers, breakers, and capacitor bank controls.

3.2.7 Interior Electrical Systems:

Information shall be provided on the following equipment: relays, motor control centers, switchgear, solid state circuit breakers, motor controller, EPS lighting systems, wiring diagrams and troubleshooting flow chart on control systems, and special grounding systems.

3.2.8 Energy Monitoring and Control Systems:

The maintenance manual shall include descriptions of maintenance for all equipment, including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.

3.2.9 Domestic Water Systems

The identified information shall be provided on the following equipment: tanks, unit process equipment, pumps, motors, control and monitoring instrumentation, laboratory test equipment, chemical feeders, valves, switching gear, and automatic controls.

3.2.10 Wastewater Treatment Systems:

The identified information shall be provided on the following equipment: tanks, unit process

equipment, pumps, motors, control and monitoring instrumentations, laboratory test equipment chemical feeders, valves, scrapers, skimmers, comminutors, blowers, switching gear, and automatic controls.

3.2.11 Fire Protection Systems:

Information shall be provided on the following equipment: alarm valves, manual valves, regulators, foam and gas storage tanks, piping materials, sprinkler heads, nozzles, pumps, and pump drivers.

3.2.12 Fire Detection Systems:

The maintenance manual shall include description of maintenance for all equipment, including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

3.2.13 Plumbing Systems:

Information shall be provided on the following equipment: water heaters, valves, pressure regulators backflow preventors, piping materials, and plumbing fixtures.

3.2.14 Liquid Fuels Systems:

Information shall be provided on the following equipment: tanks, automatic valves manual valves, filter separators, pumps, mechanical loading arms, nozzles, meters, electronic controls, electrical switch gear, and fluidic controls.

3.2.15 Cathodic Protection Systems:

Information shall be provided on the following material and equipment: rectifiers, meters, anodes, anode backfill, anode lead wire, insulation material and wire size, automatic controls (if any), rheostats, switches, fuses and circuit breakers, type and size of rectifying elements, type of oil in oil-immersed rectifiers, and rating of shunts.

3.2.16 Generator Installations:

Information shall be provided on the following equipment: generator sets, automatic transfer panels, governors, exciters, regulators starting systems, switchgear, and protective devices.

3.2.17 Miscellaneous Systems:

Information shall be provided on the following: communication and ADP systems, security and intrusion alarm, elevators, material handling, active solar, photovoltaic, nurse call, paging, intercom, closed circuit TV, irrigation, sound and material delivery systems, kitchen, refrigeration, disposal, icemaking equipment, and other similar type special systems not otherwise specified.

3.2.18 Laboratory, Environmental and Pollution Control Systems:

Information shall be provided on the following equipment: wet scrubbers, quench chambers, scrub tanks, liquid oil separators, and fume hoods.

3.3 PRICING OF CONTRACTOR-FURNISHED AND INSTALLEDPROPERTY AND GOVERNMENT-FURNISHED CONTRACTOR-INSTALLED PROPERTY

The Contractor shall promptly furnish and shall cause any sub-contractor or supplier to furnish, in like manner, unit prices and descriptive data required by the Government for Property Record purposes of fixtures and equipment furnished and/or installed by the Contractor or sub-contractor, except prices do not need to be provided for Government-Furnished Property. This information shall be listed in the RMS CQC Modul furnished by the Government. See example forms aat the end of the Special Contractor Requirements.

END OF SECTION

SECTION 02050

DEMOLITION

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

EM 385-1-1	(1992) U.S. Army Corps of Engineers Safety and Health Requirements Manual

1.2 GENERAL REQUIREMENTS

The work includes demolition, salvage of identified items and materials, and removal of resulting rubbish and debris. Rubbish and debris shall be removed from Government property daily, unless otherwise directed, to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the Contracting Officer. In the interest of occupational safety and health, the work shall be performed in accordance with M 385-1-1, Section 23, Demolition, and other applicable Sections. In the interest of conservation, salvage shall be pursued to the maximum extent possible; salvaged items and materials shall be disposed of as specified.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-08 Statements

Work Plan; GA.

The procedures proposed for the accomplishment of the work. The procedures shall provide for safe conduct of the work, including procedures and methods to provide necessary supports, lateral bracing and shoring when required, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations in accordance with M 385-1-1.

1.4 DUST CONTROL

The amount of dust resulting from demolition shall be controlled to prevent the spread of dust to occupied portions of the construction site and to avoid creation of a nuisance in the surrounding

area. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as ice, flooding and pollution.

1.5 PROTECTION

1.5.1 Protection of Personnel:

During the demolition work the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site. No area, section, or component of floors, roofs, walls, columns, pilasters, or other structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

Floors, roofs, walls, columns, pilasters, and other structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, may be allowed to remain standing without additional bracing, shoring, of lateral support until demolished. The Contractor shall ensure that no elements determined to be unstable are left unsupported and shall be responsible for placing and securing bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.5.2 Protection of Existing Property:

Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The Contractor shall take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Government; any damaged items shall be repaired or replaced as approved by the Contracting Officer. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.5.3 Protection From the Weather:

The interior of buildings to remain and salvageable materials and equipment shall be protected from the weather at all times.

1.5.4 Protection of Trees:

Trees within the project site which might be damaged during demolition and which are indicated to be left in place shall be protected by a 2 meter (6 foot) high fence. The fence shall be securely erected a minimum of 1500 mm (5 feet) from the trunk of individual trees or follow the outer perimeter of branches or clumps of trees. Any tree designated to remain that is damaged during the work under this contract shall be replaced in kind or as approved by the Contracting Officer.

1.6 BURNING

The use of burning at the project site for the disposal of refuse and debris [will not be permitted].

1.7 USE OF EXPLOSIVES

Use of explosives [will not] be permitted.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 UTILITIES

Existing utilities shall be removed as indicated. When utility lines are encountered that are not indicated on the drawings, the Contracting Officer shall be notified prior to further work in that area.

3.2 DISPOSITION OF MATERIAL

Title to material and equipment to be demolished, except Government salvage and historical items, is vested in the Contractor upon receipt of notice to proceed. The Government will not be responsible for the condition, loss or damage to such property after notice to proceed.

3.3 CLEAN UP

Debris and rubbish shall be removed from basement and similar excavations. Debris shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

3.4 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.4.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.4.2 List of Louisville District Guide Specifications:

02050.ORL Demolition

END OF SECTION

SECTION 02300

EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

This section covers the following:

Building, Road, and Utility Excavation and Backfill
Soil Treatment

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ASTM C 136	(1995a) Sieve Analysis of Fine and Coarse Aggregates
ASTM D 422	(1963; R 1990) Particle-Size Analysis of Soils
ASTM D 1556	(1990) Density of Soil In-Place by the Sand-Cone Method
ASTM D 1557	(1991) Moisturc-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Lb. (4.54-kg) Rammer and 18-In. (457-mm) Drop
ASTM D 2216	(1992) Laboratory Dedtermination of Water (Moisture) Content of Soil, and Rock
ASTM D 2487	(1993) Classification of Soils for Engineering Purposes
ASTM D 2922	(1991) Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth)
ASTM D 4253	(1993) Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
ASTM D 4643	(1993) Determination of Water (Moisture) Content of Soil by the Microwave Method

1.3 DEGREE OF COMPACTION

Degree of compaction is a percentage of the maximum laboratory dry density obtained by the test procedure presented in ASTM D 1557 or ASTM D 4253. ASTM D 1557 shall be used for soils containing 15 percent or more passing the no. 200 sieve (fines). ASTM D 4253 shall be used for soils containing 5 percent or less fines. The maximum laboratory dry density for soils containing between 5 and 15 percent fines shall be determined by the above procedure yielding the highest laboratory dry density. The percentage of material passing the no. 200 sieve shall be determined in accordance with ASTM D 4253. Degree of compaction shall be expressed as a percentage of the maximum laboratory dry density obtained by the appropriate procedure as defined above.

Percentage of maximum laboratory dry density has been abbreviated hereinafter as percent laboratory maximum density.

1.4 SUBMITTALS

The following submittals shall be provided as a minimum:

Field Density Tests

Testing of Backfill Materials

Copies of all laboratory and field test reports within 24 hours of the completion of the test.

1.5 WARRANTY

The Contractor shall provide a 3-year written warranty against infestations or reinfestations by subterranean termites of the buildings or building additions constructed under this contract. Warranty shall include annual inspections of the building addition. If live subterranean termite infestation or subterranean termite damage is discovered during the warranty period, and the soil and building conditions have not been altered in the interim, the Contractor shall:

a. Re-treat the soil and perform other treatment as may be necessary for elimination of subterranean termite infestation;
b. Repair damage caused by termite infestation; and
c. Reinspect the building approximately 180 days after the retreatment.

PART 2 PRODUCTS

2.1 EARTHWORK MATERIALS:

2.1.1 Satisfactory Materials:

Satisfactory materials shall comprise any materials classified in ASTM D 2487, as GW, GP, GC, GM, SW, SP, SM, SC, CL, and CH, and shall be free of trash, debris, roots, or other organic matter, or stones larger than 150 mm.

2.1.2 Unsatisfactory Materials:

Unsatisfactory materials shall comprise any materials classified in ASTM D 2487, as PT, OH, OL, ML and MH.

2.1.3 Cohesionless and Cohesive Materials:

Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Cohesionless materials include materials classified in ASTM D 2487, as GW, GP, SW, and SP. Materials classified as GM and SM are identified as cohesionless only when the fines have a plasticity index

of zero. Additional particle size analysis shall be made as necessary using ASTM C 136 or ASTM D 422 as applicable.

2.1.4 Nonexpansive Fill:

Nonexpansive fill shall be satisfactory material, excluding material classified as CL or CH, having a plasticity index less than or equal to 12.

2.1.5 Plastic Marking Tape:

Plastic marking tape shall be acid and alkali- resistant polyethylene film, 150 mm wide with minimum thickness of 0.102 mm. Tape shall have a minimum strength of 12.1 MPa lengthwise and 10.3 MPa crosswise. The tape shall be manufactured with integral wires, foil backing or other means to enable detection by a metal detector when the tape is buried up to 1 meter deep. The tape shall be of a type specifically manufactured for marking and locating underground utilities. The metallic core of the tape shall be encased in a protective jacket or provided with other means to protect it from corrosion. Tape color shall be as specified below and shall bear a continuous printed inscription describing the specific utility:

TAPE COLOR

Red	Electric
Yellow	Gas, Oil, Dangerous Materials
Orange	Telephone, Telegraph, Television, Police and Fire Communications
Blue	Water Systems
Green	Sewer Systems

2.2 TERMITICIDE MATERIALS

Termiticides shall be currently registered by the EPA. All chemical termiticides used on project shall be approved by the Government prior to installation.

PART 3 EXECUTION

3.1 STRIPPING AND CONSERVATION AND REPLACEMENT OF TOPSOIL

Topsoil shall be defined as natural, friable surface soil possessing the characteristics of representative soils in the vicinity that produce heavy growth of crops, grass, or other vegetation. Topsoil in cut or fill areas shall be stripped and spread on areas already graded and prepared for topsoil, or when so directed, topsoil shall be transported and deposited in stockpiles convenient to areas that are to receive application of the topsoil later, or at locations indicated or specified. Topsoil shall be stripped to a minimum depth of 150 mm and, when stored, shall be kept separate from other excavated materials and stockpiled free of roots, stones, and other undesirable materials. Upon completion of excavation or fill, topsoil or stripping conserved shall be uniformly distributed over all disturbed areas where topsoil is removed. The final surface shall be free of materials that would hinder planting or maintenance operations. The subgrade shall be pulverized

to a depth of 50 mm by disking or plowing for the bonding of topsoil with the subsoil. Topsoil shall then be uniformly spread, graded, and compacted to the thickness, elevations, and slopes shown, and left free of surface irregularities. Topsoil shall not be placed when the subgrade is frozen, excessively wet, extremely dry, or in a condition otherwise detrimental to seeding, planting, or proper grading.

3.2 BLASTING

Blasting will not be permitted.

3.3 EXCAVATION

After all stripping has been completed, excavation of every description, regardless of material encountered, shall be performed to the lines and grades indicated. Satisfactory excavation material shall be transported to and placed in fill areas within limits of the work. Excavations below indicated depths will not be permitted except to remove unsatisfactory material. Unsatisfactory material encountered below the grades shown shall be removed as directed and replaced with satisfactory material. Payment therefor will be made in conformance with the contract clause entitled "Changes". Satisfactory material removed below the deptlas indicated without specific direction of the Contracting Officer shall be replaced at no additional cost to the Government, to the indicated excavation grade with satisfactory materials, except that concrete footings shall be increased in thickness to the bottom of the overdepth excavations and overbreak in rock excavation. Provide proper drainage at all times.

3.3.1 Drainage:

Excavation shall be performed so that the area of the site and the area immediately surrounding the site and affecting operations at the site will be continually and effectively drained. Water shall not be permitted to accumulate in excavations. The excavation shall be drained by pumping or other satisfactory methods to prevent softening of subgrades or foundations.

3.3.2 Ditches:

Excavation of ditches shall be accomplished by cutting accurately to the cross sections, grades, and elevations shown. Care shall be taken not to excavate ditches below grades shown. Excessive open ditch excavation shall be backfilled with satisfactory, thoroughly compacted material to grades shown at no additional cost to the Government. The Contractor shall maintain all excavations free from detrimental quantities of leaves, brush, sticks, trash, and other debris until final acceptance of the work.

3.3.3 Drainage Structures:

Excavations shall be made accurately to the lines, grade, and elevations shown or as directed. Trenches and foundation pits shall be of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations as shown.

3.3.4 Shoring:

Shoring, including sheet piling, shall be furnished and installed as necessary to protect workmen, banks, adjacent paving, structures, and utilities. Shoring, bracing, and sheeting shall be removed as excavations are backfilled, in a manner to prevent caving. In lieu of slopping, banks may be cut to backslopes in accordance with the Corps of Engineers Safety Manual.

3.3.5 Final Grade of Surfaces to Support Concrete:

Excavation to final grade shall not be made until just before concrete is to be placed. Approximately level surfaces shall be roughened, and sloped surfaces shall be cut into tough steps or benches to provide a satisfactory bond. Subgraded surfaces for concrete boxes may be overexcavated provided the backfill consists of crushed rock, gravel, sand, or lean concrete fill leveled to provide a working surface for the structure slab. Shales shall be protected from staking or other erosion resulting from ponding or flow of water.

3.3.6 Trench Excavation:

The trench shall be excavated as recommended by the manufacturer of the pipe to be installed. Trench walls below and above the top of the pipe shall be sloped, or made vertical, as recommended in the manufacturer's installation manual. The trench width below the top of the pipe shall not exceed that recommended in the installation manual. Where no manufacturer's installation manuals are available, trench walls below the top of the pipe shall be vertical, and trench walls above the top of the pipe shall be sloped as required to properly complete the work. Trench width below the top of the pipe shall not exceed 600 mm plus pipe outside diameter (O.D.) for pipes of less than 600 mm inside diameter, and shall not exceed 1 meter plus pipe O.D. for larger sizes.

3.3.6.1 Bottom Preparation:

When pipe is laid directly on trench bottom, the bottoms of trenches shall be accurately graded to provide uniform bearing and support for the bottom quadrant of each section of the pipe. Bell holes shall be excavated to the necessary size of each joint or coupling to eliminate point bearing. Stones of 75 mm or greater in any dimension, or as recommended by the pipe manufacturer, whichever is smaller, shall be removed to avoid point bearing.

3.3.6.2 Removal of Unyielding Material:

Where unyielding material is encountered in the bottom of the trench, such material shall be removed 100 mm below the required grade and replaced with suitable materials.

3.3.6.3 Removal of Unstable Material:

Where unstable material is encountered in the bottom of the trench, such material shall be removed to the depth directed and replaced to the proper grade with granular material specified hereinbefore. When removal of unstable material is required due to the fault or nealect of the

Contractor in his performance of the work, the resulting material shall be excavated and replaced by the Contractor without additional cost to the Government.

3.3.6.4 Jacking, Boring, and Tunneling:

Excavation shall be by open cut except that sections of a trench crossing strets be jacked, bored, or tunneled. Plans shall be submitted for approval indicating the proposed method and materials.

3.4 BORROW MATERIAL

Where satisfactory materials are not available in sufficient quantity from required excavations, borrow material shall be obtained from sources off site at the Contractor's responsibility

3.5 CAPILLARY WATER BARRIER

The capillary water barrier shall be placed directly on the subgrade beneath the concrete floor slabs on grade and shall be compacted with minimum of two passes of a hand-operated plate-type vibratory compactor.

3.6 FILLING AND SUBGRADE PREPARATION

Satisfactory materials free from roots and debris shall be used in bringing fills to the lines and grades indicated and for replacing unsatisfactory materials. Nonexpansive soils shall be used in nonexpansive fill under building slabs. Where nonexpansive fill is required under floor slabs all fill under such slabs shall be Nonexpansive fill. Where no fill is required or where the fill under the capillary water barrier is less than 450 mm in depth, the subgrade shall be excavated and replaced with Nonexpansive fill to a minimum depth of 450 mm beneath the capillary water barrier. The subgrade below the Nonexpansive fill shall be loosened to a depth of 150 mm moistened, manipulated and recompacted as specified hereinafter. The moisture content of both the Nonexpansive fill and subgrade material after compaction shall be equal to or greater than optimum moisture content.

3.7 TRENCH BACKFILL

Trenches shall be backfilled in accordance with the published recommendations of the pipe manufacturers or the published industry standards.

3.8 SPECIAL TRENCHING REQUIREMENTS

Special requirements for both excavation and backfill relating to the specific utility trenching are as follows:

3.8.1 Gas Distribution:

Trenches shall be excavated to a depth that will provide not less than 450 mm of cover in rock excavation and not less than 600 mm of cover in other excavation.

3.8.2 Waterlines:

Trenches shall be of a depth to provide a minimum cover of 1050 mm from the existing ground surface, or from the indicated finished grade, whichever is lower, to the top of the pipe.

3.8.3 Electrical Distribution System:

Direct burial cable and conduit or duct line shall have a minimum cover of 600 mm from the finished grade, unless otherwise indicated.

3.8.4 Plastic Marking Tape:

Marking tapes shall be installed in the trench directly above the utility at a depth of 300 mm below finished Grade.

3.9 COMPACTION

Compaction shall be to not less than the percentage of maximum density specified below:

	Percent Laboratory Maximum Density	
Fill, embankment, and backfill	ASTM D 4 53	ASTM D 1557
Under proposed structures, building slabs, steps, and paved areas except Nonexpansive fill	90	95
Under sidewalks and grassed areas	85	90
Nonexpansive fill	92	92
Subgrade		
Under building slabs, steps, and paved areas, top 300 mm	90	95
Under sidewalks, top 150 mm	85	90

3.10 TESTING

Testing shall be the responsibility of the Contractor and shall be performed at no additional cost to the Government. Testing shall be performed by an approved commercial testing laboratory or may be performed by the Contractor subject to approval. If the Contractor elects to establish testing facilities, no work requiring testing will be permitted until the Contractor's facilities have been inspected and approved by the Contracting Officer. Moisture contents shall be determined

in accordance with ASTM D 4643 and/or ASTM D 2216. If the ASTM D 4643 procedure is used, moisture contents shall be checked by the ASTM D 2216 procedure once per each 10 ASTM D 4643 tests. Field in-place density shall be determined in accordance with ASTM D 1556 or ASTM D 2922. If ASTM D 2922 is used, in-place densities shall be checked by the ASTM D 1556 procedure at a frequency on one sand cone test for each 8 nuclear density tests and not less than one sand cone density test per lift. The sand cone test shall be performed adjacent to the location where a nuclear density test was performed to insure a proper correlation is established between the two density test procedures. When test results indicate, as determined by the Contracting Officer, that compaction is not as specified, the material shall be removed, replaced and recompacted to meet specification requirements, at no additional expense to the Government. Tests on recompacted areas shall be performed to determine conformance with specification requirements. The following number of tests, if performed at the appropriate time, shall be the minimum acceptable for each type operation.

3.10.1 Moisture Content:

Moisture contents shall be determined on materials obtained from each density sample location.

3.10.2 Field ln-Place Density Tests:

3.10.2.1 Buildings:

One test per 92.9 (building 464.5 m^2 or less), 232.3 (buildings 464.5 m^2 to 1858 m^2) 464.5 (buildings over 1858 m^2 meters squared per lift of subgrades or fills beneath buildings but not less than one test per lift

3.10.2.2 Paved Areas:

One test per 2000 square meters per lift of compacted material or fraction thereof.

3.10.2.3 Sidewalks:

One test per 55.7 m^2 of walkway surface or fraction thereof.

3.10.2.4 Turfed Areas:

One test per 2500 cubic meters of compacted material, or fraction thereof.

3.10.2.5 Trenching:

One test per 30.5 linear meters of trench per lift in paved areas and one test per 91.5 linear meters of trench per lift in all other areas.

3.10.3 Optimum Moisture and Laboratory Maximum Dry Density:

The laboratory maximum dry density shall be determined from materials obtained at a sand cone test location using the appropriated procedure specified in Part 1 above. When ASTM D 1557 is

used, the optimum moisture content shall be determined. A minimum of one laboratory maximum dry density test shall be run each placement day or fraction thereof Additional laboratory maximum dry density tests shall be run for each material change.

3.11 DISPLACEMENT OF SEWERS

After other required tests have been performed and the trench backfill compacted to 600 mm above the top of the pipe or to the finished grade surface, the pipe shall be inspected to determine whether significant displacement has occurred. This inspection shall be conducted in the presence of the Contracting Officer. Pipe sizes larger than 1 meter shall be entered and examined, while smaller diameter pipe shall be inspected by shining a light or laser between manholes or manhole locations, or by use of television cameras passed through the pipe. If, in the judgment of the Contracting Officer, the interior of the pipe shows poor alignment or any other defects that would cause improper functioning of the system, the defects shall be remedied.

3.12 APPLICATION OF TERMITICIDES

3.12.1 Treatment of New Structures:

The Contractor shall establish complete and unbroken vertical and/or horizontal (as necessary) soil poison barriers between the soil and all portions of the intended structure which may allow termite access to wood and wood related products. Application shall not be made to areas intended for use as a plenum air space. Surface treatments shall not be made for areas to serve as crawl spaces. Tenniticide shall be applied as a coarse spray and provide uniform distribution unto the soil surface. Treatment shall be in accordance with chemical instructions for the intended application. The Contracting Officer shall be notified at least 48 hours prior to beginning of treatment and formulating, mixing, and application shall be performed in the presence of the Contracting Officer's representative. The pesticide applicator's principalbusiness shall be pest control and the pesticide applicator shall be State certified in the U.S. Environmental Protection Agency (EPA) pesticide applicator category which includes structural pest control, and certified in the State.

3.12.2 Treatment of Existing Structures:

The existing structure shall not be treated.

3.12.3 Rates and Methods of Application:

Rates and methods of application shall be in accordance with the manufacturer's instructions on the pesticide label. Maximum application or dosage rates shall be used. If the pesticide contains less than the amount of active ingredient specified on the label, work shall be repeated with pesticides conforming to this specification.

3.13 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.13.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.13.2 List of CEGS Guide Specifications:

02221	Excavation, Filling and Backfilling for Buildings
02222	Excavation, Trenching, and Backfilling for Utilities Systems
02285	Soil Treatment for Subterranean Termite Control

END OF SECTION

SECTION 02400

FOUNDATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

This section covers the following:

Drilled concrete piers

1.2 GENERAL REQUIREMENTS

Building foundations shall be in accordance with the Geotechnical Information included in Appendix D. Piers shall be drilled poured concrete cassions. Subsurface groundwater is expected, Contractor shall make provisions for drilling and placing of concrete cassions with these conditions.

1.3 CONTRACTOR QUALIFICATIONS

The work shall be performed by a Contractor specializing in the specified foundation system and having experience installing the specified foundation system under similar subsurface conditions and shall furnish evidence that he has been engaged in the successful installation of drilled foundation piers for at least 4 years.

1.4 SUBSURFACE DATA

Design-Build Contractor shall conduct their own geotechnical investigation for foundations to develop the Foundation Analysis based on Louisville COE-provided Geotechnical Report, dated November, 1998 and the Subsurface Condition Summary dated March 10, 1998, both included in appendix D.

1.5 SURVEYS

Lines and levels shall be established and pier centerline locations staked and maintained by a registered surveyor or engineer provided by the Contractor.

1.6 SUBMITTALS

The following shall be submitted as a minimum

Records

Drilled Foundation Piers

The Contractor shall furnish records for each pier, showing shaft and bell diameters, depths of test holes, top and bottom elevations, bearing strata description, casing description, water conditions, concrete strength, concrete volume rock elevations, dates of excavation and concrete placement, and other pertinent information.

1.7 TOLERANCES

a. Cross sections of shafts and bells shall not be less than dimensions indicated.
b. The maximum allowable deviation for pier top location shall be 75 mm from centerline locations.
c. The maximum allowable deviation of pier plumbness shall be 3 5 mm for the top 3 m and 10 mm in 3 m for the remaining depth.
d. The maximum allowable inclination deviation for batter piers shall be 5 percent of length from specified inclination.
e. The top of concrete placed shall be plus or minus 75 mm from the elevation shown.

PART 2 PRODUCTS

2.1 CONCRETE

Concrete strength shall be 21 MPa at 28 days. Slump shall be from 130 to 180 mm.

PART 3 EXECUTION

3.1 INSTALLATION

Installation shall be by qualified contractor specified in Part 1 above.

3.2 QUALITY CONTROL

3.2.1 Contractor Supervision:

The Contractor shall provide for the supervision of all phases of drilled pier construction. Each drilled pier excavation shall be checked by the Contractor for its depth, water removal, cleanup, workmanship, and for all tolerance requirements before any concrete is placed.

3.2.2 Government Inspection:

The Contracting Officer will inspect each drilled pier excavation. Concrete shall not be placed until the excavation has been approved by the Contracting Officer. The Contractor shall furnish the Contracting Officer all necessary equipment and support personnel required for proper inspection of drilled pier excavations.

3.3 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.3.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to the Civil portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. All others listed may be utilized at the option of the Contractor. These specifications shall be edited as required to reflect the project requirements. Master specifications such as Masterspec, Spectext, or others may be used prior to approval from the Contracting Officer.

3.3.2 List of CEGS Guide Specifications:

02383	Drilled Foundation Caissons (Piers)

END OF SECTION

SECTION 02500

UTILITY SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

This section covers the following:

Water lines
Gas Lines
Sanitary Sewer Systems

1.1.1 Design Criteria:

1. Safe Drinking Water Act, Public Law 95-190, as amended.
2. Protection of Historic and Cultural Properties.
   - A. Public Law 89-665, National Historic Preservation Act of 1966 as amended by Public Law 95-515, December 12 1980.
   - B. Archaeological Resources Protection Act of 1979, Public Law 96-95, 93 STAT-721.
   - C. AR 420-40, Historic Preservation, 15 May 1984.
   - D. TM 5-801-1, Historic Preservation, Administrative Procedures, November 1995.
   - E. TM 5-801-2, Historic Preservation Maintenance Procedures, February 1977.
   - F. Secretary of the Interior's Standards and Guidelines.
3. Wastewater Collection and Conveyance System
   - A. Water pollution Control Federation Manual of Practice No FD-4, Design of Wastewater and Storm water Pumping Stations.
   - B. No. FD-5 Gravity Sanitary Sewer Design and Construction.
4. Federal Standard 595, Uniform Federal Accessibility Standards
5. Water Supply/Distribution Systems.
   - A. TM 5813-5, Water Supply, Water Distribution systems.

1.1.2 Metering:

Meters for electricity, water, and gas shall be provided for the Avionics Research Lab Phase IIIA.

1.2 WATER SERVICE DESCRIPTION

The existing water lines are routed as shown. The water lines shall be used to provide water service to the new facility. The water supply pressures and flow rates taken from nearby fire hydrants are as follows:

Refer to section 15000 of specifications, MECHANICAL WORK.

A shutoff valve shall be provided at the tie-in as shown. The tie-in to existing line shall be made by a full size tapped connection.

The new water service lines shall be placed in areas that are not subject to additional construction. Water service lines shall only have minimal length of service entry beneath buildings.

Minimum cover above water lines shall be 1050mm.

1.2.1 Performance:

The water supply system shall limit the pressure
drop (excluding meter loss) from the point of connection to the existing line to the point of entrance into building to less than 10 percent of the pressure in the existing line using maximum design flow rates.

Provide meters to record the usage.

1.3 GAS SERVICE DESCRIPTION

Not required at this time.

1.4 SANITARY SEWER SERVICE DESCRIPTION

The sewer system shall pass the required flows at acceptable velocities and pipe slopes. The sewer system shall maintain its initial installation alignment, Adequate means for cleaning system shall be provided. All materials shall have a service life of not less 30 years and require a minimum of maintenance.

Metallic piping or components shall be provided with suitable cathodic protection. Cathodic protection system shall be designed for a minimum of 25 year life.

The sewer system leakage rate shall not exceed that as required to meet the leakage test specified in Part 3.

1.4.1 Routing:

Sewer lines shall be placed in areas that are not subject to additional construction.

1.5 SEWER DESIGN

Design criteria for the sewer system shall conform to the WATER POLLUTION CONTROL FEDERATION Manual of Practice No 9 -Design and Construction of Sanitary and Storm Sewers.

PART 2 PRODUCTS

2.1 SPRINKLER SUPPLY LINES

Piping for water lines supplying sprinkler systems for building fire protection shall conform to NFPA 24 from the point of connection with the water distribution system to the building 1.5 m line.

Irrigation systems, where provided, shall be metered separately.

2.2 WATER PIPING AND ACCESSORIES

2.2.1 Plastic Pipe:

All plastic piping system components intended for transportation of potable water shall be PVC and shall comply, with NSF, Std 14 and shall be legibly marked with their symbol.

2.2.2 Metallic Pipe:

Metallic piping or components shall be provided with suitable cathodic protection. Cathodic protection system if required shall be design for a minimum of 25 year life.

2.2.3 Pipe Fittings and Specials:

All piping, joints, fittings and connections shall meet the requirements for 1.03 MPa working, pressure and 1.38 MPa hydrostatic test pressure. Fittings and specials shall be as recommended by the piping manufacturer.

Piping at all locations and installation depths shall be capable of supporting the overburden to which it is subjected. The live load at all locations exterior to the building shall be considered as AASHTO H20 or the vehicles that will be using the area, whichever produces the most severe loading.

2.2.4 Water Meters and Meter Boxes:

Meters shall be of the displacement type conforming to AWWA C 700 or turbine type conforming to AWWA C 701. Registers may be round or straight reading type. All meters shall be of one type and manufacturer. Meters shall be provided with electric pulse devices which shall be connected with sensor wire in conduit to the EMCS Data Terminal Cabinet in the Mechanical or FMS hydraulic pump room. Refer to meter and meter box detail shown in Appendix A.

2.3 FIRE HYDRANTS

Hydrants shall be dry-barrel type conforming to AWWA C 502 with valve opening at least 125 mm in diameter and designed so that the flange at the main valve seat apparatus remaining intact, closed and reasonably tight against leakage and with a breakable valve rod coupling and breakable flange connections located no more than 200 mm above the ground grade.

2.4 SEWER PIPE AND ACCESSORIES

Allowable sanitary sewer piping material shall be PVC (SDR 35). Piping at all locations and installation depths shall be capable of supporting the overburden to which it is subjected. The live load at all locations shall be considered as AASHTO H20 or the vehicles that will be using the area, whichever produces the most severe loading.

PART 3 EXECUTION

3.1 INSTALLATION GENERAL

Utility piping shall be installed in accordance with written instruction by the pipe manufacturer or published industry standards.

3.2 WATER LINE INSTALLATION

Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs. Remove scale and dirt on inside and outside before assembly. Prepare pipe connections to equipment with flanges or unions.

3.3 BEDDING

Excavate pipe trench in accordance with manufacturer's recommendations. Hand trim excavation for accurate placement of pipe to elevations indicated. Form and place concrete for pipe thrust restraints at any change of pipe direction. Place concrete to permit fall access to pipe and pipe accessories. Refer to pipe thrust blocking requirement shown on the mechanical drawings in Appendix A.

3.4 INSTALLATION - PIPE

Maintain separation of water main from sewer piping in accordance with National Standard Plumbing Code, Illustrated and the Sanitary Sewer Design Tech. Manual. Install ductile iron piping and fittings to AWWA C 600. Install pipe to allow for expansion and contraction without stressing pipe or joints. Slope water pipe and position drains at low points. Establish elevations of buried piping to ensure not less than 1050 mm of cover. Install trace wire or metallic tape continuous buried below the finished grade, above the pipe line.

3.5 INSTALLATION - VALVES AND HYDRANTS

Center and plumb valve box over valve. Set hydrants plumb; locate pumper nozzle perpendicular to and facing roadway. Paint hydrants as shown on the utility detail in Appendix A.

3.6 WATERLINE HYDROSTATIC TESTS

Where any section of a water line is provided with concrete thrust blocking for fitting or hydrants, the hydrostatic tests shall not be made until at least 5 days after installation of the concrete thrust blocking, unless otherwise approved.

3.6.1 Pressure Test:

After the pipe is laid, the joints completed, fire hydrants permanently installed, and the trench partially backfilled leaving the joints exposed for examination, the newly laid piping or any valved section of piping shall, unless otherwise specified, be subjected for 1 hour to a hydrostatic pressure test of 1.38 MPa. Water supply lines designated on the drawings shall be subjected for 1 hour to a hydrostatic pressure test of 1.38 MPa. Each valve shall be opened and closed several times during the test. Exposed pipe, joints, fittings, hydrants, and valves shall be carefully examined during the partially open trench test. Joints showing visible leakage shall be replaced or remade as necessary. Cracked or detective pipe, joints, fittings, hydrants and valves, discovered in consequence of this pressure test shall be removed and replaced with sound material, and the test shall be repeated until the test results are satisfactory. The requirement for the joints to remain exposed for the hydrostatic tests may be waived by the Contracting Officer when one or more of the following conditions is encountered:

a. Wet or unstable soil conditions in the trench.
b. Compliance would require maintaining barricades and walkways around and across all open trench in a heavily used area that would require continuous surveillance to assure safe conditions.
c. Maintaining the trench in an open condition would delay completion of the contract.

The Contractor may request a waiver, setting forth in writing the reasons for the request and stating the alternative procedure proposed to comply with the required hydrostatic tests.

3.6.2 Leakage Test:

Leakage test shall be conducted after the pressure tests have been satisfactorily completed. The duration of each leakage test shall be at least 2 hours, and during the test the water line shall be subjected to not less than 1.38 MPa pressure. Water supply lilies designated oil the drawings shall be subjected to a pressure equal to 1.38 Mpa. Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved or approved section thereof, access to maintain pressure within 34.5 kPa of the specified leakage test pressure after the pipe has been filled with water and the air expelled. No piping installation will be accepted if leakage exceeds the allowable leakage which is determined by tile following formula:

L = 0.0001351ND(P raised to ½ power)

L = Allowable leakage in gallons per hour
N = Number of joints in the length of pipeline tested
D = Nominal diameter of the pipe in inches
P = Average test pressure during the leakage test, in psi gauge

Should any test of pipe disclose leakage greater than that calculated by the above formula, the defective joints shall be located and repaired until the leakage is within the specified allowance, without additional cost to the Government.

3.6.3 Time for Making Test:

Except for joint material setting or where concrete thrust blocks necessitate a 5-day delay, pipelines jointed with rubber gaskets, mechanical or push-on joints, or couplings may be subjected to hydrostatic pressure, inspected, and tested for leakage at any time after partial completion of backfill. Cement-mortar lined pipe may be filled with water as recommended by the manufacturer before being subjected to the pressure test and subsequent leakage test.

3.6.4 Concurrent Hydrostatic Tests:

The Contractor may elect to conduct the hydrostatic tests using either or both of the following procedures. Regardless of the sequence of tests employed, the results of pressure tests, leakage tests, and disinfection shall be satisfactory as specified. All replacement, repair or retesting required shall be accomplished by the Contractor at no additional cost to the Government.

a. Pressure test and leakage test may be conducted concurrently.
b. Hydrostatic tests and disinfection may be conducted concurrently, using the water treated for disinfection to accomplish the hydrostatic tests. If water is lost when treated for disinfection and air is admitted to the unit being tested, or if any repair procedure results ill contamination of the unit, disinfection shall be reaccomplished.

3.7 DISINFECTION

3.7.1 Bacteriological Disinfection:

Before acceptance of potable water operation, each unit of completed waterline shall be disinfected as prescribed by AWWA C 651. From several points in the unit, personnel from the Contractor's commercial laboratory shall take at least 3 water samples from different points, approved by the Contracting Officer, in proper sterilized containers and perform a bacterial examination in accordance with state approved methods. The commercial laboratory must be certified by the state's approving authority for examination of potable water. The disinfection shall be repeated until tests indicate the absence of pollution for at least 2 full days. The unit will not be accepted until satisfactory bacteriological results have been obtained.

3.8 CATHODIC PROTECTION

Sacrificial Anode cathodic protection shall be provided for all metallic piping installed underground and shall be installed.

3.9 TESTS FOR GAS PIPING

The system of gas mains and service lines shall be tested after construction and before being placed in service using air as the test medium. Tests shall be 1-1/2 times normal operating pressure. Prior to testing the system, the interior shall be blown out, cleaned and cleared out of foreign materials. All meters, regulators, and controls shall be removed before blowing out and

cleaning and reinstalled after clearing of all foreign materials. Testing of gas mains and service lines shall be done with due regard for the safety of employees and the public during the test. Persons not working on the test operations shall be kept out of the testing area while testing is proceeding. The test shall be made on the system as a whole or on sections that can be isolated. Joints in sections shall be tested prior to backfilling when trenches Must be backfilled believe the completion of other pipeline sections. The test shall continue for at least 24 hours from the time of the initial readings to the final readings of pressure and temperature. The initial test readings of the instrument shall not be made for at least I hour after the pipe has been subjected to the full test pressure, and neither the initial nor final readings shall be made It times of rapid changes in atmospheric conditions. The temperatures shall be representative of the actual trench conditions. There shall be no indication of reduction of pressure during the test after corrections have been made for changes in atmospheric conditions in conformity with the relationship T(1)P(2)=T(2)P(l), in which T and P denote absolute temperature and pressure, respectively, and the numbers denote initial and final readings. During the test, the entire system shall be completely isolated from all compressors and other sources of air pressure. Each joint shall be tested by means of soap and water or an equivalent nonflammable solution prior to backfilling or concealing any work. The testing instruments shall be approved by the Contracting Officer. All labor, materials and equipment for conducting the tests shall be furbished by the Contractor and shall be subject to inspection at all times during the tests. The Contractor shall maintain safety precautions for air pressure testing at all times during the tests.

3.10 SANITARY SEWER INSTALLATION

Sanitary sewer service from B620 shall be maintained during construction.

3.10.1 Adjacent Facilities:

The sewer shall not be closer horizontally than 3 m to a water-supply main or service line, except that where the bottom of the water pipe will be at least 300 mm above the top of the sewer pipe, the horizontal spacing may be a minimum of 2 m. Where gravity-flow sewers cross above water lines, the sewer pipe for a distance of 3 m on each side of the crossing shall be fully encased in concrete or shall be acceptable pressure pipe with no joint closer horizontally than 1 m to the crossing.

3.10.2 Sleeves:

Where sewer pipe is to be installed within 1 m of an existing or proposed building or structural foundation such as a retaining wall, control tower footing, water tank footing, or any similar structure, the sewer pipe shall be sleeved with ferrous material and shall be provided with tile corrosion protection as required for the conditions encountered at the site of installation. Care shall be exercised and proper precautions taken during installation of the sewer pipe and sleeve to assure that there will be no damage to such structures and no settlement or movement of foundations or footing.

3.10.3 Leakage Tests:

Lines shall be tested for leakage by low pressure air testing, or exfiltration tests. Low pressure air testing procedures pipe materials shall use the pressures and testing times prescribed in ASTM C 828 and ASTM C 924 after consultation with the pipe manufacturer. Manufacturer can recommend a specific air testing procedure for specific pipes. When leakage exceeds the maximum amount prescribed, satisfactory correction shall be made and retesting accomplished. Testing, correction, and retesting shall be made at no additional cost to the Government.

3.10.4 Test for Deflection:

When flexible pipe is used, a deflection test shall be made on the entire length of the installed pipeline not less than 30 days after the completion of all work including the leakage test, backfill, and placement of any fill, grading, paving, concrete, or superimposed loads. Installed pipe showing deflections greater than 7.5 percent of the normal diameter of the pipe, or 5 percent for RTRP and RPMP, shall be retested by a run from the opposite direction. If the retest also fails, the suspect pipe shall be replaced at no cost to the Government.

3.10.5 Cover:

Sewer lines shall be located at a depth greater than frost penetration. Minimum cover above top of pipe shall be 1050 mm in all areas. If the minimum cover can not be met, the length of pipe shall be concrete encased with a minimum 75 mm thickness of concrete.

3.10.6 Lift Stations:

Lift stations shall be designed to pump the peak flow for the entire lift station service area such that the minimum cycle time between two successive cycles in 15 minutes. Lift stations shall be of the duplex type either dry pit with wet well or submersible grinder. Lift stations shall have an exterior control panel located in the electrical room, Room 118, in the new Avionics Research Lab Phase IIIA.

3.11 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.11.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to the Civil portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. All others listed may be utilized at the option of the Contractor. These specifications shall be edited as required to reflect the project requirements. Master specifications such as Masterspec, Spectext, or others may be used prior to approval from the Contracting Officer.

3.11.2 List of CEGS Guide Specifications:

02660	Water Distribution Systems
02685	Gas Distribution Systems
02730	Sanitary Sewers

END OF SECTION

SECTION 02600

DRAINAGE

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

Storm drainage shall be in accordance with AFM 88-5. All new facilities shall be designed such the finished floor elevation is above the 100-year flood elevation. Rainfall intensity shall be based on local intensity-duration-frequency data. The effects of additional runoff shall be analyzed before tying into an existing system at any particular location. If additional runoff is generated, sufficient precautions, i.e. detention ponds, shall be constructed to prevent the additional runoff from increasing the flood potential downstream. Storm water runoff shall be by grading and piping to provide effective drainage and visually pleasing lines. Ditches other than minor swales shall be avoided. A perimeter storm drainage system matching the existing shall be provided in all areas where raised access floor system is used.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM A 48	(1994a) Gray Iron Castings
ASTM A 536	(1984; R1993) Ductile Iron Casting
ASTM B 26	(1995) Aluminum-Alloy Sand Castings
ASTM C 76	(1995) Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C 478	(1994) Precast Reinforced Concrete Manhole Sections
ASTM C 506	(1988) Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe
ASTM C 507	(1988) Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe

PART 2 PRODUCTS

2.1 PIPE

Pipe for culverts and storm drains shall be reinforced concrete pipe (ASTM C 76), reinforced concrete arch pipe (ASTM C 506), or reinforced concrete elliptical pipe (ASTM C 507). Minimum pipe size shall be 375mm inside diameter. The minimum culvert size under roads shall be 450mm inside diameter.

2.2 MANHOLES

2.2.1 Precast Reinforced Concrete Manholes:

Manholes shall be precast reinforced concrete manholes conforming to ASTM C 478.

2.3 FRAME AND COVER FOR GRATINGS

Frame and cover for gratings shall be cast gray iron, ASTM A 48, Class 35B. Weight shape, size, and waterway openings for grates and curb inlets shall be as required.

2.4 JOINTS

2.4.1 Flexible Gasket Joints for Concrete:

Flexible gasket joints shall be made with plastic or rubber-type gaskets for concrete pipe.

2.5 DRAINAGE WELL

2.5.1 Pump:

a. The well shall have a submersible pump rated for a minimum flow capacity of 75 liter per minute, capable of overcoming the head difference between the elevation of the catch basin to which the pump flows into and the pump elevation.
b. The pump shall be controlled by float controls so that the water level in the well varies between elevations 290.02 and 290.63.
c. The pump, float control, and down well piping shall be removable for maintenance and repair. Down well piping shall be minimum 50 mm diameter and a pitless adapter shall be provided at the junction of the down well pipe and the discharge pipe which extends over to the existing catch basin.

2.5.2 Well Casing:

a. The well casing shall be stainless steel with stainless steel wire-wrapped screening. Such screening shall extend from elevation 290 up to elevation 295.

PART 3 EXECUTION

3.1 PIPE INSTALLATION, GENERAL

Installation for all pipe shall be in accordance with published manufactured or design standards for the pipe and laying conditions encountered.

3.2 DRAINAGE WELL

a. The well shall be driven to rock, and the bottom seated so the no material can enter into the bottom of the well after it has been cleaned out.

b. The well is to have a permanent, removable cap.
c. The well shall be constructed so that no surface runoff enters the well. As a minimum, the top of the well shall be 300 to 375 mm above adjacent grade.
d. The well will be designed to operate in all weather conditions experienced at WrightPatterson AFB.
e. The discharge from the well shall be carried to the existing catch basin located south of the Phase IIIA Lab Addition. The discharge pipe shall be 50 mm diameter, PVC, schedule 40 or galvanized pipe, and buried 750 to 9OO mm below grade.
f. A check valve shall be installed directly above the pump or built into the pump to prevent flow back into the well.
g. The well shall be developed with a minimum of air surge and double discing. Such development will be continued until the discharge from the pump is clear.
h. Contractor shall submit an O & M Manual for the drainage well to the Contracting Officer.

3.3 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.3.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to the Civil portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. All others listed may be utilized at the option of the Contractor. These specifications shall be edited as required to reflect the project requirements. Master specifications such as Masterspec, Spectext, or others may be used prior to approval from the Contracting Officer.

3.3.2 List of CEGS Guide Specifications:

02720 Storm-Drainage System

END OF SECTION

SECTION 02700

PAVING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

Paving shall consist of all vehicular paving and surfacing and associated work, including the following:

Aggregate Base Course
Aggregate Surfacing
Bituminous Surface Course
Bituminous Prime and Tack Coats
Concrete Pavement
Pavement Markings
Sealants

Paving and associated work shall conform to the Geotechnical Report included in Appendix A in these Project Specifications. In addition shall conform to the supplemental requirements in this section.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by designation only.

ASTM C 136	(1995a) Sieve Analysis of Fine and Aggregates
ASTM D 75	(1987; R 1992) Sampling Aggregates
ASTM D 977	(1991) Emulsified Asphalt
ASTM D 2167	(1994) Density and unit Weight of s. In-Place by the Rubber Balloon Method
ASTM D 2922	(1991) Density of Soil and Soil-Aggregate, In-Place by Nuclear Methods (Shallow Depth)
ASTM D 4643	(1993) Determination of Water (Moisture) Content of Soil by the Microwave Oven Method
ASTM E 548	(1994) Evaluating Laboratory Competence
Ohio Department of Transportation, Construction and Material Specifications	

PART 2 PRODUCTS

2.1 BITUMINOUS MATERIAL:

Material shall be emulsified asphalt grade SS-1, CSS-1, or CSS-1H as specified in the Ohio Department of Transportation, Construction and Material Specifications, Item 702.

2.2 AGGREGATE BASE

2.2.1 Aggregates:

Aggregates shall conform to the Ohio Department of Transportation, Construction and Material Specifications. The drainage course should be the top layer of the aggregate base course and should consist of an open graded aggregate. The bottom layer of the aggregate base course should consist of a dense graded aggregate.

2.3 CONCRETE CURBS AND GUTTERS

Concrete shall have a minimum compressive strength of 24 MPa at 28 days. Maximum size of aggregate shall be 37.5 mm. Mixtures shall have air content by volume of concrete of 5 to 7 percent on measurements made immediately after discharge from the mixer.

2.4 CONCRETE PAVEMENT

All pavement concrete shall be not less 4.5 MPa flexural strength or equivalent compressive strength. Pavement materials and design shall conform to ACI or the Ohio Department of Transportation, Construction and Material Specifications.

2.5 CONCRETE WHEEL STOPS

Concrete wheel stops shall be constructed of reinforced concrete with minimum compressive strength strength of 30 MPa at 28 days.

2.6 AGGREGATE SURFACING

Aggregate surfacing materials and methods shall conform to the Ohio Department of Transportation, Construction and Material Specifications.

2.7 BITUMINOUS (HOT-MIX) SURFACE COURSE

Bituminous hot-mix surface course shall conform to the requirements of the Ohio Department of Transportation, Construction and Material Specifications, “Asphalt Concrete”, Item 404.

2.7.1 Asphalt Material:

Asphalt material for the surface course shall be asphalt cement, conforming to the Ohio Department of Transportation requirements.

2.7.2 Job Mix Formula (JMF):

No bituminous mixture shall be manufactured until the grading and asphalt content of the proposed mix has been furnished by the plant for the Contracting Officer's approval. The formula will indicate the percentage of each sieve fraction of aggregate, percentage of asphalt, and temperature of the completed mixture when discharged from the mixer. The job-mix formula will

be allowed the tolerances specified in the Ohio Department of Transportation, Construction and Material Specifications, Items 403 and 404.

2.8 BITUMINOUS TACK AND PRIME COAT

Bituminous tack and prime shall conform to the Ohio Department of Transportation, Construction and Material Specifications.

2.9 PAVEMENT MARKING

Pavement marking shall be paint. Paint for roads and streets shall conform to AASHTO M 248. Pavement marking paints shall comply with applicable state and local laws enacted to ensure compliance with Federal Clean Standards. Paint materials shall conform to the restrictions of the Air Pollution Control District.

2.10 JOINT SEALS IN CONCRETE PAVEMENT

Concrete pavement joints shall be sealed with compression type joint seals. Compression joint seal materials shall be a vulcanized elastomeric compound using polychloroprene as the only base polymer. The material manufactured seal shall conform to ASTM D 2628.

PART 3 EXECUTION

3.1 AGGREGATE BASE

3.1.1 Mixing and Placing:

Materials shall be mixed by the stationary plant, traveling plant, mix method and placed in such a manner as to obtain uniformity of the aggregate base course material and at a uniform optimum water content for compaction.

3.1.2 Layer Thickness:

Compacted thickness of the aggregate course shall be as indicated. No layer shall be in excess of 200 mm nor less than 75 mm in compacted thickness.

3.1.3 Finishing:

The surface of the top layer shall be finished to grade and cross section shown. Finished surface shall be of uniform texture.

3.1.3.1 Smoothness:

Surface of each layer shall show no deviations in excess of 9 mm when tested with the 3.05 meter straightedge.

3.1.4 Field Quality Control:

A sufficient number of tests shall be performed to determine the maximum laboratory dry density, gradation, liquid limit, and plastic limit, field density and moisture content, and surface smoothness. Field in-place density shall be determined in accordance with ASTM D 1556 or ASTM D 2922. At least one field density and one moisture content test shall be performed for each 836 square meters of each layer of stabilized aggregate base material placed.

Measurements for deviation from grade and cross section shall be taken in successive positions parallel to the road centerline with a 3 m straightedge. Measurements shall also be taken perpendicular to the centerline at 15 meter intervals.

3.2 CURB AND GUTTER CONCRETE PLACEMENT AND FINISHING

3.2.1 Formed Curb and Gutter:

Concrete shall be placed to the section required in a single lift. Consolidation shall be achieved by using approved mechanical vibrators

3.2.2 Concrete Finishing:

Exposed surfaces shall be floated and finished with a smooth wood float. Floated surfaces shall be brushed with a fine-hair brush with longitudinal strokes. The edges of the gutter and top of the curb shall be round, an edging tool to a radius of 13 mm.

3.2.3 Surface and Thickness Tolerances:

Finished surfaces shall not vary more than 6.4 mm from testing edge of a 3.05 m straightedge. Permissible deficiency in section thickness will be up to 6.4 mm.

3.2.4 Curing:

Concrete shall be protected against loss of moisture and rapid tempt changes for at least 7 days from the beginning of the curing operate;

3.3 CONCRETE PAVEMENT

3.3.1 Curing

The Contractor shall protect and cure the pavement at least 14 days.

3.3.2 Pavement Thickness:

The pavement shall be constructed in accordance with the thickness the Drawings. No variation in thickness of over 6 mm will be permitted.

3.3.3 Integral:

Integral or monolithic curbs may be constructed in lieu of separate and gutter.

3.3.4 Quality Control:

Testing shall be performed on concrete for strength verification. No variation in thickness of over 6 mm of the design thickness will be permitted.

3.4 BITUMINOUS SURFACE COURSE

3.4.1 Plan Grade:

The grade of the completed surface shall not deviate more than 15 mm the plan grade.

3.4.2 Surface Smoothness:

When a 3.66 mm straightedge is laid on the surface, the surface shall not vary more than 6 mm from the straightedge.

3.4.3 Sampling and Testing:

Sampling and testing shall be the responsibility of the Contractor. Sampling and testing shall be performed by an approved commercial testing laboratory or by the Contractor subject to approval. Unless otherwise specified, sampling shall be in accordance with ASTM D 75 for aggregates, ASTM C 183 for mineral filler, and ASTM D 140 for bituminous material. Copies of test results shall be furnished to the Contracting officer. Approval of a source does not relieve the Contractor of responsibility for delivery at the job site of materials meeting the requirements herein. Required tests, test frequencies of test standards shall be as follows:

3.4.3.1 Hot bin gradations (cold-feed gradation when drum mix plane, used):

One test per 400 metric tons of mix or fraction thereof. ASTM C 136 and ASTM C 117.

3.4.3.2 Marshall Specimens:

Two sets (three specimens per set) per day and/or at least one set per each 400 metric tons of mix placed. See Paragraph: "Test Properties of Bituminous Mixtures" for test standards.

3.4.3.3 Asphalt Extraction:

One test per 400 metric tons of mix (at least one per day). See Paragraph: "Test Properties of Bituminous Mixture" for test standards.

3.4.3.4 Field and Lab Density Tests:

One lab density and one field density set per 400 metric tons of mix or fraction thereof (three specimens per set). MIL-STD-630. Method 101 (field test), MIL-STD-620, Method 100 (lab test).

3.4.3.5 Thickness Measurements:

One measurement for each 850 square meters.

3.5 BITUMINOUS TACK AND PRIME COATS

Bituminous material for the tack coat shall be applied in quantities less than 0.20 liter nor more than 0.70 liter per square meter of pavement surface. The exact quantities within the range specified, may be varied to suit field conditions.

Bituminous material for the prime coat shall be applied in quantities not less than 0.70 liter per square meter nor more than 1.9 liters per square meter of pavement surface. The exact quantities within the specified, which may be varied to suit field conditions, will be determined by the Contracting Officer.

Samples of the bituminous material shall be tested for compliance with the applicable specified requirements. Sampling and testing shall be performed by an approved commercial testing laboratory.

3.6 PAVEMENT MARKINGS

3.6.1 Paint:

Paint shall be applied to clean, dry surfaces, and only when air and pavement temperatures are above 5 degrees C and less than 35 degrees C.

3.6.2 Rate of Application:

Paint shall be applied evenly to the pavement surface to be coated at a rate of 10 plus or minus 0.5 square meter per liter.

3.7 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.7.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.7.2 List of CEGS Guide Specifications:

02233	Graded-Crushed-Aggregrate Base Course
02238	Bituminous-Stabilized Base Course, Subbase, or Subgrade
02546	Aggregate Surface Course
02551	Bituminous Paving for Roads, Streets and Open Storage Areas
02556	Bituminous Tack and Prime Coats
02580	Pavement Markings

02753	Concrete Pavements for Airfields and Other Heavy-Duty Pavements
02760	Field Molded Sealants for Sealing Joints in Rigid Pavements

END OF SECTION

SECTION 02800

SITE IMPROVEMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

This section covers the following work:

Lawn Sprinkler System
Wheel Stops
Traffic and Handicap Parking Signs

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ANSI D6.1	(1988) Manual on Uniform Traffic Control Devices for Streets and Highways (ANSI D6.1)

1.3 SPRINKLER SYSTEM GENERAL REQUIREMENTS

All turfed and landscaped areas shall be provided with a lawn sprinkler system.

1.4 SPRINKLER SYSTEM DESIGN CRITERIA

1.4.1 General:

a. Contractor shall design the system in accordance with industry accepted practice, recommendations of the manufacturer of the equipment provided, and the following requirements. Requirements herein shall prevail.
b. The limits of the area to be covered shall be as indicated.
c. Design pressure shall be based on 379 kPa static pressure at the location indicated.
d. System shall be automatic with controller(s) and remote controlled valves.
e. A backflow preventer shall be installed on the sprinkler main between the tie-in to the potable water supply and the first valve off the main.
f. A gate valve shall be installed upstream of the backflow preventer.
g. Fixed pipe risers above grade shall be copper tubing.
h. The sprinkler system shall be designed utilizing pipe sizes, valves, heads, and zone operation time schedules, to assure an economical and operational system with complete and even coverage. Lawn area systems shall be primarily of the spray head type except that pop-up rotary heads may be used in large open turf areas. Rotor heads shall not be used in areas less than 35 feet wide.

i. Application rates for spray head zones shall be within 19 mm and 38 mm per hour and not less than 6 mm per hour for rotary head zones.
j. Mains shall be manually drainable.
k. Zones shall be drained automatically.

1.5 SUBMITTALS

Detail drawings for valves, sprinkler heads, backflow preventers, automatic controllers, emitter heads, and water hammer arresters. Drawing shall include of a complete list of equipment and materials, and manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions. Drawings shall also contain complete wiring and schematic diagrams and any other details required to demonstrate that the system has been coordinated and will function as a unit. Drawings shall show proposed system layout, type and number of heads and emitters, zone valves, drain pockets, backflow devices, controllers, and mounting details of controllers. As-built Drawings which provide current factual information showing locations of mains, heads, valves, and controllers including deviations from and amendments to the drawings and changes in the work shall be included.

1.6 SPRINKLER CONTRACTOR QUALIFICATIONS

The Contractor's design and installation firm shall have been in the turf irrigation business for a continuous period of not less than 5 years prior to bid opening. Evidence shall be provided that the firm has designed and installed at least 3 sprinkler projects of similar scope as this project within the preceding 12 months. In lieu of the above experience the Contractor may provide evidence of at least one of the following qualifications:

a. Certified Irrigation Designer by The Irrigation Association, Arlington, VA.
b. Registered Professional Engineer with at least 3 years experience in design and instillation of turf irrigation.
c. Approved designer of the American Society of Irrigation Consultants.
d. Licensed by the Texas Turf Irrigation Organization, or licensed, certified, or registered by other state turf irrigation organizations, associations, or societies.

PART 2 PRODUCTS

2.1 GENERAL

2.1.1 Standard Products:

Products furnished shall be standard products of manufacturers regularly engaged in the production of such products and shall be manufacturers' latest standard design that complies with the specification requirements. Products shall be specifically designed for the intended purpose.

2.2 SPRINKLER HEADS

2.2.1 General:

Heads shall be constructed of brass or high-impact plastic.

2.3 VALVES

2.3.1 General:

Valves shall be constructed of brass, bronze, a combination of the two, stainless steel, or high-impact plastic except.

2.4 SPRINKLER CONTROLLER

Controller shall be provided and programmed for various schedules by setting switches and dials equipped with the following features listed below. Control may be by existing controller if existing capabilities exist.

a. Adjustable clock monitors.
b. 14-day calendar cycle.
c. Sequence timer with variable time (independently variable for each zone (station), minimum time limit of not more than 5 minutes and maximum time of not less than 30 minutes for spray zones and 60 minutes for rotary zones.
d. Semi-automatic performance: Automatic cycle can be started manually without disturbing clock setting. Reset for the next scheduled operation after completion of the manual-initiated cycle shall be automatic.
e. Manual operation of each zone (station), at random or in sequence independent of the automatic timer.
f. Master switch which can prevent the automatic cycle from starting without affecting tile pre-set program.
g. Zone (station) omit: Zones can be omitted from the automatic or semi-automatic watering cycle.
h. Compact design with all programming and operational settings easily made with switches, knobs, keyboard, etc., on the face.
i. Instructions for field servicing.
j. List of repair parts and their availability.
k. Controller and automatic valves shall be provided from same manufacturer.
l. Dual programming which allows any zone to be omitted from the automatic or semi-automatic cycle on any day or days of the calendar program.
m. Automatic rain shutoff device.

2.5 TRAFFIC AND HANDICAP PARKING SIGNS

Traffic control and parking signs shall confonn to ANSI D6.1 Manual on Uniform Traffic Control Devices for Streets and Highways. Handicap parking striping and signage shall comply with ADA and/or UFAS.

PART 3 EXECUTION

3.1 LAWN SPRINKLER INSTALLATION

Installations shall be in accordance with manufacturer's written recommendations and shall be performed by personnel

3.2 LAWN SPRINKLER TESTING

3.2.1 Notification:

Contracting Officer shall be present at all phases of testing and shall be notified 24 hours in advance of testing.

3.2.2 Hydrostatic Testing:

Water piping and valves shall be tested to a hydrostatic pressure of 689 kPa before piping is covered with earth. Piping must be tight at this pressure. Piping may be tested in sections to expedite the work.

3.2.3 Final Testing:

Final testing shall show proper operation of all components and actual measured application rates at representative and selected locations.

3.3 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.3.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.3.2 List of CEGS Guide Specifications:

02811 Underground Sprinkler Systems

END OF SECTION

SECTION 02900

PLANTING

PART 1 GENERAL

1.1 WORK INCLUDED

This section covers the following:

Turfing
Trees and Shrubs

1.2 GENERAL REQUIREMENTS

1.2.1 Turfing

All areas disturbed by construction operations and capable of supporting growth shall be turfed. Turfing shall consist of sodding or sprigging or a combination thereof. Turf shall match existing turf.

1.2.2 Landscaping

Landscaping shall be performed to match landscaping of the existing building including similar type trees, shrubs, and plants.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASPA-01	(1988) Guideline Specifications to Turfgrass Sodding
AAN-01	(1990) American Standard for Nursery Stock

1.4 SUBMITTALS

Submittals shall include those necessary for adequate quality control. The importance of an item in the project should be considered in determining if a submittal for the item should be required.

1.5 SOURCE INSPECTIONS

1.5.1 Turfing Materials

Sod and/or sprigging material will be subject to approval and inspection by the Contracting Officer at the growing site.

1.5.2 Plant Materials

Plant materials shall be subject to inspection at the growing site by the Contracting Officer.

1.6 WARRANTY

Landscaping plants shall be guaranteed to be in a vigorous growing condition for a period of 12 months regardless of the contract time period. Turfing shall be guaranteed to be in a vigorous growing condition for a period of 3 months regardless of the contract time period. A turfing cover crop shall be guaranteed for the guarantee period. A cover crop shall be defined as an 80% turf coverage and no patches larger than 500 mm square without live growing planted grass. A plant shall be replaced one time under this guarantee. Transplanted existing plants require no guarantee. A written calendar time period for the guarantee of plant growth shall be furnished to the Contracting Officer.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Sod

Nursery-grown sod shall be Nursery-grown sod as classified by applicable state laws and as specified in ASPA-01, Section IV. Sod materials shall conform to ASPA-01. Sod anchors shall be as recommended by the sod supplier. Grass species shall be of an improved variety of Bermuda grass.

2.1.2 Sprigs

The cultivar matching the existing grass shall be provided as healthy living stems, stolons, or rhizomes with attached roots including two to three nodes and from 102 to 152 mm long, without adhering soil, obtained from heavy and dense sod. Sprigs shall be provided which have been grown under climatic conditions similar to those in the locality of the project.

2.1.3 Landscape Plants

Plants shall be nursery grown or plantation grown stock conforming to AAN-01 and shall be of the varieties specified in the plant list bearing botanical names listed in one or more of the publications listed under "Nomenclature" in AAN-01.

2.1.4 Edging Material

Edging material for planting beds shall be steel.

PART 3 EXECUTION

3.1 PLANTING TIMES

Planting and turfing shall be performed during planting times as recommended by published and recognized horticultural guidelines. Planting shall be done during climate conducive to growth.

3.2 SODDING

Transplanting sod shall conform to ASPA-01.

3.3 SPRIGGING

Sprigs shall be broadcast uniformly by hand, with mechanical equipment or other approved method such as hydroplanting

3.4 PLANTING

Plants shall be planted in accordance with nursery recommended planting techniques. This shall include proper soil amendments, guying and staking, pruning, mulching, and watering to effectively establish the plants.

3.5 ESTABLISHMENT

3.5.1 Duration

The establishment period shall commence upon completion of the last day of the turfing or planting operation and shall continue for a period of 3 months for turfing and 12 months for landscape plants or until all work on the entire project has been completed and accepted, whichever is later.

3.5.2 Maintenance

3.5.2.1 Turf Repair

Turf shall be reestablished as specified herein for eroded, damaged, or barren areas. Mulch shall be repaired or replaced as required. Maintenance shall consist of mowing, watering, chemical herbicide treatment, and post fertilization as required to maintain turf in a vigorous growing condition.

3.5.3 Replacement Plants

Plants shall be guaranteed for a period of one year. Plants which show unhealthy conditions shall be replaced with like plants. No extended plant establishment period shall be required for replacement plants.

3.6 FINAL ACCEPTANCE

At the end of the establishment period, a final inspection will be made. Final acceptance of the turf will be based upon a stand of turf as defined above. Rejected areas or plants shall be replanted or repaired as directed.

3.7 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.7.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.7.2 List of CEGS Guide Specifications:

02935	Turf
02950	Trees, Shrubs, Ground Covers, and Vines

END OF SECTION

SECTION 03300

CONCRETE CONSTRUCTION

PART 1 GENERAL

1.1 SUMMARY

This section covers the following:

Structural Concrete Formwork
Concrete Reinforcement
Cast-In-Place Structural Concrete
Precast Concrete Wall Panel Units

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ACI 117/117R	(1990; Errata) Standard Tolerances for Concrete Construction and Materials.
ACI 301-89	(1989) Structural Concrete for Buildings.
ASTM A 416	(1994) Steel Strand, Uncoated Seven-Wire for Prestressed Concrete
PCI Mnl-116	(1985) Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products
PCI Mnl-117	(1977) Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products
PCI Mnl-122	(1989) Architectural Precast Concrete

1.3 GENERAL REQUIREMENTS

Concrete work shall conform to all the requirements of ACI 301-89, Specifications for Structural Concrete Buildings, except as modified by the supplemental requirements below and as required by CEGS. D/B Contractor shall design and construct a waterproofed mud slab below base slab for all below grade slabs.

1.4 STRENGTH REQUIREMENTS

Structural concrete for all work shall have a minimum 28-day compressive strength of 28.6 Mpa (4000 psi). Concrete for vehicular slabs-on-grade shall have a minimum flexural strength of 4.5 Mpa (650 psi). Concrete floor with high traffic areas shall be 28.6 Mpa (4,000 psi) for high wear resistance. Higher strengths will be allowed when required by structural design.

PART 2 PRODUCTS

2.1 CONCRETE

Material shall be of suitable quality and typically used by construction trades for its intended use. Exposed concrete shall be air entrained with an air content of no less than 4 percent and no more than 6 percent.

2.2 CONCRETE WATERPROOFING

All foundations and below-grade concrete cast-in-place walls and floors shall be provided with waterproofing system and continuous perimeter foundation drains connected to properly sized sump pumps that dispose of the water in compliance with WPAFB standards. Basement and first level floor slabs below grade shall be provided with a waterproofed mud slab below finish slab. Waterproofing system and foundation drains shall be provided in compliance with SECTIONS 07000 and 15000. The D/B Contractor shall provide and install watertight below grade foundation walls and slabs that will withstand the required loads and thermally induced movement without failure.

2.2 REINFORCEMENT

Bar reinforcement shall be deformed, Grade 60 billet steel conforming to ASTM A 615.

2.3 PRECAST CONCRETE WALL PANELS

Precast concrete units shall be designed and fabricated by an experienced and acceptable precast concrete manufacturer certified under the PCI Plant Certification Program. The manufacturer shall have been regularly and continuously engaged in the manufacture of precast concrete work. Except as otherwise specified, material shall conform to materials as specified herein. Prestressing strands shall conform to ASTM A 416. Precast concrete units shall be manufactured and cured in accordance with the applicable provisions of [PCI Mnl-116 and] PCI Mnl-117. Units shall be manufactured within the allowable tolerances given in [PCI Mnl-116,] PCI Mnl-117 and PCI Mnl-122.

PART 3 EXECUTION

3.1 TOLERANCES

Except as otherwise specified herein, tolerances for concrete batching, mixture properties, and construction as well as definition of terms and application practices shall be in accordance with ACI II 7/117R. Level and grade tolerance measurements of slabs shall be made as soon as possible after finishing; when forms or shoring are used, the measurements shall be made prior to removal.

3.2 SAMPLING AND TESTING

Sampling and testing is the responsibility of the Contractor and shall be performed by an approved testing agency.

3.3 ERECTION OF PRECAST UNITS

Precast units shall be erected in accordance with the detail shop drawings and without damage to other units or to adjacent members. Units shall be set true to alignment and level, with joints properly spaced and aligned both vertically and horizontally. Erection tolerances shall be in accordance with the requirements of PCI Mnl-117 and PCI Mnl-122.

3.4 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.4.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterick (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.4.2 List of CEGS Guide Specifications:

03100	Structural Concrete Formwork
03200	Concrete Reinforcement
03250	Expansion Joints, Contraction Joints, and Waterstops
03300	Cast-In-Place Structural Concrete

END OF SECTION

SECTION 04200

MASONRY

PART 1 GENERAL

1.1 SUMMARY

This section is for construction using masonry products.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM A 82	(1990a) Steel Wire, Plain, for Concrete Reinforcement.
ASTM C 129	(1995) Nonloadbearing Concrete Masonry Units
ASTM C 270	(1992) Mortar for Unit Masonry.
ASTM C 476	(1991) Grout for Unit Masonry.
ASTM C 744	(1992) Prefaced Concrete and Calcium Silicate Masonry Units.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 General

Masonry units shall be of dimensions that will lay up to 200 mm module, and shall include all special shapes and sizes required to complete the work indicated. Masonry units shall be of the same appearance, and shall be free from chipped edges or other imperfections detracting from the appearance of the finished work.

2.1.2 Concrete Masonry Units

Concrete masonry units shall be hollow units conforming to ASTM C 129, Type 1, Grade N-1.

2.1.3 Mortar

Mortar for masonry units shall conform to ASTM C 270. Masonry cement shall not be allowed. Portland cement shall be low alkali.

2.1.4 Steel Wire

Steel wire for masonry units shall conform to ASTM A 82.

2.1.5 Grout

Grout for Masonry shall conform to ASTM C 476. Portland cement shall be low alkali.

PART 3 EXECUTION

3.1 ERECTION

Masonry shall be laid to straight lines and upgrades. Masonry is to be placed in running bond. Mortar joints shall be 10 mm wide.

3.2 POINTING AND CLEANING

Mortar daubs or splashings, before setting or hardening, shall be completely removed from masonry-unit surfaces that will be exposed or painted. Before completion of the work, all defects in joints of masonry to be exposed or painted shall be raked out as necessary, filled with mortar, and tooled to match existing joints. Masonry surfaces shall not be cleaned, other than removing excess surface mortar, until mortar in joints has hardened. Masonry surfaces shall be left clean, free of mortar daubs, dirt, stain, and discoloration, including scum from cleaning operations, and with tight mortar joints throughout. Metal tools and metal brushes shall not be used for cleaning. Concrete-masonry-unit surfaces shall be dry-brushed at the end of each day's work and after any required pointing.

3.3 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.3.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.3.2 List of CEGS Guide Specifications:

04200 Masonry

END OF SECTION

SECTION 05100

STRUCTURAL METALS

PART 1 GENERAL

1.1 SUMMARY

This section covers the following:

Structural Steel
Steel Joists
Steel Decking
Cold-Formed Steel Structural Framing

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AISC-01	(1993) Load and Resistance Factor Design Manual, Volume 1 - Members, Specifications and Codes
AISC-02	(1993) Load and Resistance Design Manual, Volume II - Connections
AISC-04	(1989) Specifications for Structural Steel Buildings - Allowable Stress Design and Plastic Design
AISC-342	(1993) Load and Resistance Factor Design Specifications for Structural Steel Buildings
AISC-S303	(1992) Code of Standard Practice for Steel Buildings and Bridges
AISC-S329	(1986) Allowable Stress Design Specification for Structural Joints Using ASTM A325 or A490 Bolts
AISC-S334L	(1988) Load and Resistance Factor Design Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts
ETL 1110-3-476	Steel Special Moment Resisting Frames
ASTM A 6	(1993b) General Requirements for Rolled Steel Plates, Shapes, Sheet, Piling, and Bars for Structural Use
ASTM A 36	(1993a) Structural Steel
ASTM A 446	(1991) Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality
ASTM A 572	(1993) High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality
ASTM A 611	(1991) Steel, Sheet, Carbon, Cold-Rolled, Structural Quality

AWS A2.4	(1993) Symbols for Welding, Brazing and Nondestructive Examination
AWS D1.1	(1994) Structural Welding Code - Steel
AWS D1.3	(1989) Structural Welding Code - Sheet Steel
SDI-02	(1987) Diaphragm Design Manual
SDI Pub. No 28	(1992) Design Manual for Composite Decks, Form Decks, Roof Decks and Cellular Metal Floor Deck with Electrical Distribution
SJI-01	(1990) Standard Specifications, Load Tables and Weight Tables for Steel Joists and Joist Girders

1.3 GENERAL REQUIREMENTS

Structural steel fabrication and erection shall be performed by an organization experienced in structural steel work of equivalent magnitude and shall participate in the AISC Quality Certification Program and be designated an AISC Certified Plant, Category 1. The Contractor shall be responsible for the correctness of design, detailing, fabrication, and the correct fitting of structural members. The Contractor shall be responsible for identifying location and designing structure to support user equipment, safes, computers, furniture and workstations.

1.4 STORAGE

Material shall be stored out of contact with the ground and in such a way as to minimize deterioration. Store metal deck units with one end elevated under a weather tight covering.

PART 2 PRODUCTS

2.1 STEEL AND CONNECTION HARDWARE

Steel shall conform to ASTM A 6 and other applicable ASTM standards. Connection fasteners shall conform to applicable ASTM standards.

2.2 METAL DECKING

Deck units shall conform to SDI Publication No. 28 and ASTM A 446 or ASTM A 611.

2.3 STEEL JOIST, JOIST GIRDERS AND ACCESSORIES

Steel joist, joist girders and accessories shall conform to SJI-01.

2.4 PAINT

Paint shall be suitable for the construction and building life exposure.

PART 3 EXECUTION

3.1 STRUCTURAL STEEL FABRICATION

Fabrication shall be in accordance with the applicable provisions of AISC-04. Fabricating plant shall be an AISC Certified Plant, Category 1. All steel, except surfaces that will be encased in concrete, surfaces to be field welded, surfaces to be fireproofed, and contact surfaces for friction type high-strength bolted connections shall be prepared for painting and primed.

3.2 ERECTION

Comply with applicable provisions of AISC-04. Comply with SDI Publication No. 28 AND SDI-02 approved detail drawings for steel decking. Install joist in accordance with SJI-01.

3.3 CONNECTIONS

Anchor bolts and other connections between the structural steel and and foundations shall be provided and shall be properly located and built into connecting work.

3.4 WELD WELDED CONNECTIONS

Welded construction workmanship, techniques, inspection and acceptance shall conform to requirements of AWS D1.1 and the AISC-04. Metal deck shall be welded in SDI Publication No. 28 and AWS D1.3.

3.5 FIELD PRIMING

After election, all surfaces that were not shop primed shall be cleaned and primed with the same paint as used in the fabrication shop. Also prime coat all field bolt heads and nuts, field welds and any abrasions in the shop coat.

3.6 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.6.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.6.2 List of CEGS Guide Specifications:

05210	Steel Joists
05300	Steel Decking

3.6.3 List of Louisville District Guide Specifications:

05120 Structural Steel

END OF SECTION

SECTION 05500

MISCELLANEOUS METAL

PART 1 GENERAL

1.1 SUMMARY

This section covers the following:

Steel Handrails
Access Doors
Floor Grates
Ladders with cages
Overhead Door Frames
Pipe Bollards (concrete filled)
Miscellaneous Metals

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ANSI A14.3	(1992) Ladders - Fixed - Safety Requirements
ASTM A 53	(1996) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A 500	(1993) Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
29 CFR 1910.27	Fixed Ladders
NAAMM MBG 531	(1993) Metal Bar Grating Manual

1.3 SUBMITTALS

Submittals shall be provided as necessary for adequate quality control. The importance of an item in the protect should be one of the primary factors in determining if a submittal for the item should be required.

1.4 GENERAL REQUIREMENTS

Miscellaneous metals and fabricated parts shall be provided as required for a complete facility. Items shall be fabricated in accordance with the standard of the industry and installed in accordance with manufacturer’s recommendations.

1.5 ANCHORAGE

Anchorage shall be provided where necessary for fastening miscellaneous metal items securely in place. Anchorage not otherwise specified or indicated shall include slotted inserts made to engage with the anchors, expansion shields, and power-driven fasteners when approved for concrete; toggle bolts and through bolts for masonry; machine and carriage bolts for steel; and lag bolts and screws for wood.

PART 2 PRODUCTS

2.1 HANDRAILS

Handrails shall be designed to resist a concentrated load of 890 N (200 pounds) in any direction at any point of the top of the rail or 292 Newtons per meter (20 pounds per foot) applied horizontally to top of the rail, whichever is more severe.

2.1.1 Steel Handrails, Including Carbon Steel Inserts

Steel handrails, including inserts in concrete, shall be structural tubing conforming to ASTM A 500, Grade A or B of equivalent strength. Steel railings shall be 40 mm (1-1/2 inch) nominal size. Railings shall be hot-dip galvanized on the exterior of the building and shop painted on the interior. Pipe collars shall be hot-dip galvanized steel.

a. Joint posts, rail, and corners shall be fabricated by one of the following methods:

(1) Flush type rail fittings of commercial standard, welded and ground smooth with railing splice locks secured with 10 mm (3/8 inch) hexagonal recessed-head setscrews.

(2) Mitered and welded joints by fitting post to top rail and intermediate rail to post, mitering corners, groove welding joints, and grinding smooth. Railing splices shall be butted and reinforced by a tight fitting interior sleeve not less than 150 mm (6 inches) long.

(3) Railings may be bent at corners in lieu of jointing, provided bends are made in suitable jigs and the pipe is not crushed.

2.2 ACCESS DOORS AND PANELS

Doors and panels shall be flush type unless otherwise indicated. Frames for access doors shall be fabricated of not lighter than 1.52 mm (16 gauge) steel with welded joints and finished with anchorage for securing into construction. Access doors shall be a minimum of 350 by 500 mm (14 by 20 inches) and of not lighter than 1.9 mm (14 gauge) steel, with stiffened edges, complete with attachments. Access doors shall be hinged to frame and provided with a flush face, screw driver operated latch. Exposed metal surfaces shall have a baked enamel finish.

2.3 FLOOR GRATINGS AND FRAMES

Carbon steel grating shall be designed in accordance with NAAMM MBG 531 to meet the indicated load requirements. Edges shall be banded with bars 6 mm (1/4 inch) less in height than bearing bars for grating sizes above 19 mm (3/4 inch). Banding bars shall be flush with the top of

bearing grating. Frames shall be of welded steel construction finished to match the grating. Floor gratings and frames shall be galvanized after fabrication.

2.4 LADDERS

Fabricate vertical ladders conforming to Section 7 of 29 CFR 1910.27. Use 65 by 10 mm (2 1/2 by 3/8 inch) steel flats for stringers and 20 mm (3/4 inch) diameter steel rods for rungs. Rungs to be not less than 400 mm (16 inches) wide, spaced one foot apart, plug welded or shouldered and headed into stringers. Install ladders so that the distance from the rungs to the finished wall surface will not be less than 175 mm (7 inches). Provide heavy clip angles riveted or bolted to the stringer and drilled for not less than two 12 mm (½ inch) diameter expansion bolts as indicated. Provide intermediate clip angles not over 1200 mm (48 inches) on centers.

2.4.1 Ladder Cages

Conform to 29 CFR 1910.27. Fabricate 5 by 6 mm (2 by 1/4 inch) horizontal bands and 40 by 5 mm (1 1/2 by 3/16 inch) vertical bars. Provide attachments for fastening bands to the side rails of ladders or directly to the structure. Provide and fasten vertical bars on the inside of the horizontal bands. Extend cages not less than 690 mm (27 inches) or more than 710 mm (28 inches) from the centerline of the rungs, excluding the flare at the bottom of the cage, and not less than 690 mm (27 inches) in width. Clear the inside of the cage of projections.

2.5 STEEL OVERHEAD DOOR FRAMES

Steel door frames built from structural shapes shall be neatly mitered and securely welded at the corners with all welds ground smooth. Jambs shall be provided with 50 by 6 by 300 mm (2 by 1/4 by 12 inch) bent, adjustable metal anchors spaced not over 760 mm (2 feet 6 inches) on centers. Provision shall be made to stiffen the top member for all spans over 900 mm (3 feet). Continuous door stops shall be made of 38 by 16 mm (1-1/2 by 5/8 inch) bars.

2.6 PIPE GUARDS

Pipe guards shall be heavy duty steel pipe conforming to ASTM A 53, Type E or S, weight STD, black finish.

PART 3 EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

All items shall be installed at the locations shown and according to the manufacturer's recommendations.

3.2 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.2.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.2.2 List of CEGS Guide Specifications:

05500 Miscellaneous Metal

END OF SECTION

SECTION 06000

CARPENTRY

PART 1 GENERAL

1.1 SECTION INCLUDES

This section covers the following:

Rough Carpentry
Finish Carpentry
Plastic Laminated Faced Cabinets
Plastic Laminated Faced Counters

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AFPA-T901	(1991; Supple 1993; Addenda Apr 1995) National Design Specification for Wood Construction
ANSI 161.2	(1979) fabrication
ANSI A208.1	Mat Formed Wood Particleboard
AWPA C2	(1995) Lumber, Timber, Bridge Ties and Mine Ties Preservative Treatment by Pressure Processes
AWPA C9	(1995) Plywood - Preservative Treatment by Pressure Processes
AWPA M4	(1995) Standard for the Care of Preservative-Treated Wood Products
AWPA P5	(1995) Standards for Waterborne Preservatives
Architectural Woodwork Quality Standards Guide Specifications and Quality Certification Program (Fifth Edition-1988)	
FS MMM-A-130B	(Rev B, Int. Am. 3) Adhesive, Contact
NEMA LD 3	(1991) High-Pressure Decorative Laminates

PART 2 PRODUCTS

2.1 LUMBER AND PLYWOOD

2.1.1 Grading and Marking

2.1.1.1 Lumber Products

Solid sawn and finger-jointed lumber shall bear an authorized grade stamp or grade mark recognized by ALSC, or an ALSC recognized certification stamp, mark, or hammerbrand. Surfaces that are to be exposed to view shall not bear grade marks, stamps, or any type of

identifying mark. Hammer marking will be permitted on timbers when all surfaces will be exposed to view.

2.1.1.2 Plywood

Materials shall bear the grade mark or other identifying marks indicating grades of material and rules or standards under which produced, including requirements for qualifications and authority of the inspection organization. Except for plywood and structural-use panels, bundle marking will be permitted in lieu of marking each individual piece. Surfaces that are to be exposed to view shall not bear grade marks or other types of identifying marks.

2.1.2 Treatment

Exposed areas of treated wood that are cut or drilled after treatment shall receive a field treatment in accordance with AWPA M4. Items of all-heart material of cedar, cypress, or red wood will not require preservative treatment, except when in direct contact with soil. Except as specified for all-heart material of the previously mentioned species, the following items shall be treated:

a. Wood members in contact with or within 18 inches of soil.
b. Wood members in contact with water.
c. Wood members exposed to the weather including those used in built-up roofing systems or as nailing strips or nailers over fiberboard or gypsum-board wall sheathing as a base for wood siding.
d. Wood members set into concrete regardless of location, including flush-with-deck wood nailers for roofs.
e. Wood members in contact with concrete that is in contact with soil or water or that is exposed to weather.

2.1.2.1 Lumber and Timbers

Lumber shall be treated in accordance with AWPA C2 with waterborne preservatives listed in AWPA P5.

2.1.2.2 Plywood

Plywood shall be treated in accordance with AWPA C9 with waterborne preservatives listed in AWPA P5.

2.2 WOOD CABINETS AND COUNTERTOPS

2.2.1 Finish

Plastic Laminate Sheet Countertops Design, color, and finish shall be as indicted on the finish schedule. Construction shall be of the reveal or flush overlay type. Exposed surface of cabinet work shall be plastic laminate. Counters shall be provided with watertight sink rim. Doors and drawers shall be removable and shall be equipped with position stops to avoid accidental complete withdrawals.

2.2.2 Cabinet Hardware

Hardware shall be as follows: Cabinet Hardware - 652 Finish

Door Hinges	B01602
Self Closing Door Pull	B02011 (wire type)
Drawer Pull	B02011 (wire type)
Drawer Slides	B05051
Shelf Standard	B04071
Shelf Rest	B04081

2.2.3 Softwood Lumber

PS 20; graded in accordance with AWI Premium; average moisture content of 8 percent; exposed stiles and rails species birch, paint grade, unless otherwise indicated on the Drawings.

2.2.4 Panel Materials

Countertop and back splash shall be constructed of 20 mm (3/4-inch) exterior grade plywood or 20 mm (3/4-inch) particle board with waterproof glue as indicated on the Drawings. Edging and trim shall consist of plastic laminate cut and fitted to all exposed edges.

2.2.4.1 Softwood Plywood

PS 1, exterior; graded in accordance with AWI, core materials of veneer core.

2.2.4.2 Wood Particleboard

ANSI A208.1; standard, composed of wood chips, medium density, made with water resistant adhesive; of grade to suit application; sanded faces.

2.2.5 Plastic Laminates

Plastic laminate shall conform to NEMA LD 3. Adhesive shall conform to FS MMM-A-130B, Type I. Continuous sheets of longest lengths practicable shall be provided. Joints in surface sheeting shall be tight and flush and held to a practicable minimum. When the countertop and back splash are two separate units, GP50 plastic laminate shall be used. When the countertop and back splash are one unit, PF42 plastic laminate shall be used.

2.2.6 Backer/Liner Sheets

Backer/Liner sheets of high pressure plastic laminate Grade BK20 shall be applied to the reverse side of all core material.

PART 3 EXECUTION

3.1 INSTALLATION OF FRAMING

Members shall be closely fitted, accurately set to required lines and levels, and rigidly secured in place.

3.2 CABINETS

Wall and base cabinets shall be installed in accordance with Section 1700-B of the AWI Architectural Woodwork Quality Standards.

3.3 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.3.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.3.2 List of CEGS Guide Specifications:

06100	Rough Carpentry
06200	Finish Carpentry

END OF SECTION

SECTION 07000

THERMAL AND MOISTURE PROTECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

This section covers the following:

Elastomeric Membrane Waterproofing
Spray-Applied Fireproofing
Firestopping
Sheetmetal Work
Joint Sealing
Thermal Insulation
Exterior Insulating Finish System (EIFS)

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM A 446	(1993) Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality
ASTM E 814	(1994b) Fire Tests of Through-Penetration Fire Stops
UL 1479	(1994) Fire Tests of Through-Penetration Firestops
UL 723	(1996) Test for Surface Burning Characteristics of Building Materials

1.3 SHEET METALWORK GENERAL REQUIREMENTS

All sheet metalwork shall be performed and details of sheet metalwork shall be shown on project Drawings in accordance with the appropriate details in the Architectural Sheet Metal Manual of the Sheet Metal and Air Conditioning Contractors National Association. Sheet metalwork shall be accomplished to form weathertight construction without waves, warps, buckles, fastening stresses or distortion, and shall allow for expansion and contraction.

1.4 FIRESTOPPING GENERAL REQUIREMENTS

Firestopping shall consist of furnishing and installing a material or a combination of materials to form an effective barrier against the spread of flame, smoke and gases, and maintain the integrity of fire resistance rated walls, partitions, floors, and ceiling-floor assemblies, including through penetrations and construction joints. Through-penetrations include the annular space around pipes, tubes, conduit, wires, cables and vents. Construction joints include those used to

accommodate expansion, contraction, wind, or seismic movement; firestopping material shall not interfere with the required movement of the joint.

1.5 JOINT SEALING GENERAL REQUIREMENTS

Joint design and use of sealants shall be in accordance with ASTM C 1193.

Fire rated joints shall be filled in accordance with firestopping requirements specified herein. Control and expansion joints for fire-rated walls shall be designed in accordance with Series J900, U900 or U400 designs in the UL Fire Resistance Directory.

1.6 WATERPROOFING

Membrane Waterproofing shall be applied at all below grade walls and floors. The D/B Contractor shall provide and install a watertight waterproofing system with compatible components supplied from a single source membrane waterproofing manufacturer that meets the project requirements and will not permit the passage of liquid water (including leaks through the waterproofing membranes, the flashings, pipe and conduit penetrations) and will withstand the required loads, thermally induced movement, and exposure to conditions without failure. Membrane waterproofing manufacturer's representative shall certify that the waterproofing system complies with the project requirements and that the wall and slab substrate meets the manufacturer's conditions for installation prior to beginning the work. A report shall be issued by the representative identifying deficiencies and authorizing the work to commence. The waterproofing manufacturer's representative shall perform the final inspection at the completion of the work and shall issue a final report identifying deficiencies to be corrected and certifying the manufacturer's acceptance of the installation. This certification does not ensure government acceptance of the work.

1.7 EIFS DESCRIPTION

The exterior insulation and finish system (EIFS) shall be a job-fabricated exterior wall covering consisting of insulation, reinforcing fabric, base coat, finish coat, and accessories. The system shall be the standard product of a manufacturer regularly engaged in furnishing exterior insulation and finish systems and shall be installed by an applicator approved by the system manufacturer. EIFS shall be polymer base, Class PB.

1.8 SUBMITTALS

Submittals shall be sufficient to show materials and details as required for quality control and record purposes.

1.9 DELIVERY, STORAGE, AND HANDLING

Materials shall be adequately packaged and protected during shipment and shall be inspected for damage, dampness, and wet-storage stains upon delivery to the jobsite. Materials shall be clearly labeled as to type and manufacturer. sheet metal items shall be carefully handled to avoid damage. materials shall be stored in dry, ventilated areas until immediately before installation.

PART 2 PRODUCTS

2.1 SHEET METALWORK MATERIALS

Lead, lead-coated metal, and galvanized steel shall not be used. Any metal listed by SMACNA for a particular item may be used. Materials shall conform to the thicknesses and configurations established in SMACNA. If material is not specified, Contractor will have a choice of aluminum, copper or stainless steel. Different items need not be of the same metal, except that if copper is selected for any exposed item, all exposed items shall be copper.

Pre-Coated Galvanized Steel: ASTM A446, Grade A, G90 zinc coating; 24 gage core steel, shop pre-coated with coating of Kynar 500 based fluoropolymer coating of minimum one (1) mil dry film thickness; coated on reverse side with minimum 0.008 to 0.01 mm (0.3 to 0.4 mil) dry film thickness; color as approved by Government.

Elastomeric through-wall flashing shall not be used.

2.2 FIRESTOPPING MATERIALS

Firestopping materials for through-penetrations, as described in paragraph GENERAL REQUIREMENTS, shall provide “F” and “T” fire resistance ratings in accordance with ASTM E 814 or UL 1479, except that T Ratings are not required for penetrations smaller than or equal to a 100 mm nominal pipe or 0.01 square meter in overall cross sectional area. Firestopping materials shall consist of commercially manufactured products complying with the following minimum requirements:

2.2.1 Fire Hazard Classification

Material shall have a flame spread of 25 or less, and a smoke developed rating of 50 or less, when tested in accordance with ASTM E 84 or UL 723. Material shall be an approved firestopping material as listed in UL-05.

2.2.2 Toxicity

Material shall be nontoxic to humans at all stages of application.

2.2.3 Fire Resistance Rating

Firestopping will not be required to have a greater fire resistance rating than that of the assembly in which it is being placed.

2.3 JOINT SEALANT MATERIALS

Sealants and calking shall be materials as recommended by the manufacturer for the purpose intended. Sealants and calking materials shall conform to an applicable ASTM standard. Sealants shall be not less than a 35 year rating.

2.4 WATERPROOFING MATERIALS

Waterproofing system shall be a composite self-adhering membrane with a minimum thickness of 1.5 mm. System shall be provided with a composite drainage core, geotextile and backing film protection board. Wall and slab membrane waterproofing system shall be equal to Grace Construction Products Bituthane System 4000 with Hydroduct 2 for walls and Bituthane System 4000 for mud slabs. All adhesives and sealants used shall be provided by membrane waterproofing manufacturer and meet their recommendations for usage.

2.5 INSULATION MATERIALS

Insulation materials shall meets the following minimum thermal requirements (note: all thermal requirements are in Imperial units):

New roof assembly: minimum thermal criteria: 0.03U/R 33.0; suggested assembly is as follows: outside air film (R 0.17), built-up roofing (R 0.33), 102 mm (6") insulation board (R 31), 102 mm (4") concrete deck (R 0.32), metal deck (N/A), inside film (R 0.61); total performance for composite roof assembly - R 33.0, equivalent to 0.03 U-factor.

New exterior wall assembly: minimum thermal criteria: 0.10 U/R 10; suggested assembly is as follows: outside film (R 0.17), face brick (R 0.40), 19 mm (3/4") air space (R 1.01), 51 mm (2") foil faced insulation board (R 10.0), 200 mm (8") CMU-fully grouted (R 2.0), inside air film (R 0.61); total performance required for new exterior composite wall assembly - R 19. equivalent to 0.07 U-factor.

New exterior perimeter insulation: minimum thermal criteria: 0.18 U/R 5.55.

2.6 EXTERIOR INSULATING FINISH SYSTEM

2.6.1 Exterior Cement Board

Exterior cement board shall be a non-combustible exterior grade portland cement product. Board shall be 1220 by 2440 mm (4 by 8 feet) with a minimum 13 mm (1/2 inch) thickness. Boards shall consist of an aggregated portland cement core faced on both surfaces and wrapped on long edges with an embedded polymer-coated glass fiber mesh. Bonding surface shall have rough texture.

2.6.2 Insulation

Insulation shall conform to ASTM C 578, type as recommended by the system manufacturer and shall be compatible with other system components. Insulation shall be aged a minimum of 6 weeks by air drying, or equivalent prior to installation. Insulation shall be a standard product of the manufacturer and shall be factory marked with the manufacturer's name or trade mark, the material specification number, the R-value at 24 degrees C, (75 degrees F,) and thickness. Thickness of insulation shall be based on specified R-value, but no single layer shall be less than 19 mm (3/4 inch) thick. Boards shall be marked individually. The thermal resistance of insulation in the system shall be not less than the R-value shown on the drawings. Insulation for Class PM and insulation extending below grade shall be restricted to a low water vapor permeability grade

of extruded polystyrene (type IV or X).

2.6.3 Base Coat

Base coat shall be the manufacturer's standard product and shall be compatible with the finish coat.

2.6.4 Reinforcing Fabric

Reinforcing fabric shall be balanced, open weave, glass fiber fabric made from twisted multi-end strands specifically treated for compatibility with the other materials of the system.

2.6.5 Mechanical Anchors

Where required, mechanical anchors shall be as recommended by the system manufacturer.

2.6.6 Finish Coating

Finish coating shall be manufacturer's standard product, uniform in color and texture. Specimens for tests shall have been cured for a minimum of 28 days. Color as approved by Government.

PART 3 EXECUTION

3.1 GENERAL

All sheet metalwork including gutters, downspouts and louvers shall be fabricated in conformance with SMACNA.

3.2 CONTRACTOR QUALITY CONTROL

The Contractor shall establish and maintain a quality control procedure for sheet metal used in conjunction with roofing to assure compliance of the installed sheet metalwork with the contract requirements. Any work found not to be in compliance with the contract shall be promptly removed and replaced or corrected in an approved manner. Quality control shall include, but not be limited to, the following:

a. observation of environmental conditions; number and skill level of sheet metal workers; condition of substrate.

b. verification of compliance of materials before, during, and after installation.

c. Inspection of sheet metalwork for proper size and thickness, fastening and joining, and proper installation.

The actual quality control observations and inspections shall be documented and a copy of the documentation furnished to the Contracting Officer at the end of each day.

3.3 FIRESTOPPING INSPECTION

Firestopped areas shall not be covered or enclosed until inspection is complete and approved. A manufacturer's representative shall inspect the applications initially to ensure adequate preparations (clean surfaces suitable for application, etc.) and periodically during the work to assure that the completed work has been accomplished according to the manufacturer's written instructions and the specified requirements.

3.4 JOINT SEALANT INSTALLATION

Sealants and calking shall be applied in accordance with manufacturer's written instructions. Sealer shall be applied over the sealant when and as specified by the sealant manufacturer.

3.5 WATERPROOFING INSTALLATION

Membrane waterproofing shall be applied in accordance with the waterproofing manufacturer’s recommendations.

3.6 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.6.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.6.2 List of CEGS Guide Specifications:

07111	Elastomeric Membrane Waterproofing
07240	Exterior Insulation and Finish System
07250	Spray-Applied Fireproofing
07600	Sheet Metalwork, General
07900	Joint Sealing

3.6.3 List of Louisville District Guide Specifications:

07270.0RL	Firestopping

END OF SECTION

SECTION 07416

STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM
(BID OPTION NO: 2)

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AISC-04	(1989) Specification for Structural Steel Buildings - Allowable Stress Design, Plastic Design
AISI-01	(1986; Addenda 1989) Cold-Formed Steel Design Manual
ASTM A 463	(1996a) Steel Sheet, Aluminum-Coated, by the Hot-Dip Process
ASTM A 653	(1996) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A 792	(1995) Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
ASTM B 117	(1994) Operating Salt Spray (Fog) Testing Apparatus
ASTM C 518	(1991) Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
ASTM C 1289	(1995) Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
ASTM D 522	(1993a) Mandrel Bend Test of Attached Organic Coatings
ASTM D 714	(1987; R 1994) Evaluating Degree of Blistering of Paints
ASTM D 968	(1993) Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D 1654	(1992) Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
ASTM D 2244	(1993) Calculation of Color Differences from Instrumentally Measured Color Coordinates
ASTM D 2247	(1994) Testing Water Resistance of Coatings in 100% Relative Humidity
ASTM D 2794	(1993) Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
ASTM D 4214	(1989) Evaluating the Degree of Chalking of Exterior Paint Films

ASTM D 4397	(1996) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
ASTM E 1592	(1995) Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference
ASCE 7	(1995) Minimum Design Loads for Buildings and Other Structures

1.2 GENERAL REQUIREMENTS

The Contractor shall furnish a manufacturer's standard product which satisfies all requirements contained herein and has been verified by load testing and independent design analyses to meet the specified design requirements. The D/B Contractor shall provide and install a watertight roof system with compatible components supplied from a single source roof manufacturer that meets the project requirements and will not permit the passage of liquid water (including leaks through the roof membrane, the flashings, the parapets, the walkways, the satelite pad or the rooftop equipment curbs) and will withstand the required wind loads, thermally induced movement, and exposure to weather without failure.

1.2.1 Manufacturer

The SSSMR system shall be the product of a manufacturer who has been in the practice of manufacturing SSSMR systems for a period of not less than 3 years and has been involved in at least five projects similar in size and complexity to this project.

1.2.2 Installer

The installer shall be certified by the SSSMR system manufacturer to have experience in installing at least three projects that are of comparable size, scope and complexity as this project for the particular roof system furnished. The installer may be either employed by the manufacturer or be an independent installer.

1.3 DESIGN REQUIREMENTS

The design of the SSSMR system shall be provided by the Contractor as a complete system. Members and connections not indicated on the drawings shall be designed by the Contractor. Roof panels, components, transitions, accessories, and assemblies shall be supplied by the same manufacturer.

1.3.1 Design Criteria

Design criteria shall be in accordance with ASCE 7 unless otherwise specified.

1.3.2 Dead Loads

The dead load shall be the weight of the SSSMR system. Collateral loads such as sprinklers, mechanical and electrical systems, and ceilings shall not be attached to the panels.

1.3.3 Live Loads

1.3.3.1 Concentrated Loads

The panels and anchor clips shall be capable of supporting a 300 pound concentrated load. The concentrated load shall be applied at the panel midspan and will be resisted by a single standing seam metal roof panel assumed to be acting as a beam. The undeformed shape of the panel shall be used to determine the section properties.

1.3.3.2 Uniform Loads

The panels and concealed anchor clips shall be capable of supporting a minimum uniform live load as indicated within this RFP.

1.3.4 Roof Snow Loads

The design roof snow loads shall be as indicated within this RFP.

1.3.5 Wind Loads

The design wind uplift pressure for the roof system shall be as shown on the contract drawings. The design uplift force for each connection assembly shall be that pressure given for the area under consideration, multiplied by the tributary load area of the connection assembly. The safety factor listed below shall be applied to the design force and compared against the ultimate capacity. Prying shall be considered when figuring fastener design loads.

a. Single fastener in each connection.....3.0
b. Two or more fasteners in each connection...2.25

1.3.6 Framing Members Supporting the SSSMR System

Any additions/revisions to framing members supporting the SSSMR system to accommodate the manufacturer/fabricator's design shall be the Contractor's responsibility and shall be submitted for review and approval. New or revised framing members and their connections shall be designed in accordance with AISC-04. Maximum deflection under applied live load, snow, or wind load shall not exceed 1/180 of the span length.

1.3.7 Roof Panels Design

Steel panels shall be designed in accordance with AISI-01. The structural section properties used in the design of the panels shall be determined using the unloaded shape of the roof panels. The calculated panel deflection from concentrated loads shall not exceed 1/180 of the span length. The calculated panel deflection under applied live load, snow, or wind load shall not exceed 1/180 times the span length. Deflections shall be based on panels being continuous across three or more supports. Deflection shall be calculated and measured along the major ribs of the panels.

1.3.8 Accessories and Their Fasteners

Accessories and their fasteners shall be capable of resisting the specified design wind uplift forces and shall allow for thermal movement of the roof panel system. Exposed fasteners shall not restrict free movement of the roof panel system resulting from thermal forces. There shall be a minimum of two fasteners per clip. Single fasteners with a minimum diameter of 3/8 inch will be allowed when the supporting structural members are prepunched or predrilled.

1.4 PERFORMANCE REQUIREMENTS

The SSSMR shall be tested for wind uplift resistance in accordance with ASTM E 1592; SSSMR systems previously tested and approved by the Corps of Engineers' STANDARD TEST METHOD FOR STRUCTURAL PERFORMANCE OF SSMRS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE may be acceptable. Two tests shall be performed. Test 1 shall simulate the edge condition with one end having crosswise restraint and other end free of crosswise restraint. The maximum span length for the edge condition shall be 30 inches.Test 2 shall simulate the interior condition with both ends free of crosswise restraint. The maximum span length for the interior condition shall be 5.0 feet. External reinforcement, such as clamps on the ribs, [may] be installed to improve uplift resistance. Bolts through seams shall not be installed.

1.5 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01331 SUBMITTAL PROCEDURES:

SD-01 Data

Design Analysis; GA.

Design analysis signed by a Registered Professional Engineer employed by the SSSMR manufacturer. The design analysis shall include a list of the design loads, and complete calculations for the support system (when provided by the Contractor), roofing system and its components; valley designs, gutter/downspout calculations, screw pullout test results, and shall indicate how expected thermal movements are accommodated.

SD-04 Drawings

Structural Standing Seam Metal Roof System; GA.

Metal roofing drawings and specifications and erection drawings; shop coating and finishing specifications; and other data as necessary to clearly describe design, materials, sizes, layouts, standing seam configuration, construction details, provisions for thermal movement, line of panel fixity, fastener sizes and spacings, sealants and erection procedures. Drawings shall reflect the intent of the architectural detailing using the manufacturer's proprietary products and fabricated items as required. The SSSMR system shop drawings shall be provided by the metal roofing manufacturer.

SD-08 Statements

Qualifications; FIO.

Qualifications of the manufacturer and installer.

SD-09 Reports

Test Report for Uplift Resistance of the SSSMR; GA.

The report shall include the following information:

a. Details of the SSSMR system showing the roof panel cross-section with dimensions and thickness.
b. Details of the anchor clip, dimensions, and thickness.
c. Type of fasteners, size, and the number required for each connection.
d. Purlins/subpurlins size and spacing used in the test.
e. Description of the seaming operation including equipment used.
f. Maximum allowable uplift pressures. These pressures are determined from the ultimate load divided by a factor of safety equal to 1.65.
g. Any additional information required to identify the SSSMR system tested.
h. Signature and seal of an independent registered engineer who witnessed the test.

SD-13 Certificates

Structural Standing Seam Metal Roof System; FIO.

a. Certification that the actual thickness of uncoated sheets used in SSSMRS components including roofing panels, subpurlins, and concealed anchor clips complies with specified requirements.
b. Certification that materials used in the installation are mill certified.
c. Previous certification of SSSMR system tested under the Corps of Engineers' Standard Test Method in lieu of ASTM E 1592 testing.
d. Certification that the sheets to be furnished are produced under a continuing quality control program and that a representative sample consisting of not less than three pieces has been tested and has met the quality standards specified for factory color finish.
e. Certification of installer.
f. Warranty certificate. At the completion of the project the Contractor shall furnish signed copies of the 5-year Warranty for Structural Standing Seam Metal Roof (SSSMR) System, a sample copy of which is attached to this section, and the 20-year Manufacturer's Material Warranties.

Insulation; FIO.

Certificate attesting that the polyurethane or polyisocyanurate insulation furnished for the project contains recovered material, and showing an estimated percent of such recovered material.

SD-14 Samples

Roof Panels; GA.

One piece of each type to be used, 9 inches long, full width.

Factory Color Finish; GA.

Three 3 by 5 inches samples of each type and color.

Insulation; FIO.

One piece, 12 by 12 inches, of each type and thickness to be used, with a label indicating the rated permeance (if faced) and R-values. The flame spread, and smoke developed rating shall be shown on the label or provided in a letter of certification.

1.6 DELIVERY AND STORAGE

Materials shall be delivered to the site in a dry and undamaged condition and stored out of contact with the ground. Materials shall be covered with weathertight coverings and kept dry. Storage conditions shall provide good air circulation and protection from surface staining.

1.7 WARRANTIES

The SSSMR system shall be warranted as outlined below. Any emergency temporary repairs conducted by the owner shall not negate the warranties.

1.7.1 Contractor's Weathertightness Warranty

The SSSMR system shall be warranted by the Contractor on a no dollar limit with maximum penal sum basis for a period of five years against material and workmanship deficiencies; system deterioration caused by ordinary exposure to the elements and service design loads, water leaks, and wind uplift damage. The SSSMR system covered under this warranty shall include the entire roofing system including, but not limited to, the following: panel seams and joint, all accessories, components and trim; penetrations such as vents, curbs, and skylights; interior or exterior gutters and downspouts; eaves, ridge, hip, valley, rake, gable, wall, or other roof system flashings installed to provide a weathertight roof system; and items specified in other sections of these specifications that become part of the structural standing seam metal roof system. All material and workmanship deficiencies, system deterioration caused by ordinary exposure to the elements and service design loads, water leaks and wind uplift damage shall be repaired as approved by the Contracting Officer. This warranty shall warrant and cover the entire cost of repair or replacement, including all material, labor, and related markups. The Contractor may supplement this warranty with written warranties from the installer and/or manufacturer, which shall be submitted along with Contractor's warranty; however, the Contractor shall be ultimately responsible for this warranty. The Contractor's written warranty shall be as outlined in attached example WARRANTY FOR STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM, and shall start upon final acceptance of the facility or the date the Government takes

possession, whichever is earlier. It shall be understood that the Contractor's Performance Bond will remain effective throughout the five year Contractor's warranty period for the entire SSSMR system as outlined above.

1.7.2 Manufacturer's Material Warranties.

The Contractor shall furnish, in writing, the following manufacturer's no dollar limit material warranties (as approved by WPAFB) which cover all SSSMR system components such as roof panels, anchor clips and fasteners, flashing, accessories, and trim, fabricated from coil material:

a. A manufacturer's 20 year no dollar limit material warranty warranting that the aluminum, zinc-coated steel, aluminum-zinc alloy coated steel or aluminum-coated steel as specified herein will not rupture, structurally fail, fracture, deteriorate, or become perforated under normal design atmospheric conditions and service design loads.

b. A manufacturer's 20 year no dollar limit exterior material finish warranty on the factory colored finish warranting that the finish, under normal atmospheric conditions at the site, will not crack, peel, or delaminate; chalk in excess of a numerical rating of eight, as determined by ASTM D 4214 test procedures; or change color in excess of five CIE or Hunter Lab color difference (delta E) units in accordance with ASTM D 2244.

1.8 ADDITIONAL CERTIFICATION

Roof manufacturer’s representative shall certify that the roof system complies with the project requirements and that the roof substrate meets the manufacturer’s conditions for roof installation prior to beginning the work. A report shall be issued by the representative identifying deficiencies and authorizing the work to commence. The roof manufacturer’s representative shall perform the final inspection at the completion of the work and shall issue a final report identifying deficiencies to be corrected and certifying the manufacturer’s acceptance of the installation. This certification does not ensure government acceptance of the work.

PART 2 PRODUCTS

2.1 ROOF PANELS

Panels shall be steel and shall have a factory color finish. Length of sheets shall be sufficient to cover the entire length of any unbroken roof slope for slope lengths that do not exceed 9 m (30 feet). When length of run exceeds 9 m (30 feet) and panel laps are provided, each sheet in the run shall extend over three or more supports. Sheets longer than 30 m (100 feet) may be furnished if approved by the Contracting Officer. Width of sheets shall provide not more than 600 mm (24 inches) of coverage in place. SSSMR system with roofing panels greater than 300 mm (12 inches) in width shall have standing seams rolled during installation by an electrically driven seaming machine. Height of standing seams shall be not less than 50 mm (2 inches) for rolled seam and 75 mm (3 inches) for seams that are not rolled.

2.1.1 Steel Panels

Steel panels shall be zinc-coated steel conforming to ASTM A 653; aluminum-zinc alloy coated steel conforming to ASTM A 792, AZ 50 coating; or aluminum-coated steel conforming to ASTM A 463, Type 2, coating designation T2 65. Uncoated panels shall be 0.0239 inch thick minimum. Panels shall be within 95 percent of tested thickness. Prior to shipment, mill finish panels shall be treated with a passivating chemical to inhibit the formation of oxide corrosion products. Panels that have become wet during shipment and have started to oxidize shall be rejected.

2.2 CONCEALED ANCHOR CLIPS

Concealed anchor clips shall be the same as the tested roofing system. Clip bases shall have factory punched or drilled holes for attachment. Clips shall be made from multiple pieces with the allowance for the total thermal movement required to take place within the clip. Single piece clips may be acceptable when the manufacturer can substantiate that the system can accommodate the thermal cyclic movement under sustained live or snow loads.

2.3 ACCESSORIES

Flashing, trim, metal closure strips, caps and similar metal accessories shall be the manufacturer's standard products. Exposed metal accessories shall be finished to match the panels furnished. Molded closure strips shall be bituminous-saturated fiber, closed-cell or solid-cell synthetic rubber or neoprene, or polyvinyl chloride premolded to match configuration of the panels and shall not absorb or retain water. The use of a continuous angle butted to the panel ends to form a closure will not be allowed.

2.4 FASTENERS

Fasteners for steel roof panels shall be zinc-coated steel, aluminum, corrosion resisting steel, or nylon capped steel, type and size specified below or as otherwise approved for the applicable requirements. Fasteners for aluminum roof panels shall be aluminum or corrosion resisting steel. Fasteners for structural connections shall provide both tensile and shear ultimate strengths of not less than 3340 N (750 pounds) per fastener. Fasteners for accessories shall be the manufacturer's standard. Exposed roof fasteners shall be sealed or have sealed washers on the exterior side of the roof to waterproof the fastener penetration. Washer material shall be compatible with the roofing; have a minimum diameter of 10 mm (3/8 inch) for structural connections; and gasketed portion of fasteners or washers shall be neoprene or other equally durable elastomeric material approximately 3 mm (1/8 inch) thick. Exposed fasteners for factory color finished panels shall be factory finished to match the color of the panels.

2.4.1 Screws

Screws for attaching anchor devices shall be not less than No. 14. Actual screw pull out test results shall be performed for the actual material gage and yield strength of the structural purlins or subpurlins to which the clip is to be anchored/attached. Other screws shall be as recommended by the manufacturer to meet the strength design requirements of the panels.

2.4.2 Bolts

Bolts shall be not less than 6 mm (1/4 inch) diameter, shouldered or plain shank as required, with locking washers and nuts.

2.4.3 Structural Blind Fasteners

Blind screw-type expandable fasteners shall be not less than 6 mm (1/4 inch) diameter. Blind (pop) rivets shall be not less than 7 mm (9/32) inch minimum diameter.

2.5 SUBPURLINS

Cold formed supporting structural members/subpurlins shall have a minimum thickness of 1.5 mm (0.059 inches) and a minimum tensile yield strength of 345 Mpa (50000 psi). Hot rolled structural members shall have a minimum thickness of 0.25 inches and a minimum tensile yield strength of 248 Mpa (36000 psi). Subpurlins shall be galvanized or given one coat of shop paint.

2.6 FACTORY COLOR FINISH

Panels shall have a factory applied polyvinylidene fluoride finish on the exposed side. The exterior finish shall consist of a baked-on topcoat with an appropriate prime coat. Color shall match the color indicated by the Contracting Officer. The exterior coating shall be a nominal .050 mm (2 mil) thickness consisting of a topcoat of not less than 0.018 mm (0.7 mil) dry film thickness and the paint manufacturer's recommended primer of not less than 0.005 mm (0.2 mil) thickness. The interior color finish shall consist of a nominal 1 mil thick PVF2 finish otherwise the same as the exterior. The exterior color finish shall meet the test requirements specified below.

2.6.1 Salt Spray Test

A sample of the sheets shall withstand a salt spray test for a minimum of 1000 hours in accordance with ASTM B 117, including the scribe requirement in the test. Immediately upon removal of the panel from the test, the coating shall receive a rating of not less than 8F, few No. 8 blisters, as determined by ASTM D 714; and a rating of 6, 3 mm (1/8 inch) failure at scribe, as determined by ASTM D 1654.

2.6.2 Formability Test

When subjected to testing in accordance with ASTM D 522 Method B, 3 mm (1/8 inch) diameter mandrel, the coating film shall show no evidence of cracking to the naked eye.

2.6.3 Humidity Test

When subjected to a humidity cabinet test in accordance with ASTM D 2247 for 1000 hours, a scored panel shall show no signs of blistering, cracking, creepage or corrosion.

2.6.4 Impact Resistance

Factory-painted sheet shall withstand direct and reverse impact in accordance with ASTM D 2794 13 mm (0.500 inch) diameter hemispherical head indenter, equal to 1.5 times the metal thickness in mils, expressed in inch-pounds, with no loss of adhesion.

2.6.5 Abrasion Resistance Test

When subjected to the falling sand test in accordance with ASTM D 968, Method A, the coating system shall withstand a minimum of 50 liters of sand before the appearance of the base metal. The term "appearance of base metal" refers to the metallic coating on steel or the aluminum base metal.

2.7 INSULATION

Thermal resistance of insulation shall be not less than the R-values shown on the contract drawings. R-values shall be determined at a mean temperature of 75 degrees F in accordance with ASTM C 518. Insulation shall be a standard product with the insulation manufacturer, factory marked or identified with insulation manufacturer's name or trademark and R-value. Identification shall be on individual pieces or individual packages. Insulation shall have a flame spread rating and a smoke developed rating in accordance with authorities having jurisdiction. The stated R-value of the insulation shall be certified by an independent Registered Professional Engineer if tests are conducted in the insulation manufacturer's laboratory.

2.7.1 Polyisocyanurate Rigid Board Insulation for Use Above a Roof Deck

Polyisocyanurate insulation shall conform to ASTM C 1289, Type II, Class 1 (having a minimum recovered material content of 9 percent by weight of core material in the polyisocyanurate portion). For polyisocyanurate the maximum design R-value per 25 mm (1 inch) of insulation used shall be 7.2. Facings shall be non-asphaltic, glass fiber reinforced.

2.8 INSULATION RETAINERS

Insulation retainers shall be type, size, and design necessary to adequately hold the insulation and to provide a neat appearance. Metallic retaining members shall be nonferrous or have a nonferrous coating. Nonmetallic retaining members, including adhesives used in conjunction with mechanical retainers or at insulation seams, shall have a fire resistance classification not less than that permitted for the insulation.

2.9 SEALANT

Sealants shall be elastomeric type containing no oil or asphalt. Exposed sealant shall be colored to match the applicable building color and shall cure to a rubberlike consistency. Sealant placed in the roof panel standing seam ribs shall be provided in accordance with the manufacturer's recommendations.

2.10 GASKETS AND INSULATING COMPOUNDS

Gaskets and insulating compounds shall be nonabsorptive and suitable for insulating contact points of incompatible materials. Insulating compounds shall be nonrunning after drying.

2.11 VAPOR RETARDER

2.11.1 Vapor Retarders Separate from Insulation

Vapor retarder material shall be polyethylene sheeting conforming to ASTM D 4397. A single ply of 0.25 mm (10 mil) polyethylene sheet; or, at the Contractor's option, a double ply of 0.15 mm (6 mil) polyethylene sheet shall be used. A fully compatible polyethylene tape which has equal or better water vapor control characteristics than the vapor retarder material shall be provided. A cloth industrial duct tape in a utility grade shall also be provided to use as needed to protect the vapor retarder from puncturing.

2.12 EPDM RUBBER BOOTS

Flashing devices around pipe penetrations shall be flexible, one-piece devices molded from weather-resistant EPDM rubber. Rubber boot material shall be as recommended by the manufacturer. The boots shall have base rings made of aluminum or corrosion resisting steel that conform to the contours of the roof panel to form a weather-tight seal.

2.13 PREFABRICATED CURBS AND EQUIPMENT SUPPORTS

Prefabricated curbs and equipment supports shall be of structural quality, hot-dipped galvanized or galvalume sheet steel, factory primed and prepared for painting with mitered and welded joints. Integral base plates and water diverter crickets shall be provided. Minimum height of curb shall be 200 mm (8 inches) above finish roof. Curbs shall be constructed to match roof slope and to provide a level top surface for mounting of equipment. Curb flange shall be constructed to match configuration of roof panels. Curb size shall be coordinated, prior to curb fabrication, with the mechanical equipment to be supported. Strength requirements for equipment supports shall be coordinated to include all anticipated loads.

PART 3 EXECUTION

3.1 INSTALLATION

Installation shall be in accordance with the manufacturer's erection instructions and drawings. Dissimilar materials which are not compatible when contacting each other shall be insulated by means of gaskets or insulating compounds. Molded closure strips shall be installed wherever roofing sheets terminate in open-end configurations, exclusive of flashings. The closure strip installation shall be weather-tight and sealed. Screws shall be installed with a clutching screw gun, to assure screws are not stripped. Field test shall be conducted on each gun prior to starting installation and periodically thereafter to assure it is adjusted properly to install particular type and size of screw as recommended by manufacturer's literature. Improper or mislocated drill holes shall be plugged with an oversize screw fastener and gasketed washer; however, sheets with an excess of such holes or with such holes in critical locations shall not be used. Exposed surfaces

and edges shall be kept clean and free from sealant, metal cuttings, hazardous burrs, and other foreign material. Stained, discolored, or damaged sheets shall be removed from the site.

3.1.1 Subpurlins

Unless otherwise shown, subpurlins shall be anchored to the purlins or other structural framing members with bolts or screws. Attachment to the substrate (when provided) or to the panels is not permitted. The subpurlin spacing shall not exceed 30 inches on centers at the corner, edge and ridge zones, and 1500 mm (5 foot) maximum on centers for the remainder of the roof. Corner, edge, and ridge zones are as defined in ASCE 7.

3.1.2 Roof Panel Installation

Roof panels shall be installed with the standing seams in the direction of the roof slope. The side seam connections for installed panels shall be completed at the end of each day's work. Method of applying joint sealant shall conform to the manufacturer's recommendation to achieve a complete weather-tight installation. End laps of panels shall be provided in accordance with the manufacturer's instructions. Closures, flashings, EPDM rubber boots, roof curbs, and related accessories shall be installed according to the manufacturer's drawings. Fasteners shall not puncture roofing sheets except as provided for in the manufacturer's instructions for erection and installation. Expansion joints for the standing seam roof system shall be installed at locations indicated on the contract drawings and other locations indicated on the manufacturer's drawings.

3.1.3 Concealed Anchor Clips

Concealed anchor clips shall be fastened directly to the structural framing members. Attachment to the substrate (when provided) or to the panels is not permitted. The maximum distance, parallel to the seams, between clips shall be 750 mm (30 inches) on center at the corner, edge, and ridge zones, and 1500 mm (5 feet) maximum on centers for the remainder of the roof.

3.2 INSULATION INSTALLATION

Insulation shall be continuous over entire roof surface. Where expansion joints, terminations, and other connections are made, the cavity shall be filled with batt insulation with vapor retarder providing equivalent R-value and perm rating as remaining insulation. Insulation shall be installed as indicated and in accordance with manufacturer's instructions.

3.2.1 Board Insulation

Rigid board insulation shall be laid in close contact. Board shall be attached to the metal roof deck with bearing plates and fasteners, as recommended by the insulation manufacturer, so that the insulation joints are held tight against each other, and shall have a minimum of 4 fasteners per square feet. Layout and joint pattern of insulation and fasteners shall be indicated on the shop drawings. If more than one layer of insulation is required, joints in the second layer shall be offset from joints in the first layer.

3.3 PROTECTION OF VAPOR RETARDER FROM ROOF DECK

A cloth industrial duct tape shall be applied over the seams of metal roof decks, at penetration edges, and at surface areas exhibiting sharp burrs or similar protrusions. For other types of roof decks, cloth industrial duct tape shall be applied over irregularities which could potentially puncture polyethylene membrane.

3.4 VAPOR RETARDER INSTALLATION

3.4.1 Polyethylene Vapor Retarder

The polyethlene vapor retarder membrane shall be installed over the entire surface. A fully compatible polyethylene tape shall be used to seal the edges of the sheets to provide a vapor tight membrane. Sheet edges shall be lapped not less than 150 mm (6 inches). Sufficient material shall be provided to avoid inducing stresses in the sheets due to stretching or binding. All tears or punctures that are visible in the finished surface at any time during the construction process shall be sealed with polyethylene tape.

3.5 CLEANING AND TOUCH-UP

Exposed SSSMR systems shall be cleaned at completion of installation. Debris that could cause discoloration and harm to the panels, flashings, closures and other accessories shall be removed. Grease and oil films, excess sealants, and handling marks shall be removed and the work shall be scrubbed clean. Exposed metal surfaces shall be free of dents, creases, waves, scratch marks, and solder or weld marks. Immediately upon detection, abraded or corroded spots on shop-painted surfaces shall be wire brushed and touched up with the same material used for the shop coat. Factory color finished surfaces shall be touched up with the manufacturer's recommended touch up paint.

3.6 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.6.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.6.2 List of CEGS Guide Specifications:

07416* Structural Standing Seam Metal Roof (SSSMR) System

CONTRACTOR'S FIVE (5) YEAR NO DOLLAR LIMIT OR MAXIMUM PENAL SUM WARRANTY
FOR
STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM

PROJECT DESCRIPTION AND LOCATION (Include Bldg. No.):_____
CORPS OF ENGINEERS CONTRACT NUMBER:_____
SPECIFICATION SECTION NUMBER & DESCRIPTION:
07416 STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM

_____

CONTRACTOR:_____
ADDRESS:_____
POINT OF CONTACT:_____
TELEPHONE NUMBER:_____

OWNER:_____
ADDRESS:_____
POINT OF CONTACT:_____
TELEPHONE NUMBER:_____

CONSTRUCTION AGENT:_____
ADDRESS:_____
POINT OF CONTACT:_____
TELEPHONE NUMBER:_____

THE SSSMR SYSTEM INSTALLED ON THE ABOVE NAMED BUILDING IS WARRANTED BY _____ _____ FOR A PERIOD OF FIVE (5) YEARS AGAINST WORKMANSHIP AND MATERIAL DEFICIENCIES, WIND DAMAGE, STRUCTURAL FAILURE AND LEAKAGE. THE SSSMR SYSTEM COVERED UNDER THIS WARRANTY SHALL INCLUDE THE ENTIRE ROOFING SYSTEM, INCLUDING THE STANDING SEAM METAL ROOF PANELS, PANEL FINISHES, ROOFING SECUREMENT COMPONENTS, ALL ACCESSORIES, COMPONENTS, AND TRIM; INCLUDING PENETRATIONS SUCH VENTS, CURBS, SKYLIGHTS; INTERIOR OR EXTERIOR GUTTERS AND DOWNSPOUTS; EAVES, RIDGE, HIP, VALLEY, RAKE, GABLE, WALL, OR OTHER ROOF SYSTEM FLASHINGS INSTALLED TO PROVIDE A WEATHERTIGHT ROOF SYSTEM; AND ITEMS SPECIFIED IN OTHER SECTIONS OF THE SPECIFICATIONS THAT ARE PART OF THE SSSMR SYSTEM. ALL LEAKS SHALL BE REPAIRED AS APPROVED BY THE CONTRACTING OFFICER. THIS WARRANTY SHALL COVER THE ENTIRE COST OF REPAIR OR REPLACEMENT, INCLUDING ALL MATERIAL, LABOR, AND RELATED MARKUPS. THE ABOVE REFERENCED WARRANTY COMMENCED ON THE DATE OF FINAL ACCEPTANCE ON _____ AND WILL REMAIN IN EFFECT FOR STATED DURATION FROM THIS DATE.

SIGNED, DATED, AND NOTARIZED (BY COMPANY PRESIDENT)

_____
(Company President) (Date)

(SEE REVERSE SIDE FOR SUPPLEMENTAL PROVISIONS AND EXCLUSIONS)

CONTRACTOR'S FIVE (5) YEAR NO DOLLAR LIMIT OR MAXIMUM PENAL SUM WARRANTY
FOR
STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM
(continued)

THE CONTRACTOR MAY SUPPLEMENT THIS WARRANTY WITH WRITTEN WARRANTIES FROM THE INSTALLER AND/OR MANUFACTURER OF THE SSSMR SYSTEM, WHICH SHALL BE SUBMITTED ALONG WITH THE CONTRACTOR'S WARRANTY. HOWEVER, THE CONTRACTOR WILL BE ULTIMATELY RESPONSIBLE FOR THE WARRANTY AS OUTLINED IN THE SPECIFICATIONS AND AS INDICATED IN THIS WARRANTY EXAMPLE.

EXCLUSIONS FROM COVERAGE

1. NATURAL DISASTERS, ACTS OF GOD (LIGHTING, FIRE, EXPLOSIONS, SUSTAINED WIND FORCES IN EXCESS OF THE DESIGN CRITERIA, EARTHQUAKES, AND HAIL).

2. ACTS OF NEGLIGENCE OR ABUSE OR MISUSE BY GOVERNMENT OR OTHER PERSONNEL, INCLUDING ACCIDENTS, VANDALISM, CIVIL DISOBEDIENCE, WAR, OR DAMAGE CAUSED BY FALLING OBJECTS.

3. DAMAGE BY STRUCTURAL FAILURE, SETTLEMENT, MOVEMENT, DISTORTION, WARPAGE, OR DISPLACEMENT OF THE BUILDING STRUCTURE OR ALTERATIONS MADE TO THE BUILDING.

4. CORROSION CAUSED BY EXPOSURE TO CORROSIVE CHEMICALS, ASH OR FUMES GENERATED OR RELEASED INSIDE OR OUTSIDE THE BUILDING FROM CHEMICAL PLANTS, FOUNDRIES, PLATING WORKS, KILNS, FERTILIZER FACTORIES, PAPER PLANTS, AND THE LIKE.

5. FAILURE OF ANY PART OF THE SSSMR SYSTEM DUE TO ACTIONS BY THE OWNER TO INHIBIT FREE DRAINAGE FROM THE ROOF AND ALLOW PONDING WATER. CONTRACTOR'S DESIGN SHALL INSURE FREE DRAINAGE FROM THE ROOF AND NOT ALLOW PONDING WATER.

6. THIS WARRANTY APPLIES TO THE STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM. IT DOES NOT INCLUDE ANY CONSEQUENTIAL DAMAGE TO THE BUILDING INTERIOR OR CONTENTS WHICH IS COVERED BY THE WARRANTY OF CONSTRUCTION CLAUSE INCLUDED IN THIS CONTRACT.

7. THIS WARRANTY CANNOT BE TRANSFERRED TO ANOTHER OWNER WITHOUT WRITTEN CONSENT OF THE CONTRACTOR AND THIS WARRANTY AND THE CONTRACT PROVISIONS WILL TAKE PRECEDENCE OVER ANY CONFLICTS WITH STATE STATUTES, UNLESS OTHERWISE APPROVED IN WRITING BY THE CONTRACTING OFFICER.

LEAKS SHALL BE RESPONDED TO WITHIN 48 HOURS OF RECEIPT OF NOTICE BY TELEPHONE OR IN WRITING FROM EITHER THE OWNER, OR CONTRACTING OFFICER. EMERGENCY REPAIRS, TO PREVENT FURTHER ROOF LEAKS, SHALL BE INITIATED IMMEDIATELY; A WRITTEN PLAN SHALL BE SUBMITTED FOR APPROVAL TO REPAIR OR REPLACE THIS SSSMR SYSTEM WITHIN SEVEN CALENDAR DAYS. ACTUAL WORK FOR PERMANENT REPAIRS OR REPLACEMENT SHALL BE STARTED WITHIN 30 DAYS AFTER RECEIPT OF NOTICE, AND COMPLETED WITHIN A REASONABLE TIME FRAME. IF THE CONTRACTOR FAILS TO ADEQUATELY RESPOND TO THE WARRANTY PROVISIONS, AS STATED IN THE CONTRACT AND AS CONTAINED HEREIN, THE CONTRACTING OFFICER MAY HAVE THE SSSMR SYSTEM REPAIRED OR REPAIRED BY OTHERS AND CHARGE THE COST TO THE CONTRACTOR.

A FRAMED COPY OF THIS WARRANTY SHALL BE POSTED IN THE MECHANICAL ROOM OR OTHER APPROVED LOCATION DURING THE ENTIRE WARRANTY PERIOD.

SECTION 07500

ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

This section cover the following:

Built Up Roofing

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM D 41	(1994) Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
ASTM D 312	(1995) Asphalt Used in Roofing
ASTM D 1863	(1993) Mineral Aggregate Used on Built-Up Roofs
ASTM D 2178	(1989) Asphalt Glass Felt Used in Roofing and Waterproofing
ASTM D 4586	(1993) Asphalt Roof Cement, Asbestos Free
ASTM D 4601	(1994) Asphalt-Coated Glass Fiber Base Sheet Used in Roofing

1.3 SUBMITTALS

Submittals shall be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item should be required.

1.4 GENERAL REQUIREMENTS

Built Up Roofing design and construction shall conform to The National Roofing Contractors Association Roofing and Waterproofing Manual and the requirements specified herein. The NRCA Manual shall take precedence were requirements herein my deviate. The D/B Contractor shall provide and install a watertight roof system with compatible components supplied from a single source roof manufacturer that meets the project requirements and will not permit the passage of liquid water (including leaks through the roof membrane, the flashings, the parapets, the walkways, the satelite pad or the rooftop equipment curbs) and will withstand the required wind loads, thermally induced movement, and exposure to weather without failure.

The minimum slope of the roof structural deck shall be 21 mm per m (1/4 inch per foot) at all areas of roof surface, including valleys and hips. Higher slopes shall be determined by local

environmental conditions and experience. Roof slopes shall be obtained by sloping the structural members in lieu of the use of moisture-bearing lightweight fills, asphaltic dry fills, or tapered board-type insulations. Direction and degree of slope shall be indicated on the roof drawings. Where roof slopes are greater than 42 mm per m (½ inch per foot) the use of mechanical fastening shall be used for felt piles and this section will be revised accordingly.

In areas where high winds have caused roof damage, data from roofing manufacturers, Factory Mutual and Underwriters Laboratories should be consulted for recommendations on roof system attachment.

Expansion joints in the roofing shall be located at high points where practicable, and placed on curbs above the water line. Expansion joints shall be provided as follows:

a. at each expansion joint in the structure;
b. uniformly spaced at intervals not over 60 m (200 feet) in length or width;
c. at each intersection where an “L” or “T” shaped roof deck changes direction;
d. at each change of deck material.

1.5 WARRANTY

A. All roofing work on FACILITY shall be guaranteed watertight for a period of 20 years after date of acceptance of work by the government. The guarantee shall be issued by the membrane manufacturer through the certified installer. Guarantee may be based on the manufacturer's standard guarantee as approved by WPAFB.

B. All roofing work on FACILITY shall be guaranteed watertight for a period of 5 years after date of acceptance of work by the Government. The guarantee shall be issued by the contractor on a standard roof warranty form as approved by WPAFB. Warranty forms are available from the Contracting Officer and a sample form is included in this specification as part of the attachments.

C. If a leak occurs the Contractor shall make temporary repairs within 24 hours of notice by the Government, and he shall make permanent repairs as necessary to restore the work to the original standards of quality, without additional cost to the Government.

D. Insulation which becomes wet because of leaks caused by poor workmanship or material in the membrane or bituminous flashings shall be removed and replaced with new insulation and membranes of the same type.

E. Repairs required due to acts of God, abuse of roofs, alternations, or failure of the supporting structure or substrate, other than failure of the new insulation or built-up membrane and the associated flashing work will not be the responsibility of the roofing contractor or membrane manufacturer.

F. Guarantee shall include full replacement cost of labor and materials for the duration of the guarantee with no dollar limit or maximum penal sum. All initial or subsequent fees charged to the Government for the cost of the guarantee shall be included in the bid.

1.6 CERTIFICATION

Roof manufacturer's representative shall certify that the roof system complies with the project requirements and that the roof substrate meets the manufacturer's conditions for roof installation prior to beginning the work. A report shall be issued by the representative identifying deficiencies and authorizing the work to commence. The roof manufacturer's representative shall perform the final inspection at the completion of the work and shall issue a final report identifying deficiencies to be corrected and certifying the manufacturer's acceptance of the installation. This certification does not ensure government acceptance of the work.

PART 2 PRODUCTS

2.1 PRIMER

ASTM D 41 for asphalt roofing systems.

2.2 BITUMEN

2.2.1 Asphalt

ASTM D 312, Type II on slopes from 21 mm per m up to and including 42 mm per m; Type II or Type III on slopes above 42 mm per m up to and including 83 mm per m; Type III on slopes above 83 mm per m up to and including 250 mm per m.

2.3 BITUMINOUS CEMENT

ASTM D 4586 for use with asphalt roofing systems.

2.4 FELT

2.4.1 Base Sheet

Base sheet shall conform to ASTM D 4601, Type II, with no perforations.

2.4.2 Glass Roofing Felt

ASTM D 2178, Type IV or VI.

2.5 NAILS AND FASTENERS

Nails and fasteners shall be an approved type recommended by the roofing felt manufacturer. Fasteners shall be corrosion resisting type

2.6 AGGREGATE SURFACING MATERIALS

Crushed stone, gravel, or crushed slag conforming to ASTM D 1863. Subject to approval, other

materials may be used when blended to the grading requirements of ASTM D 1863. Aggregate shall be light-colored and opaque.

2.7 INSULATION

Insulation shall be fiberboard, composite board, expanded perlite, mineral fiber, or polyisocyanurate.

2.8 FLASHINGS

Bituminous flashings shall be in accordance with manufacturer's recommendations

PART 3 EXECUTION

3.1 APPLICATION

Roofing shall be applied in accordance with manufacturer's recommendations.

3.2 INSPECTION

The Contractor shall establish and maintain an inspection procedure to assure compliance of the installed roofing with the contract requirements. Any work found not to be in compliance with the contract shall be promptly removed and replaced or corrected in an approved manner. Inspection shall include, but not be limited to, the following:

a. Environmental conditions; number and skill level of roofing workers; start and end time of various tasks; condition of substrate.
b. Verification of compliance of materials before, during, and after installation.
c. Inspection of condition of equipment and accuracy of thermometers and metering devices.
d. Inspection of flashings, cants and curbs.
e. Inspection of membrane placement, including edge envelopes, widths of starter sheets, laps, proper use of squeegee, and mechanical fastening.
f. Inspection of application of bitumen, aggregate, and walkways.
g. Inspection of embedment of aggregate for required weight and coverage.
h. Cutout sampling and analysis as directed.

3.3 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

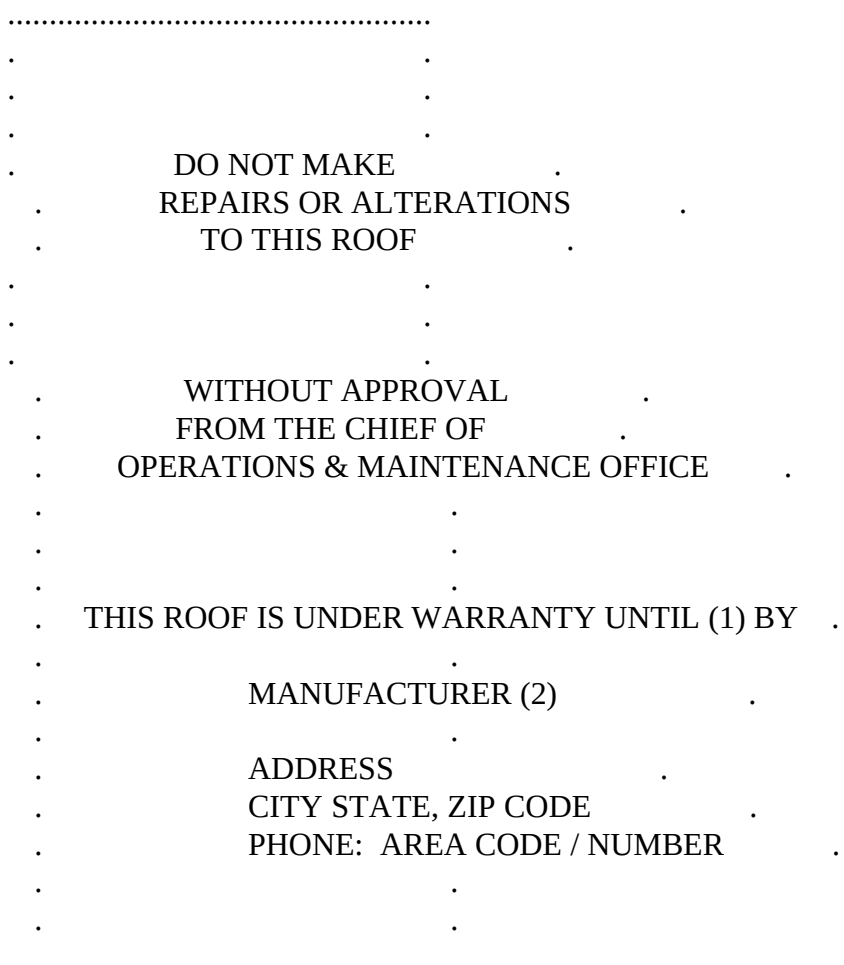
3.3.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.3.2 List of CEGS Guide Specifications:

07510* Built-Up Roofing

3.3.3 Attachments:



PROVIDE SIGNS - TO BE POSTED ON ROOF:

(1) INSERT MONTH AND YEAR (20 YEARS AFTER FINAL ACCEPTANCE DATE).

(2) INSERT THE MANUFACTURER'S NAME, ADDRESS, AND PHONE NUMBER.

Figure A1-1, Warranty Sign

BUR Manufacturer Certification:

The following statement is required from the BURS manufacturer who is defined as the roof membrane manufacturer who may or may not manufacture the other system components:

LICENSED APPLICATOR:

This is to advise you that (Roofing Contractor).....
is a licensed applicator of our roofing systems and is capable of obtaining our 20-year labor and

material warranty.

PROJECT DOCUMENT REVIEW:

We have reviewed the project document (general provisions, and specifications) as they relate to the built-up roofing membrane, flashings and insulation for Avionics Research Lab Phase IIIA and certify that the built-up roofing systems listed below and described in the attached product literature are suitable for use with the roof system construction specified for this project as it relates to normal wear and tear of the elements. We further understand that change orders to this contract will be submitted for our review.

Deck Type (From the Roofing Schedule)	Roofing System Designation Membrane/Insulation (List manufacturers name & product designation as appropriate for each deck type)
Steel	.....
Concrete	.....
Gypsum/Lightweight Concrete	.....
Wood	.....

INSULATION COMPATIBILITY:

We further certify that these are our 20-year system designs and that the insulations as specified are compatible with our materials and would qualify for our best materials and labor warranty. We also accept responsibility for defects in failure of, or improper application of, roof insulation or any other underlying surface or material used as a base over which the roof is applied, except the roof deck.

TWENTY YEAR WARRANTY:

We further certify that this system is delivered subject to a full material and workmanship warranty for 20 years that guarantees that manufacturer will pay all costs necessary to maintain the built-up roofing membrane and flashing system in a water-tight condition as a result of the following causes: deterioration from ordinary wear and tear of the elements; workmanship on the part of the contractor; defects in materials, defects in the manufacturer's specifications; blisters, bare spots, fishmouths, wrinkles or ridges in the built-up roof; and splits in the built-up roof membrane caused by movement of the roof insulation or any other underlying surface or material used as a base over which the roof system is applied, excluding the deck. Membrane splits caused by structural movement are not covered by this warranty.

If the manufacturer fails to make required repairs during the warranty period, the Air Force may have the work done by others and charge the cost to the manufacturer. The warranty provisions of this contract apply notwithstanding Air Force inspection and acceptance.

TERMS, CONDITIONS, LIMITATIONS

Emergency repairs shall be made within 24 hours of receipt of notice from the contracting officer and weather permitting, the manufacturer agrees to permanently repair the affected areas within 30 days by restoring them to a water-tight condition, without cost to the Air Force. However, the manufacturer will not be required to make any repairs at no cost if it is determined that these leaks were caused by either an exclusion from coverage or a special condition listed below.

EXCLUSIONS FOR COVERAGE:

1. Natural disasters, acts of God (lightning, hurricanes, tornadoes, earthquakes.

2. Hail.

3. Acts of negligence, abuse or misuse, accidents, vandalism, civil disobedience, war.

4. Damage by structural failure, settlement, movement, distortion, warpage, or displacement of structure.

5. Failure of material or flashings caused by movement of metal work not supplied by manufacturer issuing warranty.

6. Repairs or alterations of roof or installation of structures, fixtures or utilities on or through roof without prior approval of manufacturer.

7. Storage of material on roof.

8. Moisture entering roof system through walls, copings, or any part of building structure, including from adjacent building causing the roof system to get wet.

9. Fire.

10. Faulty construction or design of building, including parapet walls, copings, chimneys, skylights, vents or of roof deck but specifically excluding construction between the deck and membrane, i.e., insulation, base sheet, fasteners, adhesives, vapor retarders, and so forth. Acceptance of this exclusion does not relieve the contractor/manufacturer from complying with the "site inspection" and "differing site conditions" clauses included in this contract.

11. Infiltration or condensation of moisture in or through underlying area; vapor condensation beneath the roof greater than the acceptable ambient moisture content for the given material as established by the appropriate ASTM standard.

12. Damage caused by falling objects.

SPECIFIC CONDITIONS THAT WILL AFFECT WARRANTY COVERAGE:

1. Repairs, alterations or additions without prior approval of manufacturer.

2. Failure to use reasonable care in maintenance; failure to follow manufacturer's written maintenance instructions.

3. Failure of owner to make repairs to leaks not covered by manufacturer's warranty.

4. Repair work by any contractor other than approved contractor or use of unapproved material.

Receipt of notice from the contracting officer is evidence that the contracting officer has had the roof examined and determined that none of the above causes apply and the manufacturer is obligated to make the repairs. The contracting officer's decision is conclusive. However, the warranty does not operate to obligate the surety after completion of work and final payment, except as
provided for in FAR 52.246.21 and the Miller Act as amended (40 USC 270).

Within 30 days of receipt of the above notice by the manufacturer that a defect covered by the warranty has been discovered, the manufacturer, to avoid application of the warranty, must notify the contracting officer in writing of the existence of an exclusion stated herein. Failure to provide such notice will preclude the manufacturer from later disputing the coverage of the warranty.

The Air Force has the right to perform both visual and nondestructive evaluations of the roof system, at Air Force expense, anytime during the warranty period to validate water tightness of the roof system. The Air Force further has the right to take test cores of the BUR system to verify nondestructive results.

After the occurrence of an exclusion from coverage or a specific condition which renders the warranty ineffective, the warranty shall be allowed to continue as long as the Air Force returns the roofing system to its original condition and the manufacturer is allowed to inspect or oversee the repair. The burden to establish the existence of an exclusion is on the manufacturer.

BENEFICIARY:

It is understood by the manufacturer/contractor that the warranty provided herein shall be for the benefit of the United States Air Force.

BURDEN OF PROOF:

The manufacturer shall have the burden of providing by a preponderance of the evidence the existence of a condition which established an exclusion from coverage, or which would render the warranty ineffective or null and void.

OTHER WARRANTIES:

The warranty contemplated herein shall be in addition to and not in lieu of any warranty otherwise applicable to the work or materials used in the contract.

PRE-CONSTRUCTION CONFERENCE:

Our technical representative will be present at the pre-construction conference, if requested, to discuss proper installation procedures for our products.

SIGNATURE:

BURS Manufacturer Firm Name .....

Address .....

Authorized Representative's Signature .....

Authorized Representative's Name .....

Authorized Representative's Title .....

Date: .....

BURS Manufacturer Specification,
Description and Recommendation

APPOINTMENT OF QUALITY CONTROLLER

.....(Name) is appointed as quality controller on Emergency Roof Repair and Analysis, WPAFB with the authority to regulate the quality of the work so that it conforms to the contract. The quality controller is authorized to order discontinuance of any operation causing nonconforming work.

The quality controller is experienced in the supervision and inspection of BURS construction similar to that required in this contract. The quality controller understands all requirements of these specifications.

Name of Firm .....

Address .....

Telephone .....

Authorized Representative's Signature .....

Printed or Typed Name .....

Date .....

I acknowledge receipt of this letter.

Quality Controller's Signature .....

Printed or Typed Name .....

Date .....

AS-BUILT ROOF SYSTEM SUMMARY

After completion of roofing, accurately fill in the information required on this sheet. If more than one system applies to the same building, complete one sheet for each system. Submit four copies of each sheet before final acceptance.

Bldg No. ..... Project No. .....

Total project area in square feet .....

Total project cost .....

Building area where this system is installed .....

Underlayment components (type and number) .....

Underlayment attachment .....

Insulation:
Type ..... Manufacturer .....

First Layer:
Thickness .....

Attachment .....

Second Layer:
Thickness .....

Attachment .....

Membrane:
Manufacturer .....

Manufacturer System .....

Designation .....

No. of plies ..... Felt type: glass

Bitumen type ..... Surfacing (circle one):

Aggregate Smooth Granules

Roof completion date .....

Roofing Contract (Name, address and phone) .....

.....

Warranty of Construction for Facility No. .....

For 5 years from date of final acceptance, the contractor agrees to inspect, locate, and make emergency repairs to defects and leaks in the roof system within 24 hours of receipt of notice from the contracting officer. Thereafter, as soon as weather permits, and within 30 days, the contractor agrees to permanently repair the affected areas by restoring them to the standard of the contract, without cost to the Government. However, the contractor will not be required to make any repairs if it is determined that these leaks or defects were caused by abuse, or by lightning, hurricane, tornado, hail storm, or other unusual natural phenomena or failure of related work installed by others. Receipt of notice from the contracting officer is evidence that the contracting officer has had the roof examined and determined that none of the above causes apply and the contractor is obligated to make the repairs. The contracting officer's decision is conclusive.

Project No.: ..... Contract No.: .....

Final Acceptance Date ..... End of Performance Agreement Date .....

Name of Firm .....

Address .....

Telephone Number .....

Contractor's Signature .....

Printed or Typed Name .....

Date .....

Contracting Officer's Signature .....

Printed or Typed Name .....

Date .....

The requirements of the warranty are in addition to the requirements of that clause for the first

year from the date of final acceptance. Also, the warranty remains in effect for 4 years thereafter. If the contractor fails to make required repairs during the performance period, the Government may have the work done by others and charge the cost to the contractor. The warranty provisions of this contract apply notwithstanding Government inspection and acceptance. A separate warranty is required for each building.

END OF SECTION

SECTION 08100

DOORS AND FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES

This section covers the following:

Steel Doors and Frames
Wood Doors
Security Doors
Aluminum Doors and Frames
Aluminum Window/Curtain Walls
Overhead Rolling Doors
Counter Doors
Acoustical Doors

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

DHI-AL 15.IG	(1994) Installation Guide for Doors and Hardware
NAAMM HMMA 862	(1987) Hollow Metal Manual; Section: Guide Specifications for Commercial Security Hollow Metal Doors and Frames
NAAMM-AMP 501	(1988) Metal Finishes Manual for Architectural and Metal Products; Section: Finishes for Aluminum
NFPA 80	(1992) Fire Doors and Windows
NFPA 80A	(1993) Protection of Buildings from Exterior Fire Exposures
NFPA 101	(1994) Safety to Life from Fire in Buildings and Structures
SDOI SDI-100	(1991) Standard Steel Doors and Frames
SDOI SDI- 107	(1984) Hardware on Steel Doors (Reinforcement - Application)
ASTM A 653	(1995) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip process
ASTM B 209	(1988) Aluminum and Aluminum-Alloy Sheet and Plate
ASTM B 221	(1988) Aluminum and Aluminum-Alloy Extruded Bars, Rods ,Wire, Shapes, and Tubes

ASTM E 84	(1995a) Surface Burning Characteristics of Building Materials
ASTM E 330	(1990) Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
NFPA 80	(1995) Fire Doors and Windows
AWI-02	(1994) Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program
NFPA 80	(1992) Fire Doors and Windows
NFPA 101	(1994) Safety to Life from Fire in Buildings and Structures
NWWDA I.S.1-A	(1993) Architectural Wood Flush Doors

1.3 WARRANTY

Manaufacturer's standard performance guarantees or warranties that extend beyond a 1 year period shall be provided.

PART 2 PRODUCTS

2.1 STEEL DOORS AND FRAMES

Doors and frames shall be factory fabricated in accordance with SDOI SDI- I 00 and the additional requirements specified herein. Door grade shall be heavy duty (Grade II) or extra heavy duty (Grade III) unless otherwise required. Standard duty doors shall be used for low frequency applications not subject to physical abuse. Heavy duty doors shall be used in most situations when doors are subjected to frequent use and moderate physical abuse. Extra heavy duty doors shall be used as main entrance doors to buildings, and in industrial applications where doors may be subjected to physical abuse, and may be used in lieu of heavy duty doors when a heavier door is needed to meet local conditions.

2.2 SECURITY DOORS

Security type doors and frames shall be factory fabricated in accordance with NAAMM HMMA 862 and the additional requirements specified herein.

2.3 WOOD DOORS

Interior wood doors shall be flush solid core and shall conform to NWWDA I.S. 1-A, except for the one year acclimazation requirement in paragraph T-2, which shall not apply. Wood doors shall be 5-ply or 7-ply construction with faces, stiles, and rails bonded to the cores.

2.3.1 Core Construction

Door construction shall be glued wood block core with vertical and horizontal edges bonded to the core.

2.3.2 Factory Coated Natural Finish

Wood doors shall be either factory or field natural finished. Doors to receive factory coated natural finish shall be given a transparent finish conforming to AWI-02, Section 1500, Custom Grade. Finish color as approved by Government.

2.4 OVERHEAD ROLLING DOORS

Doors shall be surface-mounted type with guides at jambs set back a sufficient distance to clear the opening. Slats shall be of the minimum bare metal decimal thickness required for the width indicated and the wind pressure determined in accordance with ASCE 7. Test data showing compliance with design windload requirements for the specific door design tested in accordance with the uniform static air pressure difference test procedures of ASTM E 330 shall be provided. Exterior doors shall be insulated. Insulation shall have a flame spread rating of not more than 25 and a smoke development factor of not more than 50 when tested in accordance with ASTM E 84. Exterior doors shall be fully weatherstripped. Doors shall be operated by means of electric power with auxiliary chain hoist. Electric power operators shall be heavy-duty industrial type.

2.4.1 Finish

Steel slats and hoods shall be hot-dip galvanized G90 in accordance with ASTM A 653, and shall be treated for paint adhesion and shall receive a baked on prime coat for field finishing. Color as approved by Government.

2.5 ALUMINUM DOORS AND FRAMES

Doors and frames shall match aluminum doors and frames used on PHASE I ADDITION. Doors and frames shall be factory fabricated in accordance with ASTM B 209 ans ASTM B 221 and the additional requirements specified herein.

2.6 ALUMINUM WINDOW/CURTAIN WALLS

Aluminum window walls/curtain walls shall match aluminum doors and frames used on PHASE I ADDITION. Color as approved by Government. Aluminum window walls/curtain walls shall be factory fabricated in accordance with ASTM B 209 ans ASTM B 221 and the additional requirements specified herein.

2.7 ACOUSTICAL DOORS

Acoustical doors shall be installed in strict conformance with the manufacturer’s instructions. At the D/B Contractor’s option where the door arrangement does not adversely affect the room layout and at no additional cost to the government, the D/B Contractor may provide offset doors with ADA-complying vestibules to meet the FSTC testing requirements. Refer to SECTION 13020: ACOUSTICAL CONSTRUCTION AND TESTING for additional requirements.

2.8 ROLLING COUNTER DOORS

Doors shall be surface-mounted type with guides at jambs set back from the face of wall a sufficient distance to clear the opening. Slats shall be minimum 22 gauge interconnected strip stainless steel. Doors shall be operated by push-up operation. Product shall be equal to Cookson Company model # CD10-1.

2.8.1 Finish

Stainless steel slats and hoods shall be equal to no. 10 size with #4 finish as manufactured by Cookson Company.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Steel Doors

Installation shall be in accordance with DHI-A115.IG. Preparation for surface applied hardware shall be in accordance with SDOI SDI-107. Installation and operational characteristics of fire doors shall be in accordance with NFPA 80, NFPA 80A and NFPA 101. Hollow metal door frames shall be solid grouted in masonry walls.

3.1.2 Wood Doors

Wood Doors shall be installed in accordance with Manufacturer's instructions. Installation, hardware, and operational characteristics shall conform to NFPA 80 and NFPA 101 and shall be in strict conformance with the manufacturer's printed instructions.

3.1.3 Overhead Rolling Doors

Doors shall be installed in accordance with approved detail drawings and manufacturer's instructions.

3.1.4 Aluminum Doors and Frames

Doors and frames shall be installed in accordance with approved detail drawings and manufacturer's instructions.

3.1.5 Aluminum Window/Curtain Walls

Aluminum window/curtain walls shall be installed in accordance with approved detail drawings and manufacturer's instructions.

3.1.6 Acoustical Doors

Acoustical doors shall be installed in accordance with approved detail drawings and manufacturer's instructions. A qualified representative of the manufacturer shall inspect the installation of acoustical doors to confirm that each door system has been installed in accordance

with the manufacturer’s instructions. The representative shall submit a report to the Contracting Officer stating that the doors have been installed properly.

3.1.7 Rolling Counter Doors

Doors shall be installed in accordance with approved detail drawings and manufacturer's instructions.

3.2 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.2.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.2.2 List of CEGS Guide Specifications:

08110	Steel Doors and Frames
08120	Aluminum Doors and Frames
08210	Wood Doors
08330	Overhead Rolling Doors

END OF SECTION

SECTION 08700

BUILDERS' HARDWARE

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

BHMA-01	(Effective thru Jun 1995) Directory of Certified Locks & Latches
BHMA-02	(Effective thru Jul 1995) Directory of Certified Door Closers
BHMA-03	(Effective thru Jul 1996) Directory of Certified Exit Devices
BHMA Al 56.3	(1994) Exit Devices
BHMA Al 56.5	(1992) Auxiliary Locks & Associated Products
BHMA Al 56.6	(1994) Architectural Door Trim
BHMA A156.13	(1994) Mortise Locks & Latches
BHMA Al 56.18	(1993) Materials and Finishes
DHI-04	(1976) Recommended Locations for Builders' Hardware for Custom Steel Doors and Frames
DHI-05	(1990) Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames
DHI-AL 15.IG	(1994) Installation Guide for Doors and Hardware
DHI Al 15-W	(Varies) Wood Door Hardware Standards (Incl A115-WI thru Al 15-W9)
NFPA 80	(1995) Fire Doors and Windows
NFPA 101	(1994) Safety to Life from Fire in Buildings and Structures

1.2 SUBMITTALS

Submittals shall be provided and submitted as necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item should be required. As a minimum, submittals shall as follows:

The hardware manufacturer's certificates of compliance stating that the supplied material or hardware item meets specified requirements. Each certificate shall be signed by an official authorized to certify in behalf of the product manufacturer and shall identify quantity and date or dates of shipment or delivery to which the certificates apply. A statement that the proposed hardware items appear in BHMA-01, BHMA-02 and BHMA-03 directories of certified products may be submitted in lieu of certificates.

1.3 WARRANTY

Manufacturer's standard performance guarantees or warranties that extend beyond a one year period shall be provided.

PART 2 PRODUCTS

2.1 GENERAL HARDWARE REQUIREMENTS

The general hardware for this facility shall be coordinated by the D/B Contractor with the security requirements described elsewhere in this RFP document and the WPAFB Base Facility Standard.

Hardware shall conform to BHMA Standard applicable to the hardware application. Hardware shall be Grade I for all types except where grade I is commercially unavailable or impractical.

2.2 LOCKS AND LATCHES

To the maximum extent possible, locksets, latchsets and deadlocks shall be the products of a single manufacturer.

2.2.1 Mortise Lock and Latchsets

Mortise lock, latchsets, and strikes shall be series 1000 and shall conform to BHMA Al 56.13, operational Grade 1.

2.2.2 Lock Cylinders

Lock cylinders shall comply with BHMA A156.5. Lock cylinder shall have not less than seven pins. Cylinders shall have key removable type cores and shall be comparable with the "Best" system in the existing building. A master keying system shall be provided as an extension of the, existing keying system. Construction interchangeable cores shall be provided. All locksets, exit devices, and padlocks shall accept same interchangeable cores.

2.3 EXIT DEVICES AND EXIT DEVICE ACCESSORIES

Exit devices and exit device accessories shall conform to BHMA A156.3, Grade 1. Exit devices shall be of modern touch bar design.

2.4 KEYING

Locks shall be keyed in sets or subsets as scheduled. Locks shall be furnished with the manufacturer's standard construction key system. Change keys for locks shall be stamped with change number and the inscription "U.S. Property - Do Not Duplicate." Keys shall be supplied as follows:

Locks: 2 change keys each lock.
Master keyed sets: 6 keys total

Construction keys: 2 total.
Blank keys: 6 total.

The keys shall be furnished to the Contracting Officer arranged in a container in sets or subsets.

2.5 DOOR CLOSING DEVICES

Surface type closers shall be Grade 1, Series C02000 Full Cover with options PT-4H, Size 1 or 2 through Size 6, and PT-4D with back check position valve. Except as otherwise specified, sizes shall conform to the manufacturer's published recommendations. Closers for outswinging exterior doors shall have parallel arms or shall be top jamb mounted. Closers for doors close to a wall shall be of narrow projection so as not to strike the wall at the 90-degree open position.

2.6 ARCHITECTURAL DOOR TRIM

Architectural door trim shall conform to BHMA A156.6. Kickplates, mop plates and armor plates shall be stainless steel. All corridor doors and doors into other high traffic areas shall be provided with kickplates on both sides of door.

2.7 FINISHES

Unless otherwise specified, finishes shall conform to those identified in BHMA A156.18. Finishes shall be as follows to match existing building:

Hinges: Interior door and inswinging exterior doors: 651
Outswinging exterior doors: 625 or 629
Lock and Door Trim: 625 or 629
Door Closer: 689

2.8 HARDWARE FOR FIRE DOORS

Hardware for fire doors shall conform to the requirements of NFPA 80 and NFPA 101.

PART 3 EXECUTION

3.1 APPLICATION

Hardware shall be located in accordance with DHI-04 and DHI-05. When approved, slight variations in locations or dimensions will be permitted. Application shall be in accordance with DHI-A115.IG or DHI Al 15-W. Door control devices for exterior doors such as closers and holders, shall be attached to doors with thru bolts and nuts or sex bolts. Alternate fastening methods may be approved by the Contracting Officer when manufacturers' documentation is submitted to verify that the fastening devices and door reinforcements are adequate to resist wind induced stresses.

3.1.1 Key Control Storage Systems

Key control storage system shall be installed where directed.

3.2 HARDWARE SETS

Project specifications shall provide complete hardware sets.

3.3 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.3.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.3.2 List of CEGS Guide Specifications:

08700 Builders' Hardware

END OF SECTION

SECTION 08800

GLAZING

PART 1 GENERAL

1.1 SUBMITTALS

SD-13 Certificates

Certificates stating that the glass meets the specified requirements. Labels or marking affixed to the glass will be accepted in lieu of certificates.

1.2 SYSTEM DESCRIPTION

Glazing systems shall be fabricated and installed watertight and airtight to withstand thermal movement and wind loading without glass breakage, gasket failure, deterioration of glazing accessories, and defects in the work. All glass and glazing shall be in accordance with the Flat Glass Marketing Association (FGMA) Glazing Manual.

1.3 DELIVERY, STORAGE AND HANDLING

Glazing compounds shall be delivered to the site in the manufacturer's unopened containers. Glass shall be stored indoors in a safe, well ventilated dry location in accordance with manufacturer's instructions, and shall not be unpacked until needed for installation. Glass shall not be stored on site over 1 month.

1.4 WARRANTY

Manufacturer shall warrant the insulating glass to be free of fogging or film formation on the internal glass surfaces caused by failure of the hermetic seal for a period of 10 years from Date of Substantial Completion. Warranty shall be signed by manufacturer.

PART 2 PRODUCTS

Quality requirements for clear annealed glass, transparent tinted heat-absorbing and light-reducing glass, patterned and wired glass shall conform to ASTM C 1036. Glazed area subject to human impact should be provided with safety glazing or other acceptable protective devices such as handrails or horizontal mullions. Exterior windows shall be insulating glass.

2.1 INSTALLATION

Glass and glazing work shall be performed in accordance with approved shop drawings, Flat Glass Glazing Manual, glass manufacturer's instructions and warranty requirements. Glass shall be installed with factory labels intact and removed only when instructed.

2.2 CLEANING

Upon completion of project, outside surfaces of glass shall be washed clean and the inside surfaces of glass shall be washed and polished in accordance with glass manufacturer's recommendations.

2.3 PROTECTION

Glass work shall be protected immediately after installation. Glazed openings shall be identified with suitable warning tapes, cloth or paper flags, attached with non-staining adhesives. Reflective glass shall be protected with a protective material to eliminate any contamination of the reflective coating. Protective material shall be placed far enough away from the coated glass to allow air to circulate to reduce heat buildup and moisture accumulation on the glass. Glass units which are broken, chipped, cracked, abraded, or otherwise damaged during construction activities shall be removed and replaced with new units.

PART 3 EXECUTION

3.1 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.1.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.1.2 List of CEGS Guide Specifications:

08810 Glass and Glazing

END OF SECTION

SECTION 09000

FINISHES

PART 1 GENERAL

1.1 SECTION INCLUDES

This sections covers the following:

Gypsum Wallboard
Ceramic Tile
Acoustical Ceilings
Resilient Flooring
Resilient Accessories
Carpet Tile
Carpet
Painting
Wall Covering
Color Schedule

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM C 840	(1994) Application and Finishing of Gypsum Board
FM P8016	(1993) Specification Tested Products Guide
GA 600	(1992) Fire Resistance Design Manual
UL-05	(1993; supple) Fire Resistance Directory
WPAFB	Wright Patterson Air Force Base Facility Standard and Appendix B for Comprenhensive Interior Design Program
AF HDBK 32-1084	Facility Requirements, Chapter 12, Interior Design for Administrative Facilities

1.3 WARRANTY

Manufacturer's standard performance guarantees or warranties that extend beyond a 1-year period shall be provided.

1.4 SUBMITTALS

Submittals shall be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item should be required. All samples to be submitted shall be submitted for Government Approval.

PART 2 PRODUCTS

2.1 GYPSUM WALLBOARD

Unless otherwise specified or shown, gypsum wallboard materials, including gypsum board, fire-rate gypsum board, framing members, fasteners, finishing materials, accessories, and other applicable materials shall conform to ASTM C 840. Accessories such as hangars, tie wire, clips, rings and other fastenings not specified in ASTM C 840 or standards referenced therein shall conform to the gypsum board manufacturer's written recommended requirements.

2.2 CERAMIC TILE

Tile shall be standard grade conforming to ANSI A137.1. Wall tile shall be 108 mm x 108 mm (4-1/4 x 4-1/4 inches) with semi-gloss finish. Floor tile shall be ceramic mosaics in size of 50 mm x 50 mm (2 x 2 inches). Cove base trim shall be 108 mm (4-1/4 inches) high and 108 mm (4-1/4 inches) long, with a 9 mm (3/8 inch) radius.

2.2.1 Grout

Ceramic tile grout for wall shall conform to ANSI A118.6; latex-portland cement grout. Ceramic tile grout for floors shall conform to ANSI A118.3 epoxy resin grout .

2.3 ACOUSTICAL CEILINGS

2.3.1 Acoustical Tiles

Acoustical treatment shall consist of sound controlling units mechanically mounted on a ceiling suspension system. Acoustical units shall conform to ASTM E 1264, Type III, Form 2, Class A. Material, of wet-formed mineral fiber. Surface finish, of factory applied vinyl latex paint, HumiGuard Plus performance. Light Reflectivity, of 0.83. NRC shall be UL Certified of 0.50. CAC of 33. Edge of beveled tegular. Size shall be 1200 x 600 x 15 mm (48 x 24 x 5/8 inches). Acoustical tile ceiling shall be Dune (1775M) as manufactured by Armstrong World Industries or approved equal.

2.3.2 Suspension System

Suspension system shall be standard 13.8 mm (9/16 inch) exposed-grid, and shall conform to ASTM C 635 for intermediate-duty systems. All steel roll formed parts shall be chemically cleansed hot dipped galvanized with designation G30.

2.3.3 Finishes

Acoustical units and suspension system members shall have manufacturer's standard textures, patterns and finishes as specified. Ceiling suspension system components shall be treated to inhibit corrosion.

2.4 RESILIENT FLOORING

Vinyl-composition tile shall conform to ASTM F 1066, Class 2, (through pattern tile), Composition 1, asbestos-free, and shall be 300 mm square and 3.2 mm thick.

2.5 RESILIENT ACCESSORIES

2.5.1 Rubber Stair Treads

Raised circular design tread with integral riser. Width of tread shall be as required to completely cover treads. Thickness of the tread shall be 6 mm (1/4 inches).

2.5.2 Rubber Cove Base

Wall base shall be 3.175 mm (1/8 inch) thick extruded rubber cove base. Cove base shall be constructed of first quality materials properly vulcanized, and shall be smooth and free from imperfections which detract from it's appearance. Cove base shall comply with FS SS-W-40a, Type 1 Rubber. Height shall be 100 mm (4 inches) and length shall be continuous roll.

2.6 CARPET TILE

2.6.1 Physical Requirements:

Carpet tile shall be tufted construction with a secondary backing of vinyl, prereacted polyurethane hardback, or a woven polypropylene fabric with a thermoplastic mixture of ethylene/vinyl acetate polymer and a hydrocarbon resin (hot melt). Carpet tile shall have a non-directional pattern in a dark, soil hiding palette. Carpet tile shall be first quality and free of visual blemishes, streaks, poorly dyed areas, and other physical and manufacturing defects. Carpet tile shall be of the modular type, identical in size, 450 mm by 450 mm (18 inches by 18 inches), plus or minus 0.39 mm (1/64 inch), or 590.63 mm by 590.63 mm (23-5/8 inches by 23-5/8 inches), plus or minus 0.39 mm (1/64 inch), precision die cut for complete interchangeability. Sides shall be straight and corners square. Tufts shall be as firmly secured at the edges as in the other areas of the carpet tile. Carpet tile shall lay flat on a flat surface without curling, warping, buckling, cupping, or doming and without any lumpiness, unevenness, or differences in thickness in individual tiles or from tile-to-tile. The carpet tile shall not stretch or shift position in use when installed in accordance with the carpet tile manufacturer's instructions. Carpet tile materials and treatments shall be nontoxic when used as ordinarily intended, reasonably nonallergenic, and free from other recognized health hazards.

2.6.2 Surface Texture:

Surface Texture: Textured loop graphics
Pile Fiber: 100% Dupont Antron Legacy Nylon with soil protection
Pile Weight: 949.48 gm/m^2 (28 oz/yd^2)
Pile Height: 4.7 mm (0.187 inches)
Stitches: 378 mm/100 mm (9.3 per inch)
Dye Method: yarn dyed

Gauge: 504/100 mm (5/64 inches)

Static Control: Static control shall be provided to permanently control static buildup to less than 2000 volts in computer rooms when tested at 20 percent relative humidity and 21 degrees C in accordance with AATCC 134.

Choice of critical radiant flux level as it applies to building type and area of application shall be made in accordance with the latest edition of NFPA 101. Carpet shall comply with 16 CFR 1630.

2.7 CARPET

2.7.1 Physical Requirements:

Carpet shall be tufted construction with a secondary backing of woven polypropylene fabric with a thermoplastic mixture and a primary backing of woven polypropylene. Carpet shall have a non-directional pattern in a dark, soil hiding palette. Carpet shall be first quality and free of visual blemishes, streaks, poorly dyed areas, and other physical and manufacturing defects. Sides shall be straight and corners square. Tufts shall be as firmly secured at the edges as in the other areas of the carpet. Carpet materials and treatments shall be nontoxic when used as ordinarily intended, reasonably nonallergenic, and free from other recognized health hazards.

2.7.2 Surface Texture:

Surface Texture: Textured loop graphics
Pile Fiber: 100% Dupont Antron Legacy Nylon with soil protection
Pile Weight: 949.48 gm/m^2 (28 oz/yd^2)
Pile Height: 4.7 mm (0.187 inches)
Stitches: 378 mm/100 mm (9.6 per inch)
Dye Method: yarn dyed
Gauge: 504/100 mm (5/64 inches)

Static Control: Static control shall be provided to permanently control static buildup to less than 2000 volts in computer rooms when tested at 20 percent relative humidity and 21 degrees C in accordance with AATCC 134.

Choice of critical radiant flux level as it applies to building type and area of application shall be made in accordance with the latest edition of NFPA 101. Carpet shall comply with 16 CFR 1630.

2.8 PAINTING

Paint shall be an approved first-line proprietary paint material with similar intended usage and color to that recommended by the manufacturer. Paints containing lead in excess of 0.06 percent by weight of the total nonvolatile content (calculated as lead metal) shall not be used.

Paints containing zinc chromate or strontium chromate pigments shall not be used.

Paints shall comply with applicable state and local laws enacted to insure compliance with Federal Clean Air Standards and shall conform to the restrictions of the local air pollution control authority.

2.9 WALL COVERING

Fabric wall covering shall be a woven fabric with paper or acrylic backing and shall be mildew resistant. Fabric wall covering shall have a Class A flame spread rating of 0-25 and smoke development rating of 0-50 when tested in accordance with ASTM E 84. Pattern and color of fabric wall covering shall be as selected from manufacturer's standard colorways and patterns.

Vinyl wall covering shall be a vinyl coated woven or nonwoven fabric with mildew and germicidal additives and shall conform to ASTM F 793, Type II, (0.445 to 0.815 kg) total weight per square meter and width as required. Pattern and color of vinyl wall covering shall be as selected from manufacturer's standard colorways and patterns in a vertical or non-directional graphic.

2.10 COLOR SCHEDULE

Design-Build Contractor shall be responsible for gaining approval by the WPAFB Architectural Compatibility Manager.

2.10.1 Exterior:

Exterior colors shall match that on existing building.

2.10.2 Interior:

Interior colors as approved by Government

PART 3 EXECUTION

3.1 GYPSUM BOARD

Gypsum board shall be installed in accordance with ASTM C 840 and as the standards referenced therein and as specified herein. Gypsum wallboard construction for fire-rated assemblies shall be in accordance with UL-05, FM P8016 or GA 600 for the design indicated on drawings.

3.2 CERAMIC TILE

Install in accordance with manufacturer’s recommendations.

3.3 ACOUSTICAL CEILINGS

3.3.1 Suspension System

Suspension system shall be installed in accordance with ASTM C 636 and as specified herein. There shall be no hanger wires or other loads suspended from underside of steel decking.

3.3.2 Acoustical Units

Acoustical units shall be installed in accordance with the approved installation instructions of the manufacturer.

3.4 RESILIENT ACCESSORIES

Accessories shall be installed with adhesive in accordance with the manufacturer's installation instructions.

3.5 CARPET TILE

Installation shall be in accordance with the manufacturer's instructions and CRI 104. Modular tiles shall be installed with a release adhesive and shall be snugly jointed together.

3.5.1 Spare Tiles

Spare tiles shall be provided in the amount of 5% of the area of each color or type of tile. Tiles shall be in original containers and shall be of the same lot as tiles installed.

3.6 BROADLOOM CARPET

Installation shall be in accordance with the manufacturer's instructions.

3.6.1 Spare Carpet

Spare carpet shall be provided in the amount of 5% of the area of each color or type of tile.

3.7 PAINTING

Paint shall be applied in accordance with manufacturer's written instructions.

3.8 WALL COVERING

3.8.1 Fabric and Vinyl Wall Covering

Wall covering shall be installed in accordance with the manufacturer's installation instructions.

3.8.2 Spare Wallcovering

Provide 0.5 m of full-width wall covering for each 30 linear meters of wall covering installed. The wall covering shall be from the same lot as that installed.

3.9 COLOR SCHEDULE

Provide a complete Interior and Exterior Color Schedule on the completed construction plans. Provide a Construction Color Board in accordance with Section 01331 - SUBMITTAL PROCEDURES.

3.10 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.10.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.10.2 List of CEGS Guide Specifications:

09250	Gypsum Wallboard
09310	Ceramic Tile
09510	Acoustical Ceilings
09650	Resilient Flooring
09680*	Carpet
09900*	Painting, General
09950	Wallcoverings

END OF SECTION

SECTION 10100

MISCELLANEOUS SPECIALITIES

PART 1 GENERAL

1.1 SECTION INCLUDES

This section covers the following:

Toilet Partitions
Fire Extinguishers
Fire Extinguisher Cabinets
Markerboards
Projection Screens
Security Curtain
Interior Signage
Demountable Partitions

1.2 GENERAL REQUIREMENTS

Supplementary parts necessary to complete each item shall be included even though such work is not shown definitely or specified. The Contractor shall furnish to the proper trades, all anchors, sockets, or fastenings required for securing items to other construction. Details and specifications of items for which standard products are available, are representative guides of requirements for such items. Standard products, generally meeting such requirements, will be accepted, if details of construction and installation are approved by the Contracting Officer. Gages of sheet iron and steel specified are U.S. Standard for sheet and plate. Extruded section shall be at least 1/8-inch thick, unless otherwise specified or shown on the drawings.

The requirements described in this section shall be coordinated by the D/B Contractor with the WPAFB Base Facility Standard.

1.3 TOILET PARTITION SYSTEM DESCRIPTION

Toilet partition system, including toilet enclosures, room entrance screens, and urinal screens, shall be a complete and usable system of panels, hardware, and support components. The partition system shall be provided by a single manufacturer and shall be a standard product as shown in the most recent catalog data. The partition system shall comply with the handicap accessibility requirements conforming to FED-STD 795 and 36 CFR 1191.

1.4 DEMOUNTABLE PARTITIONS PERFORMANCE REQUIREMENTS

1.4.1 Burning Characteristics

Partition system shall have a Class A (under 25) Flame Spread Rating in conformance with ASTM E 84.

1.4.2 Acoustical Performance

Sound-rated partition assemblies shall have a minimum Sound Transmission Coefficient (STC) of 36. STC range shall be determined in accordance with Sound Transmission Test by Two-Room Method and reported in accordance with ASTM E 90 or ASTM E 413 for frequency data. Tested assembly shall have been assembled in the same manner that the demountable partitions will be installed on the project.

1.4.3 Structural Performance

Demountable partitions shall be able to sustain a 1200 Pa (5 psf) minimum transverse loading with panel deflection no greater than 1/120th of the vertical span when tested in accordance with ASTM E 72.

1.5 WARRANTY

Manufacturer's standard performance guarantees or warranties that extend beyond a 1 year period shall be provided.

1.6 SUBMITTALS

SD-04 Drawings

Shop drawings showing sizes, details of construction, method of construction, method of assembling, hardware materials, colors, method of mounting, location of each item, installation of items, and other details shall be submitted for approval in accordance with the requirements of the SECTION 01331 - SUBMITTAL PROCEDURES for all items specified herein. Materials fabricated or delivered to the job site before approval of the shop drawings shall be subject to rejection.

SD-14 Samples

One complete sample sign and toilet partition panel or panel segment of the type to be used on the project shall be submitted to the Contracting Officer for approval. If approved, the samples may be incorporated in the work.

PART 2 MATERIALS

2.1 TOILET PARTITIONS

Toilet partitions shall be laminated plastic (finish 4) conforming to FS RR-P-1352, Type I, Style A. Grab bars shall comply with UFAS and ADA, whichever is more stringent, and 36 CFR 1191. Color of finishes for toilet partition system components shall be as approved by the Government.

2.2 FIRE EXTINGUISHER CABINETS AND FIRE EXTINGUISHERS

Metal fire extinguisher cabinets shall be furnished and installed. Cabinets shall be of the recessed type suitable for 9.5 liter extinguishers. Fire extinguishers shall be type ABC, 4.5 Kg (10 pound) capacity and shall be furnished by the Contractor.

2.3 INTERIOR SIGNS

Interior signs, including handicap signage shall be provided for all interior rooms. Room signage shall be in accordance with Base requirements outlined in Base Facility Standards and shall match signs in existing building. Room names and numbers shall be provided to the D/B Contractor by the facility user during construction. Colors and design as approved by Government.

2.4 DEMOUNTABLE PARTITIONS

Demountable partition system shall consist of a series of individual, floor-supported floor-to-ceiling panels as shown. Top channel shall hold panels in place and shall accommodate a floor-to-ceiling variation. Partition system shall be complete with accessories to meet acoustical performance requirements. Demountable partition system shall provide accommodations for electrical switches and outlets.

2.4.1 Doors and Frames

Demountable partitions shall be complete with doors and frames as shown which are fully contained with the panels. Doors shall be [prefinished] 45 mm (1-3/4 inch) thick flush type solid core wood veneered of manufacturer's standard construction. Door frames shall provide a compatible appearance with other trim components, shall be a minimum 1.2 mm (0.0478 inch) cold-rolled steel or minimum 1.7 mm (0.065 inch) thick extruded anodized aluminum constructed to incorporate a cushion door stop at the head and both jambs. Frames shall allow for variations in floor level.

2.4.2 Hardware

Hardware for doors shall be in accordance with Section 08700 BUILDERS' HARDWARE, except doors shall receive 1-1/2 pair of 114 x 114 mm (4-1/2 x 4-1/2 inch) butts. Hardware cutouts and reinforcement shall be provided as required in doors and frames for hardware furnished.

2.4.3 Windows

Demountable partitions shall be complete with windows which are fully contained within the panel system. Window frames shall be sized as shown and assembled from minimum 1.7 mm (0.065 inch) thick extruded anodized aluminum parts or minimum 1.2 mm (0.0478 inch) cold-rolled steel and vinyl components. Window openings shall be glazed in accordance with Section 08800 GLAZING.

2.5 MARKERBOARDS

2.5.1 Horizontal sliding full wall markerboard units shall be provided in Room 208(two walls). Units shall be 4-track motorized units full wall x 5' height. All sliding and fixed back panels to be 24 gauge LCS markerboard. Provide continuous cork insert map rail and chalktrough with end closure. A supply of three dozen liquid chalk markers in assorted colors and three felt erasers shall be furnished for each wall unit. Colors to be coordinated with the D/B Contractor CID package. System to be manufactured by Claridge Products and Equipment, Inc. or equal.

2.5.2 4' x 8' markerboard units shall be provided as indicated in the Avionics Research Lab Phase IIIA Room Requirements in Appendix A . Units shall provided with fixed panels of 24 gauge LCS markerboard. Provide continuous cork insert map rail and chalktrough with end closure. A supply of one dozen liquid chalk markers in assorted colors and one felt eraser shall be furnished for each unit. Colors to be coordinated with the D/B Contractor CID package. System to be manufactured by Claridge Products and Equipment, Inc. or equal.

2.6 PROJECTOR SCREENS

Projection screens shall be provided as indicated in the Avionics Research Lab Phase IIIA Room Requirements in Appendix A. Screens shall be Board Room custom designed projection screens as manufactured by Da-Lite Screen Company, Inc. or Envoy type custom designed projection screen as manufactured by by Draper Shade & Screen Co. Inc. or equal.

2.6.1 Operation

Electrically operated 115 v (60 hz) 1.13 amp units shall be provided. A specially design motor with noise silencer, mounted inside roller, three-wire quick reverse type, self-lubricating, with automatic thermal overload cutout, integral gears, capacitor and electric brake to prevent coasting shall be provided. Motor is to have a pre-set, adjustable limit switch to automatically stop the screen in the up and down positions. Roller to be of rigid metal, 3" in diameter, mounted on two vibration and noise absorbing supports.

2.6.2 Screen Fabric

Seamless, flame retardant and mildew resistant screen with glass-beaded picture surface and black masking borders shall be provided. Bottom of fabric to be formed into pocket holding a 8 mm metal rod, with ends protected by heavy duty plastic caps.

2.6.3 Case

Case to be ceiling-recessed, constructed of wood with metal-lined wiring compartment. A section of the bottom of the case to be aluminum door equipped with hinges so that it opens and closes automatically with the lowering and raising of the screen. Balance of bottom of the case shall be a second hinged aluminum door with manual opening to provide access.

2.6.4 Screen Size

1800 mm high x 2400 mm wide.

2.7 SECURITY CURTAINS

Security curtains with continuous ceiling-mounted track shall be provided to cover full-wall markerboards in Room 208. Colors to be coordinated with the D/B Contractor CID package.

PART 3 EXECUTION

3.1 INSTALLATION

Items specified herein shall be installed in accordance with approved manufacturer's instructions.

3.2 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.2.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.2.2 List of CEGS Guide Specifications:

10100	Miscellaneous Specialties
10160	Toilet Partitions
10440*	Interior Signage
10615	Demountable Partitions

END OF SECTION

SECTION 10270

RAISED FLOOR SYSTEM

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

CISCA-01	(1987) Recommended Test Procedures for Access Floors
NEMA LD 3	(1991) High-Pressure Decorative Laminates
NFPA 75	(1992) Protection of Electronic Computer/Data Processing Equipment

1.2 SYSTEM DESCRIPTION

Raised flooring shall be installed at the location and in the arrangement shown on the drawings. The floor system shall be of the stringer or stringerless type, complete with all supplemental items, and shall be the standard product of and as recommended by a manufacturer specializing in the manufacture of raised floor systems. Raised flooring shall be squeek-free and capable of carring the heavy loads required in individual spaces. Specific equipment loads are identified in the Avionics Research Lab Phase IIIA Room Requirements and Equipment Schedule in Appendix A. D/B Contractor shall verify and identify addition loads on the raised floor system.

1.2.1 Floor Panels

When tested as specified, all deflection and deformation measurements shall be made at the point of load application on the top surface of the panel. As a minimum, floor panels shall be capable of supporting 4.45 kN concentrated load without deflecting more than 2.03 mm and without permanent deformation in excess of 0.25 mm. D/B Contractor shall provide panels capable of supporting specific loads as determined by D/B Contractor’s analysis of equipment.

1.2.2 Stringers

Stringers shall be capable of supporting a minimum of 1.110 kN concentrated load at midspan without permanent deformation in excess of 0.25 mm. D/B Contractor shall provide stringers capable of supporting specific loads as determined by D/B Contractor’s analysis of equipment.

1.2.3 Pedestals

Pedestals shall be capable of supporting a minimum of 22.24 kN axial load without permanent deformation. D/B Contractor shall provide pedestals capable of supporting specific loads as determined by D/B Contractor’s analysis of equipment.

1.2.4 Pedestal Adhesive

Adhesive shall be capable of securing a pedestal in place with sufficient bonding strength to resist an overturning force of 113 Nm.

1.2.5 Bond Strength of Floor Covering

Bond strength of floor covering shall be sufficient to permit handling of the panels by use of the panel lifting device, and to withstand minimum moving caster loads up to 4.45 kN, without separation of the covering from the panel. D/B Contractor shall provide panels capable of supporting specific loads as determined by D/B Contractor's analysis of equipment.

1.2.6 Leakage

When the space below the finished floor is to be an air plenum, air leakage through the joints between panels and around the perimeter of the floor system shall not exceed 0.15 L/s per linear meter of joint subjected to 2.5 mm, water gauge, positive pressure in the plenum.

1.2.7 Grounding

The raised floor system shall be grounded for safety hazard and static suppression when the raised floor is to be used for electronic equipment, automatic data processing equipment, or other complex electrical equipment.

1.3 SUBMITTALS

Submittals shall be those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item should be required.

PART 2 PRODUCTS

2.1 FLOOR PANELS

2.1.1 Panel Construction

Panels shall be aluminum, steel, or composite construction. Except for edge panels, panel size shall be 600 by 600 mm. Finished panels shall be within a 0.25 mm tolerance of the nominal size, and shall be square within a tolerance of 0.38 mm measured corner-to-corner. The top surface of panels shall be flat within a 0.51 mm tolerance measured corner-to-corner. Panels shall be permanently marked to indicate load rating and model number.

2.1.2 Floor Covering

Floor panels shall be surfaced with materials firmly bonded in place with waterproof adhesive. The electrical resistance shall remain stable over the life expectancy of the floor covering. Any antistatic agent used in the manufacturing process shall be an integral part of the material, and

shall not be surface applied. Bolt heads or similar attachments shall not pierce the traffic surface, except where otherwise specified to connect floor panels to pedestal caps.

Floor covering shall be high pressure laminate. High pressure laminate surfacing shall conform to NEMA LD 3, Grade HW 120. Total system electrical resistivity from the wearing surface of the floor to the ground connection shall be between 150,000 ohms and 20,000,000,000 ohms. Color and pattern shall as selected. Place carpet tile as specified in SECTION 09000: FINISHES over plastic laminate floor covering.

Openings within panels for air circulation shall be provided for the following conditions: 20t of opening area for those tiles with adjustable air flow capability, 15' of opening area for those tiles with fixed air flow capability.

2.2 PANEL SUPPORT SYSTEM

2.2.1 Pedestals

Pedestals shall be of steel or aluminum or a combination thereof. Ferrous materials shall have a factory-applied corrosion-resistant finish.

2.2.2 Stringers

Stringers shall be of rolled steel or extruded aluminum, and shall interlock with the pedestal heads to prevent lateral movement. Stringers shall be removable without the use of special tools.

2.2.3 Underfloor Bracing

Special bracing to resist the effects of seismic or other forces shall be provided for the seismic zone involved.

2.3 SPARE PARTS

Spare floor panels, spare complete pedestal assemblies, and spare stringers shall be furnished at the rate of one spare for each 100 or fraction thereof required. Spare floor covering tiles shall be furnished at the rate of one spare for each 10 floor panels.

2.4 TESTS

Raised flooring shall be tested at the same position and elevation and in the same arrangement as shown on the drawings for installation so as to duplicate service conditions as much as possible.

2.4.1 Load Tests

Floor panel, stringer, and pedestal testing shall be conducted in accordance with CISCA-01.

2.4.2 Test for Bond Strength of Floor Covering

The test panel shall be supported on pedestals and stringers as specified for the installed floor. The supports shall be braced as necessary to prevent sideways movement during the test. A test load of 4.45 kN shall be imposed on the test assembly through a hard plastic caster 75 mm in diameter and 25 mm wide. The caster shall be rolled completely across the center of the panel. The panel shall withstand 20 passes of the caster with no delamination or separation of the covering.

PART 3 EXECUTION

3.1 INSTALLATION

The floor system shall be installed in accordance with the recommendations of the manufacturer. Pedestals shall be mechanically anchored to floor with a minimum of two anchors per pedestal using Hilti fasteners or equal.

3.2 FIRE SAFETY

An automatic detection system shall be installed below the raised floor meeting the requirements of NFPA 75 paragraph 5-2.1 and shall sound an audible and visual alarm. Air space below the raised floor shall be subdivided into areas not exceeding 279 squared meters by tight, noncombustible bulkheads, with bulkheads no more than 30 meters apart. All penetrations for piping and cables shall be sealed to maintain bulkhead properties.

3.3 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.3.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.3.2 List of Louisville District Guide Specifications:

10270.ORL* Raised Floor System

END OF SECTION

SECTION 10800

TOILET ACCESSORIES

PART 1 GENERAL

1.1 SUBMITTALS

One sample of each accessory proposed for use. Approved samples may be incorporated into the finished work, provided they are identified and their locations noted.

PART 2 PRODUCTS

2.1 FINISHES

Accessories shall be stainless steel.

2.2 ACCESSORY ITEMS

Unless otherwise specified below, accessories shall be the product of a nationally recognized brand. Accessories shall be first line quality. Accessories shall be of stainless steel construction. All major accessories shall be of the same brand. Toilet accessories shall be provided in accordance with Base requirements outlined in the WPAFB Base Facility Standard.

PART 3 EXECUTION

3.1 INSTALLATION

Toilet accessories shall be securely fastened to the supporting construction in accordance with the approved submittals. Accessories shall be protected from damage from the time of installation until acceptance.

3.2 SCHEDULE

Toilet Paper Holder - Scott JRT Dispensers (No Substitutions).
Grab Bar
Paper Towel Dispenser and Disposal (Paper towel dispenser shall be roll type)
Mirror
Sanitary Napkin Disposal

3.3 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.3.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.3.2 List of CEGS Guide Specifications:

10800 Toilet Accessories

END OF SECTION

SECTION 12626

OFFICE FURNITURE
(BID OPTION NO: 3)

PART 1 GENERAL

1.1 REFERENCES

Office Seating and Tables Standard: Comply with ANSI/BIFMA X5.1.

1.2 SYSTEM DESCRIPTION

This Section includes chairs and tables for business applications.

1.3 SUBMITTALS

1.3.1 General

Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

1.3.2 Samples for Initial Selection

Samples for initial selection in the form of manufacturer's color charts consisting of actual units or sections of units showing the full range of colors, textures, and patterns available for each type of unit indicated.

1.3.3 Samples for Verification

Samples for verification as described below of each type of unit indicated; in sets for each color, texture, and pattern specified, showing the full range of variations expected in these characteristics.

1. Exposed Finishes: Manufacturer's unit, not less than 300 mm (12 inches) square unit.
2. Seating Unit: Full size, of same materials and finishes used for the Work.
3. Upholstery Material: Not less than 300 mm (l2-inch) square unit, from dye lot used for the Work, with specified treatments applied. Show complete pattern repeat. Mark top and face of material.
4. Table Units: Full size, of same materials and finishes used for the Work.

1.3.4 Schedule

Schedule of office seating and tables using same room designations indicated on Drawings.

1.3.5 Product Certificates

1. Product certificates signed by upholstery material manufacturer certifying that their products have been treated for fire-test-response characteristics in compliance with local regulations.
2. Product certificates signed by seating manufacturer certifying that their products comply with fire-test-response characteristics required by local regulations.

1.3.6 Maintenance Data

Maintenance data for office seating, tables, and lecterns to include in the operation and maintenance manual specified in Division 1. Include the following:

1. Methods for maintaining office seating and finishes.
2. Precautions for cleaning materials and methods that could be detrimental to finishes and performance.

1.4 QUALITY ASSURANCE

1.4.1 Single-Source Responsibilities

Obtain each type office seating, tables, and lecterns from one source and by a single manufacturer.

1.4.2 Fire-Test-Response Characteristics

Provide seating, tables, and lecterns materials identical to those that pass California Technical Bulletin 117 when tested by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify seating with appropriate markings of applicable testing and inspecting agency.

1.4.3 Mockups

Prior to installing office seating, tables, and lecterns, install mockups for each form and finish required to verify selections made under Sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Install mockups to comply with the following requirements, using materials indicated for final unit of Work.

1. Locate mockups in the location and of the size indicated or, if not indicated, as directed by Architect.
2. Notify Architect one week in advance of the dates and times when mockups will be installed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before start of Work.
5. Retain and maintain mockups during installation in an undisturbed condition as a standard for judging the completed Work.
    a. When directed, remove mockups from Project site.

b. Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

1.5 PROJECT CONDITIONS

1.5.1 Field Measurements

Verify location office seating, tables, and lecterns dimensions by field measurements before fabrication and show recorded measurements on Shop Drawings. Coordinate installation schedule with work of other contracts to avoid delaying the Work.

1.5.2 Space Enclosure and Environmental Limitations

Do not install/office seating, tables , and lecterns until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.

1.6 EXTRA MATERIALS

Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels clearly describing contents.

1. Upholstery Material: Before installation begins, furnish full-width quantity to reupholster units equal to 5 percent of seating units installed.
2. Seat and Back Covers: Before installation begins, furnish full-size quantity to reupholster units equal to 5 percent of amount installed.
3. Casters: Before installation begins, furnish 1 caster for every 5 seats installed.

PART 2 PRODUCTS

2.1 OFFICE SEATING

2.1.1 Products

Subject to compliance with requirements, provide one of the products specified in Schedule at end of Appendix I.

2.2 OFFICE TABLE

2.2.1 Products

Subject to compliance with requirements, provide one of the products specified in Schedule at end of Appendix I.

2.3 SEATING FABRICATION

2.3.1 Upholstery Fabric

Installed in the same direction with pattern on seat and back cushions matched and aligned.

2.3.2 Welt-Cord Covering

Seams on sides or rear of seating units only.

PART 3 EXECUTION

3.1 INSTALLATION

Comply with manufacturer's printed instructions for installation. Install office seating tables, and lecterns plumb and level.

3.2 ADJUSTING

Adjust components and accessories for proper operation and alignment.

3.3 DEMONSTRATION

3.3.1 Startup Services

Engage a factory-authorized service representative to provide startup service and to demonstrate and train Owner's maintenance personnel as specified below.

1. Train Owner's maintenance personnel on procedures and schedules related to seating operation, upholstery material removal, accessory attachment, and preventive maintenance.
2. Review data in the operating and maintenance manuals. Refer to Division 1 Section "Contract Closeout."
3. Schedule training with Owner, through Architect, with at least 7 days' advance notice.

3.4 PROTECTION

Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure office seating tables, and lecterns are without damage or deterioration at the time of Substantial Completion.

3.5 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.5.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.5.2 List of Louisville District Guide Specifications:

12626* Office Furniture

END OF SECTION

SECTION 12640

FURNITURE SYSTEMS
(BID OPTION NO: 3)

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 423	(1990a) Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
ASTM E 84	(1994) Surface Burning Characteristics of Building Materials
ASTM E 290	(1992) Semi-Guided Bend Test for Ductility of Metallic Materials

BUSINESS AND INSTITUTIONAL FURNITURE MANUFACTURERS ASSOCIATION (BIFMA)

BIFMA X5.5	(1989) Desk Products - Tests
BIFMA X5.6	(1993) Panel Systems - Tests

FEDERAL STANDARDS (FED-STD)

FED-STD 795	(Basic) Uniform Federal Accessibility Standards

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA WD 1	(1983; R 1989) General Requirements for Wiring Devices
NEMA WD 6	(1988) Wiring Devices - Dimensional Requirements

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(1993) National Electrical Code
NFPA 101	(1994) Safety to Life From Fire in Buildings and Structures
NFPA 255	(1990) Method of Test of Surface Burning Characteristics of Building Materials

UNDERWRITERS LABORATORIES (UL)

UL 723	(1993; Rev Apr 1994) Test for Surface Burning Characteristics of Building Materials
UL 1286	(1993; Apr 1993) Office Furnishings

1.2 GENERAL

This specification establishes the minimum requirements for the acquisition and installation of a complete and usable system of furniture systems composed of interconnecting prewired panels, panel-supported components, electrical hardware, communications or special electrical features, and accessories. Furniture systems requirements and configurations shall be in accordance with the furniture layout and typical workstation types shown in drawings and specified herein. Panels, components, and hardware shall be provided by a single manufacturer and shall be a standard product as shown in the most recent published price lists or amendments. Electrical components shall be products of a single manufacturer to the extent practicable (different types of components may be of different manufacturer, but all units of a given component shall be from a single source). The completed installation shall comply with FED-STD 795 and NFPA 101. The Contractor shall coordinate the work of this section with that to be performed under other sections. This specification may include requirements which are not supplied by the prewired furniture systems manufacturer; any such requirements shall be furnished by the Contractor under this section.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01331 SUBMITTAL PROCEDURES:

SD-01 Data

Manufacturer's Product Data; GA.

Manufacturer's product and construction specifications which provide technical data for furniture systems panels and components specified, including task lighting and illumination performance information. Literature shall include adequate information to verify that the proposed product meets the specification.

SD-04 Drawings

Furniture systemss; GA.

Drawings showing the proposed furniture systems installation at a scale of 1:50 (1/4 inch= 1 foot) unless otherwise specified. Drawings showing communications, electronic data processing (EDP) and local area network (LAN) locations may be provided as a separate submittal from remaining

workstation drawings. Drawing requirements which are the prewired furniture systems manufacturer's responsibility shall be provided as a single submittal.

a. Overall reference drawings: Drawings showing systems locations and overall plan view within each floor. The scale shall be 1:200 (1/16 inch = 1 foot). Layouts shall reflect field verified conditions.

b. Installation drawings: Drawings showing workstations, panels, components, and plan view within each floor. Workstations shall be identified by furniture system type. Scale of drawings shall be identical to Architectural plans. Installation drawings shall reflect field verified conditions.

c. Furniture system elevations: Dimensioned systems elevations showing each type of workstation with all components identified with manufacturer's catalog numbers. Elevations shall be drawn at 1:20 (1/2 inch = 1 foot) scale.

d. Panel drawings: Panel drawings showing panel locations and critical dimensions from finished face of walls, columns, panels, including clearances and aisle widths. Panels shall be keyed to a legend which shall include width, height, finishes and fabrics (if different selections exist within a project), power or nonpower, panel connectors and wall mount hardware. Panel drawings shall reflect field verified conditions.

e. Panel electrical power drawings: Drawings showing power provisions including type and location of feeder components (service entry poles, base or ceiling feeds), activated outlets and other electrical components. Wiring configuration (circuiting, switching, internal and external connections) shall be identified and a legend provided as applicable.

f. Wire management capacity drawings.

g. Panel communication drawings showing telephone provisions: Drawings indicating the type and location of feeder components and outlets with wiring configuration identified where applicable.

h. Panel communication drawings showing electronic data processing provisions: Drawings indicating the type and location of feeder components, outlets, or accessories with wiring configuration identified where applicable.

i. Panel communication drawings showing local area network provisions: Drawings indicating the type and location of feeder components and outlets with wiring configuration identified where applicable.

SD-07 Schedules

Parts List; FIO.

One complete listing of part/model numbers for all components to be furnished, including names and codes of components referenced on drawings.

SD-08 Statements

Qualifications; FIO.

One statement indicating that the manufacturer has specialized in commercial furniture systems manufacturing for the past 5 years.

SD-09 Reports

Test Reports; GA.

One complete set of test reports for the proposed system. Selected Components; GA. Panel Acoustics; GA. Fire Safety; GA. Electrical System; GA.

SD-13 Certificates

Certificate of Compliance; GA.

Two complete sets of certificates attesting that the proposed furniture systems meets specified requirements. The certificate shall be dated after the award of contract, shall name the project, and shall list specific requirements being certified.

Warranty; GA.

Two copies of the warranty.

SD-14 Samples

Furniture systems; GA.

Four sets of the following samples. The Government reserves the right to reject any samples that do not satisfy the construction or color requirements. The Contractor shall submit additional samples as required to obtain final approval. No work shall proceed without sample approval in writing from the Contracting Officer.

a. Panel, tackboard and flipper door fabric. Samples shall measure a minimum 150 by 150 mm (6 by 6 inches) and shall have labels on the back designating the manufacturer, color, fiber content, fabric weight, fire rating, and use (panel and tackboard).

b. Work surface panel, and component finish. Samples shall measure a minimum 62.5 by 75 mm (2-1/2 by 3 inches) and shall have labels on the back designating the manufacturer, material composition, thickness, color, and finish.

c. Task lights.

SD-19 Operation and Maintenance Manuals

Product Assembly Manual; FIO.

Three sets of assembly manuals which describe assembly and reconfiguration procedures.

Product Maintenance Manuals; FIO.

Three sets of maintenance manuals which describe proper cleaning and minor repair procedures.

Electrical Systems Manual; FIO.

Three sets of electrical system manuals which describe the functions, configuration, and maintenance of the electrical system (power, communications, data). This material may be included in the above 2 manuals at the Contractor's option.

1.4 QUALIFICATIONS

The manufacturer shall be a company specializing in the production of furniture systems for a minimum of 5 years.

1.5 MOCKUPS

Prior to installing furniture systems, install mockups for each form and finish required to verify selections made under Sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Install mockups to comply with the following requirements, using materials indicated for final unit of Work.

1. Locate mockups in the location and of the size indicated or, if not indicated, as directed by Architect.
2. Notify Architect one week in advance of the dates and times when mockups will be installed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before start of Work.
5. Retain and maintain mockups during installation in an undisturbed condition as a standard for judging the completed Work.
    a. When directed, remove mockups from Project site.
    b. Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

1.6 DELIVERY, STORAGE, AND HANDLING

Components shall be delivered to the jobsite in the manufacturer's original packaging with the brand, item identification, and project reference clearly marked thereon. Components shall be stored in a dry location that is adequately ventilated and free from dirt and dust, water, and other contaminants, and in a manner that permits easy access for inspection and handling.

1.7 PATTERN AND COLOR

Pattern and color of finishes and fabrics for panels, components, and trim shall be as selected from manufacturer's standard colors.

1.8 ALTERNATE DESIGN

Manufacturers who are unable to provide furniture systems that conform exactly to the furniture layouts and typical furniture systems types shown in the contract drawings may submit alternate designs for consideration by the Contracting Officer. For an alternate design to be submitted, it must meet the following criteria. Alternate designs that are submitted but do not meet this criteria will be rejected.

1.8.1 Furniture Systems Size and Configuration

The alternate design shall provide workstations of the same basic size and configuration shown with only the sizes of the individual components within the furniture systems changed to meet the standard product of the manufacturer.

1.8.2 Component Requirements

The types of components utilized shall be as shown on the drawings.

1.8.3 Layout

There shall be no reduction in the number of furniture systems accommodated and the width of aisles shall not be reduced below requirements defined in NFPA 101 and FED-STD 795.

1.8.4 Panel Wiring Configuration

Alternate configurations must support the circuiting and connection capabilities identified under the provisions pertaining to powered panels of paragraph ELECTRICAL. Generally any alternate will be acceptable which involves only a variation in size or quantity that exceeds the specified configuration.

1.9 WARRANTY

The Contractor shall warrant the furniture systems components for a period of 10 years with the following exceptions: fabrics and other covering materials, and paper handling products shall be guaranteed for 1 year, and task lights shall be warranted for 2 years. Electronic ballasts shall be warranted for 3 years. The electronic ballast warranty shall include a $10 labor allowance for each ballast. Warranties shall be signed by the authorized representative of the manufacturer. Warranties accompanied by document authenticating the signer as an authorized representative of the guarantor, shall be presented to the Contracting Officer upon the completion of the project. The Contractor shall guarantee that the furniture systems products and installation are free from any defects in material and workmanship from the data of delivery.

PART 2 PRODUCTS

2.1 PERFORMANCE AND SAFETY REQUIREMENTS

Panels, connection system, work surfaces, pedestals, shelf units, flipper door units, lateral files, locks, accessories, and miscellaneous hardware shall meet testing as specified. With the exception of ANSI, testing shall be performed by an independent testing laboratory. ANSI testing may be completed in a manufacturer's in-house testing laboratory. Component specific requirements are listed in appropriate paragraphs.

2.1.1 Selected Components

Furniture systems shall conform to the requirements of BIFMA X5.5 and BIFMA X5.6 with the following exceptions: Panels and panel supported components shall be tested in accordance with the requirements of BIFMA X5.6 and representative items shall be selected for testing based on worst case situations (i.e., the deepest and widest work surface or shelf). The keyboard drawer or shelf test shall be performed applying a 50 lb load to the center of the keyboard shelf for a period of 5 minutes. Any loosening of attachments, permanent deflection or damage to the operation of the drawer or shelf will be cause for rejection.

2.1.2 Panel Acoustics

Acoustical panels shall have a minimum noise reduction coefficient (NRC) of 0.80 when tested in accordance with ASTM C 423 and a minimum sound transfer coefficient (STC) of 22 when tested in accordance with ASTM E 290. The test shall be conducted on the entire assembled panel, full face area (the complete core, adhesive, decorative fabric, frame and joining components).

2.1.3 Fire Safety

Components shall meet Class A requirements for flame spread and smoke development as specified by NFPA 101. Testing shall have been conducted in accordance with either ASTM E 84, UL 723, or NFPA 255 on the entire assembled panel and each different combination of fabric and interior construction. Panel flame spread shall not exceed 25 and panel smoke development shall not exceed 150.

2.1.4 General Safety

Furniture systems products shall be free of rough or sharp edges. Panel components shall have a positive, integral locking device which secures components to the support panels without the use of additional screws or clamps so that the components cannot be accidentally pulled or knocked off the panels.

2.1.5 Electrical System

Lights (task or ambient) shall be UL approved. The panel electrical system shall meet the requirements of UL 1286.

2.2 PANEL SYSTEM

Accessories and appurtenances for a completely finished panel assembly shall be supplied complete with the system. The system shall be capable of structurally supporting cantilevered

work surfaces, shelves, files, and other components in the configurations shown on the drawings. The panel system shall be capable of structurally supporting more than 1 fully loaded component per panel per side. Panels shall be either tackable or capable of accommodating fabric covered tackboards. The panel system shall be available in a variety of nominal widths and heights as designated on the drawings. Panel height shall not exceed 1350 mm (54 inches). Heights shall be measured from the finished floor to the top of the panel. Powered and nonpowered panels shall be compatible in height. Minimum panel thickness shall 37.5 mm (1-1/2 inches).

2.2.1 Finishes

The panels shall be available in the following options: acoustical. Exposed panel trim shall have a factory baked enamel or epoxy powder finish. Filler trim shall either match the panel trim or be fabric covered to match the panel fabric. Each fabric-faced panel shall have a seamless width of fabric stretched over the entire face of the panel and the color of each fabric utilized shall be consistent throughout the installation. The fabric shall be attached securely and continuously along the entire perimeter of the panel and shall allow for easy removal and replacement in the field. Fabric shall be factory installed and panel fabric content shall be 100% polyester.

2.2.2 Raceways

Raceways shall be an integral part of the panel. Panels, whether powered or nonpowered, shall be provided with a raceway cover. Magnet held base covers will not be accepted.

2.2.3 Leveling Glides

The system shall provide precise alignment of adjacent panels and shall include leveling glides to compensate for uneven floors. On panel-to-panel products, each panel shall have 2 leveling glides. On panel-to-post products each connector shall contain a leveling glide. A minimum 18.75 mm (3/4 inch) adjustment range is required for both panel-to-panel and panel-to-post systems.

2.2.4 Panel Connection System

The panel system shall have connectors which accommodate a variety of panel configurations as shown on the drawings. A straight line connection of 2 panels (180 degrees), corner connection of 2 panels (90 degrees), T connection of 3 panels (90 degrees), cross connection of 4 panels (all 90 degrees). The panel connector system shall provide tight connections with continuous visual and acoustical seals. The connector system shall allow removal of a single panel within a typical furniture systems configuration, without requiring disassembly of the workstation or removal of adjacent panels. The connector system shall provide for connection of panels of similar heights. Right angle (90 degree) connections between panels shall not interfere with the capability to hang work surfaces and other components on any adjacent panel. The connector system shall provide, as required, for the continuation of electrical and communications wiring within furniture systems and from furniture systems to furniture systems. Filler posts shall be level with the panel top rail.

2.3 WORKSURFACES

Worksurfaces shall be of a balanced construction to prevent warpage. Worksurfaces shall be either fully supported from the panels or supported jointly by the panels and supplemental legs, pedestals, or furniture end panels. Supplemental end supports shall be used only under work surfaces when the work station configuration does not permit full support by the panels. Metal support brackets shall be used to support worksurfaces from the panels, provide metal-to-metal fitting to the vertical uprights of the panels, and shall lock the worksurfaces in place without panel modifications. Abutting worksurfaces shall mate closely and be at equal heights when used in side-by-side configurations in order to provide a continuous and level worksurface. Worksurfaces shall either have pre-drilled holes to accommodate storage components, pedestals and additional supports, or holes shall be able to be drilled at the job site to accommodate these items. Worksurfaces shall be provided in sizes and configurations as shown on the Drawings. Worksurfaces shall be available in nominal depths of 600 mm (24 inches), and 750 mm (30 inches), plus or minus 50 mm (2 inches), nominal lengths from 600 mm to 1800 mm (24 to 72 inches), and a nominal thickness from 25 to 43.75 mm (1 to 1-3/4 inches). Worksurfaces shall be height adjustable in 25 to 37.5 mm (1 to 1 ½ inch) increments from 625 mm to 1025 mm (25 inches to 41 inches) above the finished floor. Worksurfaces abutting at equal heights shall provide a continuous and level worksurface. Corner worksurfaces, peninsula worksurfaces, and counter/transaction worksurfaces shall be provided as shown on the Drawings and shall include hardware necessary to provide firm and rigid support.

2.3.1 Finishes

The worksurfaces shall have a finished top surface of high pressure plastic laminate and shall have a smoothly finished underside. The plastic laminate shall be a light color as selected from available standard colors. The worksurface shall not be affected by ordinary household solvents, acids, alcohols, or salt solutions, and shall be capable of being cleaned with ordinary household cleaning solutions. Metal support brackets shall match the color and finish of panel trim. Edges shall be post formed or vinyl molding.

2.4 PEDESTALS

Drawer configurations and pedestal height shall be as shown on the drawings. The deepest possible pedestal shall be provided for each worksurface size specified.

2.4.1 Construction

With the exception of drawer fronts, pedestals and drawers shall be of steel construction. Drawer faces shall be securely attached to the drawer front. Pedestals shall be attached to the worksurface.

2.4.2 Finishes

The finish of steel surfaces shall be a factory baked enamel finish. Drawer fronts shall be either steel, plastic laminate, or molded plastic.

2.4.3 Drawer Requirements

All 300 mm (12 inch) high file drawers shall have either a cradle type or full extension ball bearing suspension with hanging folder frames or compressor dividers. Drawers shall stay securely closed when in the closed position. Each drawer shall contain a safety catch to prevent accidental removal when drawer is fully open. Drawer pedestals shall be field interchangeable from left to right, or right to left, and shall retain the pedestal locking system capability. Pedestals shall be designed to protect wires from being damaged by drawer operation when wire management runs behind or along the side of the drawers. Box drawers shall be provided with pencil trays. The center drawer shall be mounted under the worksurface and shall contain a pencil tray.

2.5 PANEL SUPPORTED STORAGE

Flipper door cabinets and lateral files shall be provided in the sizes and configurations shown on the drawings. Flipper door cabinets shall accommodate task lighting and shall have a depth to accommodate a standard three ring binder.

2.5.1 Shelf Unit Construction

The shelf pan shall be of metal construction with formed edges. Shelf supporting end panels shall be constructed of metal, high density particle board or molded melamine. Supporting end panels shall provide metal-to-metal connections to the supporting panels. Shelf bottom shall accommodate task lighting. Shelf units shall accommodate relocatable shelf dividers.

2.5.2 Flipper Door Unit Construction

Flipper door unit shall be of equal construction to shelf units. Flipper doors shall be constructed of metal with formed edges, wood frame or particle board. Flipper door cabinets shall be provided with locks. Units shall remain securely fastened to the panel when in the locked position. Doors shall utilize either a ball bearing, rack and pinion, or scissor-equalizer suspension system.

2.5.3 Lateral File Unit Construction

Panel hung lateral file bins shall be of steel construction. File fronts, top and end panels shall be of equal construction to flipper door units. File drawers shall have full extension ball bearing drawer slides or rack and pinion suspension. File drawers shall have hanging folder frames, compressor dividers or rails. Lateral file drawers shall be available with key operated locks.

2.5.4 Finish

Shelves and dividers and top dust cover shall have a factory baked enamel finish. Shelf supporting end panels shall have either a factory baked enamel or laminate finish. Shelf bottom shall match end panel color. Metal doors shall have an exterior finish of factory baked enamel or a factory installed plastic laminate and an interior finish of factory baked enamel. Metal drawers shall have a factory baked enamel finish.

2.6 ACCESSORIES

2.6.1 Coat Storage

One panel mounted coat hook per workstation occupant shall be provided at each workstation.

2.6.2 Keyboards

Work surfaces shall be capable of accepting an articulating keyboard on workstations as shown on the drawings. The keyboard shall have the capability to adjust vertically, tilt negatively, recess fully under worksurface, and rotate with a 180-degree swing.

2.7 MISCELLANEOUS HARDWARE

Brackets, supports, hangers, clips, panel supported legs, connectors, adjustable feet, cover plates, stabilizers, and other miscellaneous hardware shall be provided.

2.8 LOCKS AND KEYING

Drawers, flipper door cabinets, and lateral files shall have keyed locks, unless otherwise noted. Field changeable lock cylinders shall be provided with a minimum of 17 different key options. Each workstation shall be individually keyed and locks within a workstation shall be keyed alike. Drawers within a pedestal shall be lockable either by a central lock that controls all pedestals under one work surface or an individual keyed lock in each pedestal. Central file and storage units which are grouped together but are not a part of a workstation shall be keyed alike unless otherwise specified. Two keys shall be provided for each lock or 2 keys per workstation when keyed alike, and 3 master keys shall be provided per area as shown on the contract drawings. Keys and lock cylinders shall be numbered for ease of replacement. Locks shall be clearly labeled with a key number, except for those manufacturers who have removal format locks.

2.9 ELECTRICAL

Both powered or nonpowered panels shall have base raceways capable of distributing power circuits, communication cables and data lines. Nonpowered panel bases shall be capable of easy field conversion to powered panel base without requiring the panel to be dismantled or removed from the workstation. The system shall use copper cable assemblies, wiring harnesses or electrified bus and shall meet requirements of UL 1286 and NFPA 70, Article 605. Conductors shall consist of 20 amp 90 degree C, #12 AWG wires or the equivalent in the bus configuration. The label or listing of Underwriter's Laboratories, Inc. will be accepted as evidence that the material or equipment conforms to the applicable standards of that agency. In lieu of this label or listing, a statement from a nationally recognized, adequately equipped testing agency shall be submitted indicating that the items have been tested in accordance with required procedures of UL and that the materials and equipment comply with contract requirements. Electrical addressed in this section shall conform to the requirements of Section 16000 ELECTRICAL WORK.

2.9.1 Panel Bases (Raceways)

Panel bases shall have hinged or removable covers which permit easy access to the raceway when required but which are securely mounted and cannot be accidentally dislodged under normal conditions. The panel bases shall not extend past either panel face by more than 12.5 mm (1/2 inch). Metal or plastic end covers which attach securely to the panel base shall be provided as

required and shall match the finish and color of panel base. Bases in full size over 600 mm (24 inches) powered panels shall have a minimum of 2 knockouts (doors) per side for electrical connections or outlets as indicated elsewhere.

2.9.2 Powered Panels

Powered panels shall be provided as indicated on the government-approved D/B Contractor layout drawings. The panels shall have an internal power and communications raceway and the capability of disconnecting and connecting external circuits to the electrified raceway in the panel. The communications receiving raceway shall have capacity for at least twelve 25-pair telephone cables. Power and communications wiring may share a common wireway if a metal divider is included to ensure electrical isolation. Doors or access openings shall be included for entry of communications cable. The electrified power raceway shall be of the 8-wire indicated. Unless otherwise indicated, conductors of the 8-wire system shall be allocated as follows: four (4) conductors (12 gauge), two (2) neutrals (10 gauge) and two (2) grounds (12 gauge). This system provides four (4) 20 amp, 125 volt capacity circuits. All receptacles are rated at 15 amp, 125 volt capacity.

2.9.2.1 Receptacles

Power receptacles shall be provided in the bases of the powered panels. Devices shall be placed at the locations indicated on the plans and shall be connected to the designated circuits. Unless otherwise indicated, receptacles shall be 15 amp (NEMA 5-lSR) commercial grade conforming to NEMA WD 1 and NEMA WD 6. If receptacles are not interchangeable or will not permit field adjustment of phase and circuit selection, 10 percent spare devices of each type shown on these plans shall be furnished. General use receptacles shall be of the duplex configuration; unless otherwise indicated, special use receptacles shall be of the simplex configuration with the blade/pin arrangement identified on the plans. The color of receptacle bodies shall be coordinated with the color of the panel base. Isolated ground receptacles shall have distinct markings or be of a different color than other receptacles (orange preferred). Field applied identification shall be permanent; stick-on or non-setting adhesives shall not be used. A minimum of 5 receptacle removal tools shall be provided for systems that require special tools for proper receptacle removal.

2.9.2.2 Power Cabling Variations

The paragraph Powered Panels has identified specific cabling configurations. Since universal conventions have not been established, variant configurations available from various manufacturers will be considered. Alternates shall allow the same circuiting, device connections, neutral and ground separation, and upstream feeder connections as shown on the plans. Variations shall be approved in advance. See paragraph ALTERNATE DESIGN. Examples of acceptable variations include:

a. Use of 1 oversized neutral in lieu of 2 or 3 specified neutrals (neutral must have 150 percent minimum of phase conductor ampacity, i.e. #10 TW neutral if replacing 2 #12 TW conductors; 173 percent and #8 if replacing 3 neutrals) or vice versa.

b. Providing a 6-wire system in lieu of a 5-wire system shown on plans.

c. Use of a manufacturer's configuration which allocates individual conductors differently, but which has the same quantity of conductors and allows devices to be physically connected in the field as shown on the plans. It is not necessary that the manufacturers labeling codes or terminology match the designations used on project plans or in the specifications; however, neutrals and grounds shall have insulation color coded per standard practice or be provided with tags, colored tape, colored ribbons or similar identification. (The reference to "dedicated" conductors in this specification pertains to circuit connections upstream and load connections downstream of prewired panels; it is not necessary that manufacturer's designations correspond.)

2.9.3 Electrical Connections

2.9.3.1 Internal Connections

Internal panel-to-panel power connections shall utilize straight or flexible plug/receptacle connector assemblies and shall be installed to provide the powered panel configurations shown on the drawings. Connectors shall be configured so that ground pins will provide "first make, last break" operation.

2.9.3.2 Connections to Building Services

External power and communications services shall be supplied to the panels via hard wired top entry junction box assemblies. Wiring from building services shall be extended to junction box assemblies in metal conduit or tubing. Wiring from junction boxes shall be flexible liquidtight conduit 6 foot maximum or in metal conduit or tubing. Cord and plug assemblies shall not be used for any portion of external links. Top entry junction box assemblies shall extend the power and communications wiring into service entry poles attached to the electrified panels. External wiring shall conform to Section 16000, ELECTRICAL WORK.

2.9.4 Wire Management

Wire management capability shall be provided at all furniture systems. Actual wire management capacity shall accommodate all cable types specified, including the applicable manufacturer required bending radius at corners. The capability may be accomplished by cable access cutouts (1 minimum per work surface), covered wire management troughs in vertical end panels, horizontal wiring troughs, internal midpanel raceways, or rear gaps (between the back edge of the work surface and the facing support panel). Grommet kits or another suitable finish arrangement shall be provided for all cable cutouts. Accessories for an externally mounted vertical and horizontal wire management and concealment system shall be provided as recommended by the manufacturer. Horizontal wire managers shall be supplied for mounting under all work surfaces. The wire managers shall be attached either to the underside of the work surface or to the vertical panel without damage to the face of the vertical panel. Exposed or loose wiring will not be acceptable. Wire managers shall be prefinished and shall secure, conceal, and accommodate outlet cords as well as electrical and communications wiring. Wire channels shall match color of panel trim, attach to panel or rail by means of clip-on attachment, and shall conceal wires routed

vertically. Power wiring shall be separated from communication wiring by use of separate raceways or by placement of barriers or channels in joint use troughs or wireways.

2.9.5 Circuit Layout

The circuit layout for furniture systems shall be as shown on the government-approved D/B Contractor layout drawings. Devices shall be connected to the designated circuits in the neutral and ground configurations indicated. Connections shall be made to the building electrical distribution system as shown on the contract drawings and in accordance with Section 16000, ELECTRICAL WORK.

2.9.6 Task Lighting

Task light size and placement shall be provided as indicated on the contract drawings. Such lights shall be a standard component of the manufacturer's furniture systems products. Task lights mounted to the underside of overhead shelving shall be the same length as the overhead storage unit unless otherwise indicated. The ends of the task light length shall not extend beyond the edges of the overhead unit. Task lights shall have structurally sound mounting devices which will prevent accidental displacement, but will allow easy removal and replacement when necessary. Fixtures shall be UL approved for use in the configurations indicated on the drawings.

2.9.6.1 Luminaire Configuration

Luminaires shall be the fluorescent type and shall have prismatic lenses, baffles, or reflector systems configured to minimize glare by shielding the lamp from the view of a seated user. Task lights shall provide a minimum of 60 foot candles of light, without veiling reflections, on the work surface directly below the fixture. All diffusers, grilles or other coverings shall be easily removable to permit cleaning and relamping. Fixtures shall be provided with energy efficient ballasts and lamps as indicated. If the type is not identified on the plans, F32T8 lamps in 4 foot units with electronic ballasts shall be used. Each luminaire shall have an easily accessible on-off switch and one rapid-start ballast. A variable intensity control is acceptable if the low setting is equivalent to "off" with zero energy consumption. Multiple switching is also acceptable. Ganged fixtures or shared ballasts shall not be used. Lamps and ballasts shall conform to the requirements of Section 16000, ELECTRICAL WORK.

2.9.6.2 Wiring

Each fixture shall have a 6 foot minimum, factory installed, heavy duty electrical cordset with a grounded plug. Direct or hard wire connections are not acceptable. Unless otherwise indicated, cords shall be concealed. Provisions shall be built in within panels or shall utilize field installed, manufacturer approved accessories. Cords may be extended through dedicated channels located at any point within panels or may be placed in vertical slots or in the space between panels if held in place by retainers and concealed by a cover plate. Vertical wire managers shall be prefinished and cut to size and shall extend from the task light level down to the top of the work surface below the task light. Each manager shall be attached to a panel vertical edge or connector strip without damage to the panel surfaces.

2.9.7 Communications

Communications wiring shall be extended to, and installed in, the electrified panels as shown on the plans. Communications outlets shall be installed at designated locations. Communications work may be performed in conjunction with the installation of the furniture systems or may be separately executed at the Contractor's option; equipment, materials, and installation shall conform to the requirements of Section 16000 ELECTRICAL WORK, Section 16710 PREMISES DISTRIBUTION SYSTEM and all interfaces must be properly coordinated.

2.9.8 Special Systems

Designated raceway systems shall provide management for secure and nonsecure power, computer and telecommunications cabling. Secure distribution shall be separated from nonsecure distribution by running secure lines along top located raceway and nonsecure along the bottom of the furniture systems panel.

PART 3 EXECUTION

3.1 INSTALLATION

The furniture systems shall be installed by certified installers in accordance with manufacturer's recommended installation instructions. furniture systems components shall be installed level, plumb, square, and with proper alignment with adjoining furniture. The components shall be securely interconnected and securely attached to the building where required. Three sets of special tools and equipment necessary for the relocation of panels and other components shall be furnished.

3.2 CLEANING

Upon completion of installation, all products shall be cleaned and polished and the area shall be left in a clean and neat condition. Any defects in material and installation shall be repaired, and damaged products that cannot be satisfactorily repaired shall be replaced.

3.3 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.3.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.3.2 List of CEGS Guide Specifications:

12640* Furniture Systems

END OF SECTION

SECTION 13020

ACOUSTICAL CONSTRUCTION AND TESTING

PART 1 GENERAL

1.1 SECTION INCLUDES

This section covers the following:

Acoustical Testing

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM C 919	(1988) Practice for Use of Sealants in Acoustical Applications
ASTM E 336	(1990) Measurement of Airborne Sound Insulation in Buildings
ASTM E 413	(1987) Classification for Rating Sound Insulation
ASTM E 497	(1989) Practice for Installing Sound-Isolating Lightweight Partitions
ASTM E 597	(1987) Practice for Determining a Single-Number Rating of Airborne Sound Isolation for Use in Multiunit Building Specifications

1.3 GENERAL REQUIREMENTS

The work includes providing special requirements to ensure that the acoustical requirements of the project are met. These special requirements include construction procedures and final testing.

1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01331 SUBMITTAL PROCEDURES:

SD-08 Statements

Construction Procedures; GA

SD-09 Test Reports

Acoustical Field Test Reports; GA.

PART 2 MATERIALS

2.1 FIRESTOPPING SEALANTS

Firestopping materials shall be in accordance with section 07000, THERMAL AND MOISTURE PROTECTION.

2.2 ACOUSTICAL SEALANTS

Acoustical sealants shall be in acordance with section 07000, THERMAL AND MOISTURE PROTECTION.

PART 3 EXECUTION

3.1 CONSTRUCTION PROCEDURES

The D/B Contractor shall maintain during the entire course of construction an on-going and continuous program designed to ensure the acoustical integrity of all sound-rated partitions, doors and other construction.

3.1.1 Procedures

The D/B Contractor shall institute procedures for fabrication and placement of specified materials which will preclude any unsealed openings, penetrations, voids or acoustical leaks in the finished work. Each installer shall carefully inspect the substrate over which succeeding work is to be installed to ensure all penetrations, openings, voids or other acoustical paths or leaks have been properly sealed or treated before installing his work.

3.1.2 Partitions

The D/B Contractor shall institute procedures for fabrication and placement of specified materials which will preclude any unsealed openings, penetrations, voids or acoustical leaks in the finished work. Each installer shall carefully inspect the substrate over which succeeding work is to be installed to ensure all penetrations, openings, voids or other acoustical paths or leaks have been properly sealed or treated before installing his work.

3.1.3 Penetrations

3.1.3.1 Pipe, Cable, Conduit and Ductwork

Penetrations in nonfire-rated acoustical construction shall be sealed using acoustical sealant on both faces of the penetration and as indicated. Penetrations in fire-rated acoustical construction shall be sealed using firestopping for acoustically-rated construction as specified in section 07000, THERMAL AND MOISTURE PROTECTION.

3.1.3.2 Cable Trays

Cable tray penetrations in both acoustically- and fire-rated construction shall be constructed as specified in section 16000, ELECTRICAL WORK for smoke and fire partitions and sealed using firestopping for acoustically rated construction as specified in section 07000, THERMAL AND MOISTURE PROTECTION.

3.1.3.3 Boxes and Cabinets

Electrical outlet and other boxes and cabinets installed in acoustically-rated construction shall not be installed back-to-back, but shall have a minimum separation of 24 inches between them and shall be sealed with acoustical sealant.

3.1.3.4 Acoustical Doors

Acoustical doors shall be installed in strict conformance with the manufacturer's instructions. A qualified representative of the manufacturer shall inspect the installation of acoustical doors to confirm that each door system has been installed in accordance with the manufacturer's instructions. The representative shall submit a report to the Contracting Officer stating that the doors have been installed properly. At the D/B Contractor's option where the door arrangement does not adversely affect the room layout and at no additional cost to the government, the D/B Contractor may provide offset doors with ADA-complying vestibules to meet the FSTC testing requirements.

3.1.4 FINAL TESTING

Final testing shall be done by WPAFP personnel in accordance with procedures outlines in section 01013: GENERAL DESIGN REQUIREMENTS.

3.1.4.1 Deficiencies and Retesting

If any acoustical door assembly or acoustically-rated partition does not meet the required STC or NIC, the D/B Contractor shall correct all deficiencies until the assemblies meet the indicated levels, at no additional cost to the government.

3.1.4.2 Certification

After all corrections and testing have been completed, the D/B Contractor shall submit to the Contracting Officer signed and dated certificates stating compliance with all required levels.

3.2 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.2.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact,

or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.2.2 List of CEGS Guide Specifications:

13020* Acoustical Construction and Testing

END OF SECTION

SECTION 14240

ELEVATORS, HYDRAULIC

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ASTM A 53	(1995a) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
ASTM A 106	(1994) Seamless Carbon Steel Pipe for High-Temperature Service
ASTM A 176	(1994) Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip
ASTM A 366	(1996) Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality
ASTM A 568	(1993a) Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled
ASTM A 569	(1996) Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality
ASTM D 92	(1996) Flash and Fire Points by Cleveland Open Cup
ASTM E 84	(1996a) Surface Burning Characteristics of Building Materials
ASME A17.1	Safety Code for Elevators and Escalators
ASME A17.2.2	Inspectors' Manual for Hydraulic Elevators
ASME B16.11	(1991) Forged Fittings, Socket-Welding and Threaded
ASME B31.1	(1995) Power Piping
36 CFR 1191	Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities
FED-STD 795	(Basic) Uniform Federal Accessibility Standards
ICBO-01	(1997) Uniform Building Code (3 Vol.)
NEMA LD 3	(1991) High-Pressure Decorative Laminates
NEMA MG 1	(1993; Rev 1; Rev 2) Motors and Generators
NFPA 70	(1996) National Electrical Code
NFPA 252	(1995) Fire Tests of Door Assemblies

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation. Submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01331 SUBMITTAL PROCEDURES:

SD-01 Data

Training Data; FIO.

Information describing the training course for operating personnel, training aids and samples of materials to be used, training schedules, and notification of training.

Elevator System; FIO.

A complete list of equipment and material, including illustrations, schedules, manufacturer's descriptive data and technical literature, performance charts, catalog cuts, installation instructions, brochures, diagrams, and other information required for fabrication and installation of the equipment. Data shall include calculations for reaction loads imposed on building by elevator systems and to demonstrate that the proposed elevator system meets requirements for seismic loading of zone one (1) in accordance with ICBO-01. Certified copies of list reports may be submitted in lieu of calculations. Calculations to demonstrate compliance with ASME A17.1, Rule XXIV shall be included. Data shall include a complete list of parts and supplies, with current unit prices and source of supply, and a list of parts recommended to be replaced and replacement interval required. Data shall include appropriate sizing of electrical protective devices.

SD-04 Drawings

Elevator System; GA.

Detail drawings including dimensioned layouts in plan and elevation showing the arrangement of elevator equipment, anchorage of equipment, clearances for maintenance and operation; and details on hoistway, doors and frames, operation and signal stations, controllers, motors, guide rails and brackets, cylinder and plunge unit, and points of interface with normal power, fire alarm system, HVAC or exhaust systems and interface with emergency power systems. Drawings shall show any revised building electrical system required to make supplied elevator system function as specified. Drawings shall contain complete wiring diagrams showing electrical connections and other details required to demonstrate sequence of operation and functions of system devices. Drawings shall include the appropriate sizing of electrical protective devices which are frequently different from National Electrical Code standard sizes. Elevator system shall comply with the requirements of ADA and ASME A17.1, Safety Code for Elevators and Escalators.

SD-06 Instructions

Framed Instructions; FIO.

Diagrams, instructions, and other sheets proposed for posting.

SD-08 Statements

Qualification Certificates; FIO.

Certificates of experience of elevator mechanics employed to install, supervise and test the elevator shall certify mechanics to have not less than 5 years experience installing, supervising and testing elevators of the type and rating specified. Certificate shall certify that elevator system installer is acceptable to elevator manufacturer prior to installation of elevators.

SD-09 Reports

Testing; FIO.

Test reports in booklet form showing all field tests performed to adjust each component and all field tests performed to prove compliance with the specified performance criteria, upon completion and testing of installed system.

SD-14 Samples

Finishes; GA.

Samples of materials and products requiring color or finish selection.

SD-18 Records

Test Procedures; GA

A plan detailing the testing procedures shall be submitted 60 days prior to performing the elevator tests.

SD-19 Operation and Maintenance Manuals

Elevator System; GA.

Six copies of operation manual outlining the step-by-step procedures for system startup, operation and shutdown. Manuals shall include manufacturer's name, model number, service manual, parts list and brief description of all equipment, including basic operating features. [Six] copies of maintenance manual listing routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides. Manuals shall include equipment layout and complete wiring and control diagrams of the system as installed. Operation and maintenance manuals shall be approved prior to training course.

1.3 QUALIFICATIONS

Hydraulic elevators shall be pre-engineered elevator systems, and provided by a company regularly engaged in the manufacture of elevator systems. The manufacturer shall either install the elevator system or provide letter of endorsement certifying that the elevator-system installer is acceptable to the manufacturer.

1.4 REGULATORY REQUIREMENTS

Design and fabrication shall be in accordance with ASME A17.1. Each car shall have the capacity to lift a live load, exclusive of the car, at a speed as specified in the following schedule. The terminal floors, number of stops and openings, and the car sizes shall be as shown in the schedule. The elevators shall serve the floors with stops and openings in accordance with the requirements indicated. Elevators shall provide accessibility and usability for physically handicapped in accordance with the requirements for the handicapped in FED-STD 795 and 36 CFR 1191. Elevator sump pump shall not be permitted to discharge directly into the WPAFB storm drainage system.

1.4.1 Elevator Schedule (Passenger)

Number of Elevators Required: one (1)

Service: Passenger

Capacity: 1134 kg (2,500 pounds)

Speed: 0.6375 m/s (125 fpm) full load up (0.75 m/s (150 fpm) downspeed)

Platform Size: 2133.6 mm (7'-0") wide by 1772.2 mm (5'-8") deep

Clear Car Inside: 2032 (6'-8") wide by 1308.1 mm (4'-3-1/2") deep

Landings: three (3)

Openings: Front

Entrance Type: Center-opening horizontal-sliding

1.5 DESIGNATED LANDING

For the purposes of firefighter's service and emergency operations, as required by Section 211, ASME A17.1, the designated landing or level shall be the second floor.

1.6 DELIVERY AND STORAGE

All equipment delivered and placed in storage shall be stored with protection from the weather, excessive humidity and excessive temperature variations; and dirt, or other contaminants.

1.7 FIELD MEASUREMENTS

The Contractor shall become familiar with all details of the work, verify all dimensions in the field and advise the Contracting Officer of any discrepancy before performing any work.

1.8 WARRANTY

Warranty service shall be provided for each elevator for a period of 12 months after date of acceptance by Contracting Officer. Warranty service shall be performed only by trained elevator mechanics during regular working hours and shall include manufacturer's warranty requirements including but not limited to adjusting, lubricating and cleaning of equipment and furnishing supplies and parts to keep elevator in operation, except such parts made necessary by misuse, accident or negligence not caused by the Contractor. Testing and adjustments shall be in accordance with the applicable provisions of ASME A17.1 and ASME A17.2.2. Emergency callback service shall be included and available 24 hours a day, 7 days per week, with an initial telephone response time of 1 hour and a response time of 4 hours for a mechanic to the site. Inspection and service for fire service operation and seismic requirements shall be performed every 6 months. Documentation of inspection and testing, and certification of successful operation shall be provided with each unit.

PART 2 PRODUCTS

2.1 GENERAL EQUIPMENT REQUIREMENTS

2.1.1 Standard Products

Material and equipment shall be the standard products of manufacturers regularly engaged in the fabrication of elevators and/or elevator parts, and shall essentially duplicate items which have been in satisfactory use for at least 2 years prior to bid opening. Equipment shall be supported by a service organization that is available 24 hours a day, 7 days per week, with a response time of 4 hours.

2.1.2 Nameplates

Each major item of equipment shall have the manufacturer's name, address, type or style, model or serial number, catalog number, and electrical and mechanical characteristics on a plate secured to the item of equipment.

2.1.3 Special Tools

One set of special tools, calibration devices, and instruments required for operation, calibration, and maintenance of the equipment shall be provided.

2.1.4 Electrical Work

Changes to the electrical distribution system required for coordination with elevator equipment shall be performed and coordinated by Contractor, at Contractor's expense. Electrical service for elevator machines shall be as designed by Architect/Engineer. Electric service for elevator car lighting shall be 120-volt, single-phase, 60-Hertz grounded service. Electrical work shall conform to requirements in Section 16000, ELECTRICAL WORK. A disconnect switch that will shut off power to the elevator car lighting shall be provided in the elevator machine room adjacent to the elevator control panel. A telephone junction box and an elevator car lighting junction box shall be

provided adjacent to each controller. A single-phase electric circuit with grounded connection for video monitor shall be provided in machine room.

2.1.5 Use of Asbestos Products

Materials and products required for manufacturing and installing elevators shall not contain asbestos.

2.2 MISCELLANEOUS MATERIALS

2.2.1 Materials for Car Enclosures

Materials for car enclosures shall meet flame spread rating 0 to 75 and smoke development 0 to 450 as tested in accordance with requirements of ASTM E 84 as established by ASME A17.1, Rule 204.2.

2.2.2 Structural Steel

Structural steel shall be hot-rolled commercial quality carbon steel, pickled, oiled, complying with ASTM A 569 and ASTM A 568.

2.2.3 Cold-Rolled Sheet Steel

Sheet steel shall be cold-rolled commercial quality low carbon steel, Class 1, exposed matte finish, oiled, complying with ASTM A 366 and ASTM A 568.

2.2.4 Stainless Steel

Stainless steel shall be ASTM A 176 Type 302/304, austenitic, corrosion-resistant, with grain of belting in the direction of longest dimension. Surfaces shall be smooth and without waves and shall be in compliance with ASTM A 366.

2.3 PASSENGER ELEVATOR CAR

2.3.1 Car Fronts

Fronts for passenger elevators shall be combination door post and return panels manufactured of 1.9837 mm thick (14 gauge) stainless steel provided with necessary cutouts for operating devices. Car operating panel shall be recessed into front return panel with surface-applied operating panel cover. Position indicator in front return shall be recessed with a surface-applied cover plate. Exposed stainless steel shall be finished with No. 4 Satin Finish, unless otherwise specified.

2.3.2 Car Doors

Car doors for passenger elevators shall be constructed from 1.519 mm thick (16 gauge)sheet steel and stainless steel cladding. Each door shall be sound-deadened and reinforced to receive required operating mechanism and hardware, and have two removable door guides per panel.

Seams, screws or binding strips shall not be visible from within the car. Threshold shall be extruded aluminum with grooves for door guides. Exposed stainless steel shall be finished with No. 4 Satin Finish, unless otherwise specified. Car doors shall be equipped with a proximity-type infrared protective device having the following operation:

a. When doors are in full-open position, doors shall be unable to initiate closing if a person comes within detection zone. Detection zone moves with doors, so that if a passenger or object enters the zone after doors have begun to close, doors shall stop, then reverse to reopen. Doors shall reclose after a brief time. A passenger entering or leaving cars shall not cause doors to reopen unless doors reach a predetermined proximity to passenger.

b. After a stop is made, doors shall remain open for a time to permit passenger transfer, after which doors shall close automatically. This time interval shall be less for a car call than for a hall call or a coincident car/hall call.

c. If there is either a hall call anywhere in the group or a car call in the car in question and doors are prevented from closing for a fixed time period, door protective device shall be rendered inoperative, a buzzer shall sound in car and doors shall close at approximately half speed. Normal door operation shall resume at next landing reached by car.

2.3.3 Car Platform

Car platform for passenger elevators shall be fabricated from steel plates secured to a steel frame or plywood secured to a steel frame. Steel car platforms shall be assembled into a one-piece platform with top and bottom steel plates welded to structural steel frame and covered with felt and sound-isolation. Plywood car platform shall be 18 mm (3/4 inch) thick Exposure 1 plywood secured to underside of structural steel frame with metal fire protection secured to underside of structural steel frame.

2.3.4 Sling

Sling for passenger elevators shall be constructed of heavy steel stiles properly affixed to a steel crosshead and bolster with adequate bracing members to remove all strain from car enclosure. Steel bumpers shall be furnished for fastening sling to plunger.

2.3.5 Walls

Walls for passenger elevators shall be 2426 mm (7 feet 11-1/2 inches) high from floor to the underside of lighting fixtures. Side and rear panels shall be 1.519 mm thick (16 gauge) sheet steel panels. Side and rear removable panels shall be applied to car walls and shall be manufactured from 18 mm (3/4 inch) plywood or composition board finished on front, back and edges faced with plastic laminate conforming to NEMA LD 3, general purpose type. Panels shall be mounted on car walls in a manner permitting their reversing. Panels shall be evenly spaced with not less than two panels on each side and three panels at rear with [9.5 mm (3/8 inch) separations backed up with stainless steel dividers with a reveal standard with manufacturer. Vent around base shall be provided.

2.3.6 Car Top, Ceiling and Light Fixtures

Car top for passenger elevators shall be manufactured from 2.657 mm thick (12 gauge) sheet steel and shall be not less than 140 mm (5-1/2 inches) high with drop-ceiling and light fixtures. Ceiling shall be 3 mm (1/8 inch) thick translucent with perimeter frame and dividers to form drop-ceiling light fixture. Light fixtures shall be fluorescent type flush with car ceiling, manufactured of sheet steel with flange and enclosed sides and top, baked-enamel reflector, mounted directly to outlet box. Bottom of fixtures shall be flush with car ceiling. Fluorescent light fixtures shall be dual lamp with quick-starting high-power factor, Class P ballasts with safety lamp guard clamps on fluorescent tubes. Light level shall average at least 108 lx (10 footcandles) measured at the car threshold, with the door closed. A part of car light fixture shall be removable to permit use of the emergency exit panel in top of car.

2.3.7 Emergency Exit

Car top for passenger elevators shall be manufactured with a hinged emergency exit panel of 2.657 mm thick (12 gauge) steel which opens up to clear the crosshead and car door operator. Emergency exit panel shall be hinged on counterweight side and held in place with nonremovable fastening devices at each corner, and be openable from top of car only. A minimum of two sides of exit panel shall lap exit opening by 25 mm (1 inch). Exits shall be equipped with electrical contacts which will prevent operation of car when the exit door is open and cause the alarm bell to ring.

2.3.8 Floor Finish

Floor finish for passenger elevators shall be broadloom carpet.

2.3.9 Base

Base for passenger elevators shall be plastic laminate, 150 mm (6 inches) high.

2.3.10 Handrails

Handrails for passenger elevators shall be mounted on each wall and shall comply with ASME A17.1, FED-STD 795 and 36 CFR 1191. For elevators with two-speed horizontal-slide openings, handrails shall be turned back to wall.

2.3.11 Exhaust Fan

Exhaust fan for passenger elevators shall be two-speed exhaust type ventilating unit mounted in car ceiling and shall be provided with a [stainless steel] grille. Units shall be suitably isolated from car ceiling and shall provide at top speed of a minimum of 6 air changes per hour for car volume and car occupancy. Switches for the operation of the exhaust unit shall be located in car station locked cabinet or key-switched.

2.3.12 Communications

A telephone system in stainless steel cabinets shall be provided for passenger elevators. A vandal-resistant speaker type intercom with push-buttons to activate shall be installed in car station behind a stainless steel perforated grille and connected to a programmable auto-dialer located in machine room. Auto-dialer shall be provided with a solid-state charger unit which will automatically provide emergency power and an immediate transfer in the event of failure of normal power supply. The push-button located in car station or in separate cabinet shall be at the prescribed handicapped height and shall be identified as "EMERGENCY PHONE PUSH TO ACTIVATE". The entire communication assembly shall be approved for an elevator installation. The push button telephone shall comply with FED-STD 795 and 36 CFR 1191. The telephone communication shall not be terminated until one of the communicating parties hangs up the receiver or manually disconnects the communication link.

2.3.13 Car Emergency Lighting System

Emergency car lighting system for passenger elevators shall consist of an emergency power pack on top of the elevator and a remote lighting fixture inside elevator car located [in] or [above] car operating panel.

2.3.13.1 Power Pack

Power pack for emergency lighting system shall be a sealed lead-cadmium or nickel-cadmium 6-volt rechargeable batteries with solid-state controls and an integral regulating charger connected to normal power supply. Power pack unit shall contain the following:

a. Minimum 150 mm (6 inches) diameter alarm bell connected to the elevator alarm and emergency push-button.

b. Top of car light fixture with protective wire guard.

c. Testing circuit and pilot light.

d. Low-wattage pilot light indicator.

e. Battery low-voltage disconnect.

2.3.13.2 Emergency Light Fixture

Emergency light fixture shall be located in car station inside elevator car, with flush-mounted lens and shall consist of the following:

a. A minimum of two lamps capable of providing a minimum level of illumination of 10.8 lx (1.0 footcandle) a point 1220 mm (4 feet) above the floor, 300 mm (1 foot) in front of car station.

b. Steel fixture frame with [chrome] finish.

c. Frosted acrylic lens, 6 mm (1/4 inch).

2.3.13.3 Remote Light Fixture

Upon interruption of normal power, remote light fixture for passenger elevators shall automatically and immediately illuminate and permit operation of alarm bell, subject to activation of emergency stop-switch or alarm button. Emergency power pack shall be capable of providing a minimum of 1 hour emergency bell operation and 4 hours of continuous illumination.

2.3.14 Protection Pads

Passenger Elevator Car: Car shall be provided with wall protection pads with inconspicuous stainless steel pad hooks spaced not over 460 mm (18 inches) apart near the ceiling. Pads shall be heavy-quality fire-retardant treated canvas with two layers of sewn cotton batting with metal eyelets for each pad hook. Pads shall cover entire wall surface except operating devices.

2.3.15 Certificate Frame

A stainless steel certificate frame with translucent plexiglass lens of the appropriate size to receive certificate issued by inspecting agency shall be provided. Frame shall be engraved to show name of manufacturer, carrying capacity in kilograms (pounds) and maximum number of persons allowed.

2.3.16 Car Guide Shoes

Guide shoes for passenger elevators shall be the adjustable mounting type on each side of car. Shoes shall be rigidly secured in accurate alignment at top and bottom of car frame. Flexible type sliding guide shoes shall consist of a swivel-type shoe, assembled on a metal base with provisions for self-alignment. Each shoe shall be provided with renewable gibs. Car guide shoes shall be adjustable for side play between guide rails. Renewable wearing gibs shall be fabricated from a durable plastic compound material having a low coefficient of friction and long wearing qualities. Gibs shall be the type requiring minimum rail lubrication.

2.4 PASSENGER ELEVATOR HOISTWAY ENTRANCES

2.4.1 Hoistway Doors

Hoistway doors for passenger elevators shall be designed and fabricated as part of a Class B 1-1/2 Hour fire-rated door/frame assembly to meet requirements of NFPA 252 and shall bear the label of an approved testing laboratory. Doors for passenger elevators shall be hollow metal type with plain panel design not less than 32 mm (1-1/4 inches) thick with 1.519 mm thick (16 gauge) face sheet-steel panels, and stainless steel cladding, with 1.519 mm thick (16 gauge) sight guards to match door finish. Each door shall be reinforced with continuous vertical members and filled with sound-deadening material. Doors shall be reinforced to accept the required operating mechanism and hardware. Doors shall have two removable door guides per panel. Seams, binding strips or screws shall not be visible from the landing. Exposed stainless steel shall be finished with No. 4 Satin Finish, unless otherwise specified.

2.4.2 Hoistway Frames

Hoistway frames for passenger elevators shall be designed and fabricated as part of a Class B 1-1/2 Hour fire-rated door/frame assembly to meet requirements of NFPA 252 and shall bear the label of an approved testing laboratory. Frames shall be formed 1.897 mm thick (14 gauge) sheet-steel with stainless steel cladding, with head and jamb in flush alignment and corners welded and ground smooth. Head and jamb section shall be bolted assembly with bolts, washer and locking nut or lock washer. Frame assembly shall be securely fastened to the structure. Frames shall return to the wall. Combination buck and jamb frames may be provided with knockdown back flanges to permit installation in concrete walls. Exposed stainless steel shall be finished with No. 4 Satin Finish, unless otherwise specified.

2.4.3 Symbols

Raised stainless steel symbols as required by FED-STD 795 and 36 CFR 1191 of color selected, shall be provided at each floor to indicate the floor location. Symbols shall be attached with concealed fasteners. Symbols shall be placed in a location which can be seen by passenger from the opened passenger elevator doors.

2.4.4 Sills

Sills for passenger elevators shall be extruded aluminum with slip-resistant surface and machined grooves for door guides, secured to floor beams.

2.4.5 Strut Angles

Strut angles for passenger elevators shall be structural steel of size not less than 76 x 76 x 5 mm (3 x 3 x 3/16 inch) extending from sill to beam above and anchored to building structure with structural steel fastenings and bracings of structural members with a cross section of not less than strut angles.

2.4.6 Door Hangers and Housing

Each door panel shall be provided with not less than two sheave-type hangers designed for required door operation. Hanger housing and support shall be fabricated from formed Z-shaped steel angles of size not less than 5 mm (3/16 inch) thick bolted to strut angles.

2.4.7 Door Rollers

Door rollers shall be constructed with grease-packed ball-bearings and shall be tired with a sound-reducing material. Diameter of rollers shall not be less than 83 mm (3-1/4 inches) for car doors and not less than 57 mm (2-1/4 inches) for hoistway doors. Upward thrust shall be taken by a hardened and ground ball-bearing roller assembled on an eccentric stud to provide adjustment.

2.4.8 Hanger Track

Hanger track shall be of high carbon cold-drawn steel, round at top to receive door rollers, round at bottom to receive up-thrust rollers, of size engineered to accommodate load requirements.

2.4.9 Covers and Guards

Hanger covers, dust covers, toe guards and fascia plate shall be fabricated from 1.519 mm thick (16 gauge) reinforced steel and finished with baked-enamel. Hanger covers shall extend the full door travel and shall be mounted in sections for ease of servicing door hangers. Dust covers shall be provided over top terminal landing door only and shall be secured to hanger housing and building structure. Toe guards shall be secured to sill. Fascia plates shall be provided between each door hanger housing and sill.

2.5 PASSENGER ELEVATOR DOOR OPERATION

Car and hoistway doors for passenger elevators shall be operated simultaneously by an electric-power door operator. Doors shall operate smoothly in the opening direction and closing direction and be electricall or hydraulically cushioned to stop at both the full-open and full-closed position. Operators shall be high-speed heavy-duty type which will provide an average door-opening speed of 0.76 m/s (2-1/2 fps). Car and hoistway doors shall be opened and closed simultaneously. When on automatic operation door-closing time shall not exceed 30 seconds and door-closing force shall not exceed 130 N (30 pounds). Reversal of doors when closing shall be accomplished by the "DOOR OPEN" button, car door safety edge, or interruption of the photoelectric light beams. Doors shall be arranged so that doors can be opened manually in the event of power failure.

2.6 PASSENGER ELEVATOR OPERATING AND SIGNAL FIXTURES

2.6.1 General

Elevator fixtures and panels for passenger elevators shall be constructed of 3 mm (1/8 inch) thick faceplates of stainless steel. Fastenings for all exposed fixtures shall be secured with tamper-proof spanner-head screws of same material and finish as fixture. Hall and car call-buttons shall be the call-register type with a low-voltage power supply not to exceed 48 volts. Pressure on a button shall illuminate button to indicate that a call in the desired direction has been registered. Car and hall fixtures shall be designed and located at the prescribed height to accommodate the handicapped in accordance with FED-STD 795 and 36 CFR 1191 for passenger elevators only. Handicapped markings shall be integral with faceplates in accordance with FED-STD 795 and 36 CFR 1191. Surface-applied markings are not acceptable. Engraving shall be black-filled except for fire-service identification which shall be red-filled. Operating and signal fixture contacts and lamps shall be completely enclosed in steel boxes finished with a baked-enamel. Boxes for hall landing devices shall be equipped for proper adjustment to wall. Lamps shall be installed in light-tight compartments. Cover-plates shall be provided with rubber gaskets when exposed to weather or harmful contaminants. Replacement bulbs shall be readily available from three sources.

2.6.2 Car Operating Panel

Car operating panel for passenger elevators shall be provided with the necessary raised (0.8 mm (0.03 inch) markings for the handicapped, and shall include a series of minimum 20 mm (3/4 inch) diameter or square push-buttons numbered to correspond to the floor served and various additional switches, buttons and light jewels, including emergency stop, alarm button, "DOOR OPEN" button and communication speaker. Operating buttons shall be of manufacturer's standard design. Buttons and switches not required for automatic or fire-service operation shall be key-operated and mounted on front-return car operating station. Elevator number and "NO SMOKING" shall be international symbol engraved on upper portion of car. Operating panel in car shall consist of a flush-mounted panel containing the following operating devices:

a. "DOOR OPEN" button.

b. "DOOR CLOSE" button.

c. Key-operated car fan/light switch.

d. Key-operated ventilating blower switch/call light.

e. Communication speaker phone, grille and push-to-call button.

f. Emergency stop-switch key-operated when operated will stop the car independently of normal stopping devices. Operation of emergency stop switch shall not cause any power variance or surge that may affect the operation or condition of the control panel or its components.

g. Emergency signal-switch connected to a 150 mm (6 inch) diameter signal bell outside of elevator hoistway at second floor, located as directed.

h. Key-operated independent operation switch (for multi-car only).

I. Key-operated inspection switch which will render normal operation inoperative for the purpose of using the hoistway access switch.

j. Key-operated fire-service switch and light jewel.

k. Key-operated hospital emergency switch.

2.6.3 Auxiliary Car Operating Panel

Auxiliary car operating panel for passenger elevators shall be similar in design to main car panel, and shall include all devices necessary for automatic operation such as emergency stop switch, alarm bell, "DOOR OPEN" button.

2.6.4 Hall-Call Station

Hall-call operating devices for passenger elevators at landing shall consist of an "UP" push-button at bottom landing, a "DOWN" push-button at top landing, and "UP" and "DOWN" push-buttons

at all other landings. Buttons shall be [manufacturer's standard design]. Buttons shall be designed with 0.8 mm (1/32 inch) operating clearance to seat on faceplate in lieu of button mechanism. Buttons shall have maximum protrusion of 5 mm (3/16 inch) beyond faceplate with beveled edges to prevent damage from side blows.

2.6.4.1 Commandeering Switch

Key-operated commandeering switch for passenger elevators shall be provided at [designated landing] and located in landing call-button cover plate. Switch shall be momentary pressure type with the key removable only in "Off" position and shall be keyed to match the independent operation switch specified for car operating devices.

2.6.4.2 Fire-Service Switch

Fire-service switch for passenger elevators shall be located at the designated landing.

2.6.5 Direction Lanterns

Lanterns for passenger elevators shall be in accordance with FED-STD 795 and 36 CFR 1191 and shall be provided at all floor landings and in each car entrance column. Lanterns shall be [the manufacturer's standard] design. Lanterns shall signal the approach of a stopping car when car is a predetermined distance from landing.

2.6.6 In-Car Car-Position Indicator

Indicator numerals and directional arrows for passenger elevators shall be 25 mm (1 inch) high, white translucent plastic. As car travels through hoistway the car position shall be indicated by illumination of light jewel corresponding to landing at which the car is stopped or passing. Necessary light baffles shall be provided. Floor numerals and letters shall illuminate white. A position indicator of the digital-readout or dot-matrix type (minimum 50 mm (2 inch) high indication) shall be provided in car transom panel. Number corresponding to car position shall remain illuminated when motor drive is shut down. Illumination shall be shrouded in an approved manner to protect against glare from car lighting.

2.6.7 Audible Signals

An audible signal shall be provided at each floor landing and in each car and shall sound coincident with the lantern illumination indicators. The audible signal shall be no less than 20 decibels with a frequency no higher than 1500 Hz. The audible signal shall sound once for UP direction and twice for DOWN direction.

2.6.8 Combination Hall-Position Indicator and Directional Arrows

Combination hall-position indicator and directional arrows for passenger elevators shall be provided at first floor landing directly above entrance frame. As elevator travels in hoistway, elevator position shall be indicated by illumination in alpha-numeric characters corresponding to the landing where elevator is stopped or passing. Number corresponding to position of car shall

remain illuminated when motor is shut down. An audible signal shall sound in elevator car to indicate that the elevator is stopping or passing a floor served by elevator. Fixture design and operation shall be similar in design to that specified for Car Position Indicator.

2.7 AUTOMATIC EMERGENCY POWER OPERATION

Elevator control system shall be arranged to operate on emergency power supply upon failure of the normal power supply. Elevators operating on dedicated service, such as fire service, will not be required to return to designated landing when emergency power becomes available for respective elevator. Elevators shall operate as follows:

a. When normal power supply fails, all cars shall shut down.

b. One car shall automatically start and travel at full-rated speed to designated landing, stop, open the car and hoistway doors, then shut down.

c. After first car shuts down, other cars in the group shall individually operate as described above.

d. Automatic selection can be overridden manually. Emergency power selector buttons and light jewels shall be provided in a stainless steel faceplate at the designated landing. Emergency power selector buttons shall be operable after automatic return has been completed.

2.8 AUTOMATIC ELEVATOR OPERATION

2.8.1 General

The operating device shall consist of a series of push-buttons in the car numbered to correspond to various landings, "UP" and "DOWN" buttons at intermediate landings and a single button at terminal landing. To meet the elevator operation requirements specified in this section all buttons shall be connected electrically to the control system which governs the floor selection, car selection, direction of travel and governs the acceleration and retardation.

2.8.2 Operation

Car calls shall be registered within the car by pressing the button corresponding to the designated floors. Hall calls shall be registered by pressing buttons in the corridor push-button fixture. Once the demand for elevator service has been established and the car has received a start signal the car operation shall be as follows.

2.8.2.1 Door Closing

Doors shall close automatically. When doors are fully closed and the interlock circuit established, the car shall start to move in the direction established by control system. Car shall accelerate and decelerate automatically and stop at second floor for which a car button has been registered or at second floor for a corridor demand which has been assigned to car. Car shall stop at all floors for

which car calls are registered in the order in which the floors are reached and shall stop for any corridor demands assigned to the cars in the order in which the floors are reached.

2.8.2.2 Door Opening

Doors shall open automatically as car reaches the landing. After a predetermined time the doors shall close and the car shall proceed to answer the remaining car or assigned corridor calls. A protective device such as a safety edge and light beam device shall be provided on car door and when activated will prevent closing of doors. Cars shall become available for assignment at whatever floor the last car demand has been satisfied in the direction in which the car is traveling.

2.8.2.3 Car Dispatch

When car does not receive a demand dispatch at dispatching floor for an adjustable time period up to 10 minutes set initially at 5 minutes, the motor drive unit shall be switched-off. If the car's switched-off motor drive unit receives a demand dispatch the motor drive unit shall automatically restart.

2.8.2.4 Door Dwell-Time

Door open dwell-times shall be adjustable so that the open time for a car call is shorter than the open time for corridor calls and second passengers. If a longer time is needed for passenger entry, doors can be prevented from closing or reversing by the light beam door control, the protective leading edge on car door, or by pressing "DOOR OPEN" button in car. Door dwell-times shall comply with FED-STD 795 and 36 CFR 1191.

2.8.3 Independent Service

Freight elevators shall be arranged for independent service operation with a key-switch located in the locked section of car operating panel. When the car key-switch is placed in the "ON" position the key-switch shall remove car from corridor button operation to permit operation from car buttons only. Elevator direction lanterns shall be inoperative when elevator is in this mode of operation.

2.16.4 Automatic Load Weighing

Passenger elevators shall be provided with load-weighing devices which will cause elevator to bypass hall calls when elevator is filled to an adjustable percentage. Corridor calls shall remain registered until the next available car responds to the call.

2.8.4 Anti-Nuisance

Passenger elevators shall be provided with a system which will cancel all car calls in the event that between 3 to 5 times the number of car calls are registered as there are passengers in car, allowing 70 kg (150 pounds) per passenger.

2.8.5 Door Operation

Double-door operation are not acceptable for passenger elevators. If an UP traveling car has a passenger for an intermediate floor and a DOWN call is registered at that floor with no-calls above car, the car shall travel to floor, open the door and let passenger out, then light the DOWN direction arrow in hall lantern and accept the waiting passenger who registered the DOWN call. Doors shall not perform the open-close cycle before elevator proceeds to next call.

2.8.6 Automatic Power Shutdown

Elevator control system shall cause automatic power shutdown of the elevators in the event that a heat detector or sprinkler head located in the elevator machine room or in the elevator hoistway activates. Heat detector shall be fixed-temperature-rate-of-rise type, rated at 57 to 60 degrees C (135 to 140 degrees F). Activation of a heat detector or a waterflow switch, which monitors only the sprinkler heads in elevator machine room and in the hoistway, shall cause the following operations to the affected elevators:

a. Elevators which are in motion will proceed to the nearest available landing away from fire floor, and shall cause power-operated doors to open and remain open. The fire floor is considered the floor where the fused sprinkler head or heat detector is located.

b. Elevators which are standing at a landing with open doors will remain open at the floor. If power-operated doors are closed, the elevator will cause doors to open.

c. Power to the elevators will be automatically shutdown by operating the shunt-trip breaker(s) in the main line power supply. Shutdown will occur only after the elevators are stopped at a landing, and power-operated doors are opened.

d. Automatic shutdown will override Phase I Emergency Recall Operations, ASME A17.1, Rules 211.3a and 211.3b, but will not override Phase II Emergency In-Car Operation, ASME A17.1, Rule 211.3c if Phase II operation is in effect.

2.9 SENSOR AND CONTROL WIRE SURGE PROTECTION

Digital and analog inputs shall be protected against surges induced on control and sensor wiring. Digital and analog outputs shall be protected as shown against surges induced on control and sensor wiring installed outdoors. Fuses shall not be used for surge protection. The inputs and outputs shall be tested in both normal mode and common mode using the following waveforms:

a. A 10 microsecond rise time by 1000 microsecond pulse width waveform with a peak voltage of 1500 volts and a peak current of 60 amperes.

b. An eight microsecond rise time by 20 microsecond pulse width waveform with a peak voltage of 1000 volts and a peak current of 500 amperes.

2.10 COMMUNICATIONS LINKS SURGE PROTECTION

Communications equipment shall be protected against surges induced on any communications link. Cables and conductors, except fiber optics, which serve as communications links from

Motor Control Room (MCR) to field equipment, and between field equipments shall have surge protection circuits installed at each end. Protection shall be furnished at equipment and additional triple electrode gas surge protectors rated for the application on each wireline circuit shall be installed within 1 m (3 feet) of the building cable entrance. Fuses shall not be used for surge protection. The inputs and outputs shall be tested in both normal mode and common mode using the following two waveforms:

a. A 10 microsecond rise time by 1000 microsecond pulse width waveform with a peak voltage of 1500 volts and a peak current of 60 amperes.

b. An eight microsecond rise time by 20 microsecond pulse width waveform with a peak voltage of 1000 volts and a peak current of 500 amperes.

2.11 COMMUNICATIONS LINKS OVER VOLTAGE PROTECTION

Communications equipment such as MODEMs, line drivers, and repeaters shall be protected against overvoltage on any communications link conductors. Cables and conductors, which serve as communications links, except fiber optics, shall have overvoltage protection for voltages up to 480 Vac rms, 60 Hz installed. Instrument fuses or fusible resistors are required for this application.

2.12 FIREFIGHTERS SERVICE

Firefighter service shall be in accordance with ASME A17.1 for automatic elevators. Elevator lobby and machine room smoke detectors shall be ionization spot-type smoke detectors. Smoke detectors shall be powered from the building fire alarm control panel. Elevator lobby and machine room smoke detectors shall be in accordance with Section 16000, ELECTRICAL WORK.

2.13 ELEVATOR POWER UNIT

2.13.1 Pumping and Control Mechanism

Hydraulic fluid shall be provided in the reservoir, pump and control valve. Hydraulic fluid shall have a minimum fire point of 190 degrees C (375 degrees F) as established by ASTM D 92. If oil temperature drops below pre-set minimum, elevator shall be dispatched automatically to lowest terminal floor at which point the pump will bypass oil in system without car motion until pre-set temperature is reached. Normal response to passenger demand shall not be affected by this control. Resistance type heating elements do not meet the intent of this specification.

2.13.1.1 Oil Temperature Device

An oil temperature device shall be provided that will maintain oil temperature between 21 degrees C (70 degrees F) and 38 degrees C (100 degrees F) regardless of ambient temperatures.

2.13.1.2 Pump

Pump shall be a rotary-positive displacement type for oil-hydraulic elevator service designed for steady discharge with minimum pulsation to give smooth and quiet operation, with an output which will not vary more than 10 percent between no-load and full-load on the elevator. Operating pressure shall not exceed 2760 kPa (400 psi).

2.13.1.3 Piping

Piping shall be ASTM A 53 Grade E or S, ASTM A 106 Grade B, or grooved piping system of minimum schedule 40 seamless steel conforming to ASME A17.1 and ASME B16.11. Pipes shall conform to the cleanliness requirements of ASME B31.1.

2.13.1.4 Motor

Motor shall be especially designed for oil-hydraulic elevator service and shall be of standard manufacture duty rating and provided with specified speeds and loads.

2.13.1.5 Oil-Control Unit

Oil-control unit shall contain the following valve assemblies:

a. Automatic shut-off valve shall be provided in the oil-supply line as close to the cylinder inlet as possible. When there is a 10 percent drop in NO-LOAD operating pressure, the automatic shut-off valve shall be activated. When activated, the device shall immediately stop the descent of elevator and hold the elevator until it is lowered by use of the maximum lowering feature of the valve. Manual lowering feature of automatic shut-off valve shall be arranged to limit the maximum descending speed of elevator to 0.08 m/s (15 feet per minute). Exposed adjustments of automatic shut-off shall have the means of adjustment sealed after being set to the correct position.

b. Relief-valve for hydraulic shall be externally adjustable and shall bypass the total oil flow without increasing back pressure by more than 56 percent above working pressure.

c. Safety check-valve shall close quietly without permitting any perceptible reverse flow and shall be designed to support the elevator on a positively locked column of oil when car is at rest.

d. Up-start and stop valve shall be externally adjustable and shall bypass oil flow during the start-and-stop of motor-pump assembly. Valve shall close slowly, gradually diverting oil to the jack unit to insure smooth up-start and up-step.

e. Lowering and leveling valve shall be externally adjustable for drop-away speed, lowering speed, leveling speed and stopping speed to insure smooth down-starts and stops. Leveling valve shall be designed to level the car to floor in the direction the car is traveling when slowdown is initiated.

f. Manual lowering valve shall be capable of lowering the elevator car in event of power failure. Manual-lowering valve shall be arranged to limit the maximum descending speed under manual operation to 0.08 m/s (15 fpm).

g. A service check-valve shall be installed in oil supply line between power unit and jack.

2.13.1.6 Storage Tank

Storage tank shall be single-wall construction of steel with a steel cover. Manufacturer's recommendation for the type of oil to be used shall be included in written instructions for the care, adjustment and maintenance of equipment. Storage tank shall be placed inside containment barrier.

2.13.1.7 Controller

Electric controller shall be of the microprocessor based logic type with battery backup provided with reduced voltage starting. Components required for proper elevator performance shall be neatly mounted and wired and completely enclosed in a cabinet with a mechanically-latched door. Control cabinet shall be designed for mounting on power unit, wall or floor stand. Electric control apparatus shall be completely isolated from oil reservoir. A feature shall be incorporated in electrical control circuit which will cause elevator car to descent automatically to the lowest terminal landing, if the system runs low on oil during ascending of the car. If power-operated doors are used, the car and hoistway doors shall automatically open when car reaches landing to allow passengers to exit. Parked car shall have doors in closed position and all control buttons shall be made inoperative.

2.13.2 Sound Reduction

Sound-insulating panels shall isolate airborne noise from motor pump assembly. Openings shall be provided to adequately ventilate the power unit motor. A minimum of two sound-isolating couplings shall be installed in oil line in machine room between pump and jack. Couplings shall be designed and manufactured to be blowout proof. Oil-hydraulic silencer shall be installed in oil line near power unit and shall contain pulsation absorbing material surrounded by a blowout-proof housing. Power unit assembly shall be mounted on vibration pads to isolate the unit from building structure.

2.14 LEVELING DEVICE

Elevators shall be equipped with a 2-way leveling device to automatically bring the car to floor landings. Car shall automatically re-level at each landing to correct the overtravel and undertravel, and maintain the level regardless of load on car. Electric stopping system shall be arranged so that the car will stop level with the floor before brake is set. Stopping accuracy shall not exceed a plus or minus 6 mm (1/4 inch).

2.15 JACK UNIT

Jack unit shall be designed and constructed of sufficient size to lift the gross load to the height specified and shall be free from oil leakage. Brittle material such as grey cast iron shall not be used in jack construction. Jack unit shall consist of the following:

a. Telescoping plunger fabricated of heavy seamless steel tubing accurately turned and polished.

b. Stop-ring welded or screwed to the plunger to positively prevent plunger from leaving the cylinder.

c. Internal guide bearing.

d. Packing or seal.

e. Drip ring around cylinder top.

f. Outer cylinder made of steel tubing.

g. Air bleeder.

h. Brackets welded to jack cylinder for supporting the elevator on pit channels.

i. Scavenger pump with copper tubing connected to the tank.

2.16 ELEVATOR SUPPORTS

Structural steel beams, inserts, brackets, bolts and fastening devices shall be provided for proper installation of elevator equipment. Wood plugs are not acceptable.

2.17 BUFFERS

Buffers shall be of design suitable for depth of pit. Buffer anchorage at pit floors shall be provided for each car and counterweight and arranged to avoid puncturing the pit waterproofing. Type of buffer used shall be tested and approved for compliance with elevator service requirements before installation. Pipe struts and steadiers shall be provided as required for pit conditions. A metal plate with information concerning stroke and load-rating shall be permanently fastened to each buffer. Pit-mounted buffers shall have an adequate stroke designed to bring the fully-loaded car and counterweight to rest from governor tripping speed at an average rate of retardation not exceeding gravity. Moving portion of buffer shall be designed to be accelerated by the car without noticeable peak retardation. Spring buffers shall be in accordance with ASME A17.1.

2.18 LUBRICATION POINTS

Every part subject to movement friction shall be provided with provisions for oil or grease lubrication. All points of lubrication shall be readily accessible.

2.19 SEISMIC REQUIREMENTS

Seismic protection shall be provided to conform to ASME A17.1, Rule XXIV.

2.20 PIT REQUIREMENTS

Elevator pit shall comply with ASME A17.1 and shall be provided with sump pump, access ladder, lighting, etc. Pit sump pump shall not be allowed to discharge directly into the storm drainage system.

PART 3 EXECUTION

3.1 INSTALLATION

Elevators and equipment shall be installed in accordance with ASME A17.1 and manufacturer's recommendation. Guide rails shall be set plumb and parallel and attached to guide rail brackets secured to building structure as indicated and at intervals as recommended by the elevator manufacturer. Steel shim plates shall be used for aligning equipment. Guide rail sections shall be joined together in accordance with ASME A17.1. Guide rails shall be thoroughly cleaned and made smooth before elevator is put into operation. During installation all stainless steel shall be protected.

3.2 FIELD WELDING

When structural or load-bearing members are to be field welded, welding and qualification of welders shall be as specified in Section 05100, STRUCTURAL METALS.

3.3 CASING, CYLINDER AND PLUNGER UNIT

A steel casing minimum 200 mm (8 inches) larger in diameter than the cylinder sealed at bottom with steel plate or concrete plug shall be complete with provisions to accommodate a single wall or double wall cylinder. Casing shall be accurately positioned, plumbed and set to accept the cylinder. The cylinder shall be protected from corrosion by totally enclosing the cylinder with a separate schedule 80, polyvinyl chloride jacket or with a high density, fused polyethylene coating, recommended by the manufacturer. Area between casing and cylinder wall shall be filled with washed dry sand after cylinder has been accurately located. Top of casing shall be sealed. The work of boring the well and setting the cylinder shall be coordinated with construction of concrete pit.

3.4 ELEVATOR WIRING

Wiring shall be provided for electrically-operated items of elevator equipment to comply with requirements of NFPA 70 and Section 16000 ELECTRICAL WORK. For control and signal circuits wire shall be minimum No. 16 AWG. For power and lighting circuits wire shall be minimum No. 12 AWG. Work light fixtures equipped with 150 watt incandescent lamps and ground duplex receptacles shall be provided at top and bottom of car. Work light fixtures and

traveling cable junction boxes shall be located to provide illumination at junction boxes. Wiring shall terminate in junction boxes. Wires shall be identified and shall match symbols shown on wiring diagrams. Control and signal wires shall be brought to accessible numbered terminal blocks on the controller. Intra-panel wiring shall be flame-resistant type.

3.4.1 Traveling Cables

Cables shall terminate at numbered terminal blocks in car and machine room. Traveling cable shall be provided with a separate shielded circuit for communication system and hang to obtain proper size of loop. Traveling cable shall be provided with 10 percent spare conductors for each car.

3.5 PAINTING

Except for factory-finished items and corrosion-resistant items, machined surfaces shall be painted as specified in Section 09000, FINISHES.

3.6 TESTING

Testing shall be in accordance with requirements of ASME A17.1 and ASME A17.2.2 and as specified below. The Contractor shall conduct a complete test of the system. After the system has passed all tests, the Contractor shall notify the Contracting Officer in writing, three (3) days prior to the time of performing the acceptance test, that the system is complete and is ready for final acceptance testing. The Contractor after receiving written approval from the Contracting Officer will conduct a complete acceptance test of the system. Final testing will be witnessed by a certified government elevator inspector.

3.6.1 Testing Period

Each elevator shall be tested with the specified rated-load in car continuously for a period of 35 percent of the duty time. During the test run the car shall be stopped at all floors in both directions of travel for a standing period of 10 seconds per floor. A manual test of the final limits (UP and DOWN overtravel) shall also be performed.

3.6.2 Speed Load Testing

The actual speed of elevator car in both directions of travel shall be determined with the rated-load and with no-load in the elevator car. Actual measured speed of car with the rated-load in the UP direction shall be within 5 percent of rated speed. The maximum difference in actual measured speeds obtained under the various conditions outlined shall not exceed 10 percent of the total difference between the UP and DOWN speeds.

3.6.3 Car Leveling Testing

Elevator car-leveling devices shall be tested for accuracy of landing at all floors with no-load in car, with symmetrical load in car and with the rated-load in car in both directions of travel.

3.6.4 Temperature Rise Testing

Temperature rise of hydraulic pump motor, motor drive, exciter and booster shall be conducted during the full-load test run for minimum one hour. Under these conditions, temperature rise of equipment shall not exceed the requirements established in NEMA MG 1 Chapter 12. Test shall be started when all parts of equipment are within the temperature required by NEMA at time of starting tests.

3.6.5 Insulation-Resistance Testing

Insulation-resistance testing shall be performed to ensure that the complete elevator wiring systems will be free from short circuits and grounds. Electrical conductors shall have an insulation-resistance of not less than 1 megohm between each conductor and ground, and not less than 1 megohm between each conductor and all other conductors. Prior to testing, provisions shall be made to prevent damage to electronic devices.

3.7 FRAMED INSTRUCTIONS

Two sets of instructions shall be typed and framed under glass or in laminated plastic, and posted side-by-side in the elevator room where directed before acceptance of elevator systems. First set of instructions shall include wiring and control diagrams showing the complete layout of elevator system. Second set of instructions shall include the condensed operating instructions describing preventive maintenance procedures, the methods for checking the elevator system for normal safe operation, and the procedures for safely starting and stopping the elevator system.

3.8 OPERATOR TRAINING

Contractor shall conduct a formal training course for operating Government personnel which shall include care, lubrication, adjustment and maintenance of elevator equipment. Training period shall consist of a total of eight (8) hours of normal working time and shall start after the system is functionally completed but prior to final acceptance tests. Field instructions shall cover all of the items contained in the operating and maintenance instructions, including demonstrations of routine maintenance operations. Contracting Officer shall be notified at least 14 days prior to date of starting the training course.

3.9 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.9.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.9.2 List of CEGS Guide Specifications:

14240* Elevators, Hydraulic

END OF SECTION

SECTION 15000

MECHANICAL WORK

PART 1GENERAL

1.1 CRITERIA AND REFERENCES

1.1.1 Criteria for Design:

Applicable portions of the following publications are to be used as criteria for this project. The latest issue dates shall be used. In the event of conflict the provisions of MIL-HDBK-1190 shall govern.

Architectural and Engineering Instructions Design Criteria, U.S. Army Corps of Engineers.
ASHRAE Handbooks, Current and Previous Issues.
ASHRAE Std. 62-1989, Ventilation for Acceptable Indoor Quantity.
ASHRAE Std. 90.1-1989A Energy Efficient Design of New Buildings Except Low-Rise Residential, with addenda.
ASPE Data Books.
ETL 86-2, Energy Management and Controls System (EMCS).
ETL 86-16, Direct Digital Control Heating, Ventilation, and Air Conditioning Systems.
ETL 87-1, Lead Ban Requirements of Drinking Water.
ETL 90-10, Commissioning of Heating, Ventilating and Air Conditioning (HVAC) Systems Guide Specification.
ETL 93-5 Criteria and Technical Guidance for Fire Protection of Electronic Equipment Installations.
ETL 94-2, Utility Meters in New and Renovated Facilities.
MIL-HDBK-1190, Chapters 10 (HVAC&R) and 12 (Plumbing Equip. Criteria).
MIL-HDBK-1008C, Military Handbook for Fire Protection for Facilities Engineering, Design, and Construction.
National Standard Plumbing Code - latest edition.
NFPA 90A, Installation of Air Conditioning and Ventilation Systems.
SMACNA, HVAC Duct System Design.
SMACNA, HVAC Duct Construction Standards - Metal and Flexible.
TI 810-11, Heating, Ventilating, and Air Conditioning (HVAC) Control Systems, 30 Nov 1998.
TM 5-785, Engineering Weather Data.
TM 5-805-4, Noise and Vibration Control For Mechanical Equipment, 26 May 1995.
TM 5-809-10, Seismic Design for Buildings.
TM 5-810-1, Mechanical Design Heating, Ventilating, and Air-Conditioning.
TM 5-810-5, Plumbing.
Uniform Building Code - latest edition.
Uniform Mechanical Code - latest edition.
Wright-Patterson AFB, Base Facility Standard.

1.1.2 References:

AMCA	Air Movement and Control Association.
ARI	Air Conditioning and Refrigeration Institute.
ASTM	American Society for Testing and Materials.
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers.
ASME	American Society of Mechanical Engineers.
AWWA	American Water Works Association.
CABO	Council of American Building Officials.
CEGS	Corps of Engineers Guide Specifications.
CTI	Cooling Tower Institute.
FM	Factory Mutual.
HI	Hydraulic Institute.
IEEE	Institute of Electrical and Electronics engineers.
MSS	Manufacturers Standardization Society of the Valve and Fitting Industry.
NEMA	National Electrical Manufacturers Association.
NFPA	National Fire Protection Association.
NAPHCC	National Association of Plumbing-Heating-Cooling Contractors, National Standard Plumbing Code.
PDI	Plumbing and Drainage Institute.
SMACNA	Sheet Metal and Air Conditioning Contractors National Association.
UL	Underwriters' Laboratories.

1.1.3 Building Design Data:

The following will be used in the analysis and design of the mechanical systems. The geographical and outside design data is as taken from TM5-785. Indoor design temperatures and operating times shall be verified with the using agency.

1.1.3.1 Geographical Data:

Location	Wright-Patterson AFB Dayton, Ohio
Latitude	39 deg, 49' N
Longitude	84 deg, 3' W
Elevation	251.2m AMSL

1.1.3.2 Winter Design Data - Heating:

Degree Days "C"	5455
Dry Bulb Temperature (99%)	-18.3 degrees C
Prevailing Wind	W
Mean Wind Speed	3.6 m/s

1.1.3.3 Summer Design Data - Cooling:

Degree Days "C"	1036
Dry Bulb Temperature (1%)	32.8 degrees C
Mean Coincident Wet Bulb	23.3 degrees C
Mean Daily Range	12.2 degrees C

1.1.3.4 Operating Schedule:

Occupied Hours	0700 to 1700
Days Per Week	5

1.1.3.5 Indoor Design Temperatures:

Winter (occupied areas)	21.1 degrees C
Summer (occupied areas)	25.5 degrees C 50% RH
Winter (mech & elec spaces)	7.2 degrees C
Summer (mech& elec spaces)	Design Ambient + 5.6 deg C
Stairwells	Heating for freeze protection

1.1.4 Freeze Protection

Hot water heating coils in the air handling units shall be configured with a circulation pump to maintain a minimum coil tube velocity of between 0.76 and 0.90 m/s, whenever the outside air temperature falls below 2 deg C.

1.1.5 Seismic Zone

Wright-Patterson AFB is located in Seismic zone 1.

1.2 GENERAL DESIGN INSTRUCTIONS

1.2.1 Scope of Work:

New mechanical work consists of Fire Suppression, Plumbing, Natural Gas, Steam, Chilled water and HVAC systems within a planned new addition to the north side of the existing Avionics Facility, Building B620. Also included is the relocation of an existing cooling tower and associated condenser water lines which serve the existing Phase I Addition.

Existing steam and chilled water mains are available in the basement of B620 Northeast Wing. From information available at the time of preparation of this RFP, both the existing steam and chilled water mains / plants are anticipated to be adequate to serve the requirements of the new facility, however it shall be the responsibility of the design build team to fully investigate and verify that the capacity required can be satisfied by the capacity available.

HVAC systems will serve a mixture of light to moderately loaded spaces which will be served from central HVAC system(s). There will also be heavily loaded spaces and /or spaces with temperature and humidity constraints which will require the use of localized HVAC units and / or "computer room" units.

All facets of the plumbing, HVAC, and fire protection design shall be designed under the supervision and control of a registered professional engineer, who shall affix his seal to the finished documents.

1.2.2 Performance:

Specify performance to applicable nationally recognized industry standards, testing procedures, guidance and codes for systems, performance and reliable operation over a minimum life span of 30 years. Additionally, specify the following:

a. Indoor air quality per MIL-HDBK-1190 and ASHRAE Standards. In the event of a conflict between the standards, the more stringent shall be used.
b. Conformance to Fire Codes, Life Safety Codes and applicable building codes.
c. Conformance to applicable environmental regulations.

1.2.3 Product Uniformity:

All similar products shall be supplied and commissioned by the same manufacturer.

1.2.4 Service, Maintainability, and Safety:

Design facility systems to be suitable for the application and accessible for maintenance with proper safeguards. A 0.9 meter minimum maintenance clearance shall be maintained around all installed equipment whenever possible. Provide access doors, above or adjacent to clear floor space, for such as: automatic dampers, coils, thermostats, temperature controllers, valves, water hammer arresters, manual dampers, filters, and other concealed apparatus requiring service and inspection in the mechanical systems. Access doors shall be a minimum size of 200mm x 200mm for “hand reach” and a minimum of 560mm x 560mm for “arms and shoulder reach” distances. Catwalks, operating platforms, ladders and guardrails shall be provided as required for access to elevated equipment. Include in the design protection and guards for belts, pulleys, chains, gears, couplings, projecting set screws, keys, and other such rotating and moving parts with guards according to OSHA requirements.

1.2.5 Standard Products:

Specify that material and equipment shall be standard products of a manufacturer regularly engaged in the manufacturing of such products. The standard products shall have been in satisfactory commercial or industrial use for two years prior to proposal evaluation. The two year use shall include application of equipment and materials under similar circumstances and of similar size. The two years experience must be satisfactorily completed by a product which has been sold or is offered for sale on the commercial market through advertisements, manufacturer's catalogs, or brochures. Products having less than a two year field service record will be acceptable if a certified record of satisfactory field operation, for not less than 6000 hours exclusive of the manufacturer’s factory tests, can be shown. The equipment items shall be supported by nation wide service organizations. A certified list of qualified permanent service organizations and qualifications shall be required. These service organizations shall be reasonably convenient to the equipment installation and shall be able to render satisfactory service to the equipment on a regular and emergency basis during the warranty period.

1.2.6 Nameplates, Lens Caps, and Tags:

Provide nameplates and lens caps bearing legends and tags bearing device-unique identifiers which shall have engraved or stamped characters. Nameplates shall be mechanically attached to HVAC control panel doors. A plastic or metal tag shall be mechanically attached directly to each device or attached by a metal chain or wire. Each flow measurement station shall have a tag showing flow rate range for signal output range, duct or pipe size, and identifier as shown.

1.2.7 Color Coding:

All mechanical piping shall be identified and color coded in accordance with CEGS Section 15190.

1.2.8 Power-Line Surge Protection:

Specify that all electric and/or electronic controls connected to electrical power circuits shall be protected from power-line surges. Equipment protection shall meet the requirements of IEEE. Fuses shall not be used for surge protection.

1.2.9 Delivery and Storage:

Products shall be specified to be stored with protection from the weather, humidity and temperature variations, dirt and dust, and other contaminants, within the storage-condition limits published by the equipment manufacturer.

1.2.10 Mechanical Room Equipment Layouts:

The drawings provided in Appendix C show the general location and size of equipment rooms. The Designer shall configure the layout as necessary to accommodate the equipment size and configuration in the final design. All exterior mechanical equipment shall be screened from view using permanent walls of the same construction and finishes as the existing and new addition.

Mechanical equipment which cannot be screened from view, such as wall louvers, intake or exhaust penthouses and fire alarm bells shall be hidden by appropriately sized building parapet or painted with an approved type and color of paint.

1.2.11 Government Furnished Equipment:

Many types of Government furnished equipment will be installed by the Government in the altered and new spaces. Some of this equipment will reject large quantities of heat into building spaces. This equipment is listed in the "Room-By-Room" Equipment Schedule provided in Appendix A. The Design/Build Contractor shall provide utilities to the final approved location of each item of equipment which is selected for use within each space. Piping to equipment shall be valved and capped for future connection by the Government; however, valved bypass lines from supply to return with calibrated flow balancing valve having flow measurement taps shall be provided for testing and balancing purposes. Special emphasis shall be placed on air distribution systems to ensure complete and even distribution of air to satisfy all sensible space loads without creating noticeable drafts (air velocities above 0.254 m/s in the normally occupied zone of 0 to 1830 mm above finished floor). Also, each space in the new facility must be individually evaluated for heat and moisture released by users and users equipment and take into account these and other factors which impact the HVAC heat gain/loss and outside air requirements. At the time of preparation of this RFP, no plant steam utilities were required to be supplied to the equipment. This shall be verified with the using agency. Electric self-generating, steam type humidification units shall be used in air handling ductwork where required for space humidification. Where typical packaged computer room units (CRU) are required by this document, the units shall use infrared lamp and pan type humidification systems.

1.2.12 Sound Control:

The project includes two types of sound control design. The first is to attenuate the sound from mechanical equipment such as to create a suitable acoustic environment for the building occupants. The second is to attenuate sound traveling from secure spaces to adjacent spaces in order to meet the security sound attenuation levels. The design drawings and specifications shall specify equipment and/or duct configurations to meet sound attenuation requirements as per U.S. Army TM 5-805-4, “HVAC Sound and Vibration”. Factory fabricated sound attenuators shall be scheduled on the Drawings. Sound traps and/or acoustical duct configurations shall be clearly detailed on the Drawings. Associated calculations shall be submitted for review.

1.2.13 Vibration Isolation:

The design drawings and specifications shall specify equipment to meet vibration isolation requirements as per U.S. Army TM 5-805-4, “HVAC Sound and Vibration”. Drawings shall indicate tables of equipment vs isolation type and spring deflection.

1.2.14 Seismic Supports:

The design drawings and specifications shall specify seismic supports and restraints as required for Seismic Zone No. 1.

1.2.15 Facility Energy Consumption:

The facility shall be designed to be as energy efficient as practical, using the requirements of ASHRAE Standard 90.1-1989 Energy Efficient Design of New Buildings, System/Component Method. The design-build contractor shall perform a life cycle cost study to evaluate methods of using waste heat recovery for reheat during the winter months. The lowest life cycle system shall be utilized, provided it has a payback period of five years or less.

1.2.16 Load and Air Flow Calculations:

The Design/Build Contractor shall accomplish and submit complete HVAC load heat gain and loss calculations. Calculations shall be accomplished utilizing commercially available HVAC load analysis software. Calculations shall be used as a basis for sizing central plant services and air handling equipment and determining heating and cooling loads in each space and zone of the new facilities. Loads shall be determined for each item of Government furnished equipment shown to be located in each space in the "Room-By- room Equipment Schedule", Appendix A. The heat rejection and cooling loads of this equipment shall be taken into account in all zone and space HVAC load analyses. Each proposer shall be responsible for performing their own HVAC load analysis to accomplish a sufficient level of confidence before preparing their bid. The building heating and cooling loads and equipment sizes shall be completely reevaluated during design for all equipment and spaces by the Contractor based upon the latest available Government and/or User information.

1.2.17 Training:

Design/Build Contractor shall provide training for a total of 8 people (6 from WPAFB Civil Engineering Shops, etc. and 2 representing building end users) on all mechanical systems in the facility. Training shall consist of two eight hour days of combined classroom and hands-on instruction. The training sessions shall be videotaped by the trainers, using VHS format (13 mm standard tape width) and 2 copies of the taped sessions shall be turned over to the Government.

1.2.18 Physical Opening and General Security Provisions:

Security provisions as required for class B vault construction shall be included. This will include items such as bars in ductwork at building surface penetrations, bars at exhaust and supply air openings, etc.

PART 2 PRODUCTS

2.1 MECHANICAL INSULATION

2.1.1 General:

All heating or cooling mechanical equipment, including all HVAC supply and return air ductwork, air separators, expansion tanks, and pumps that are not factory insulated, shall be insulated. Provide a continuous and sealed vapor barrier outside of insulated cold equipment and ductwork to prevent condensation of moisture. All pipe and equipment insulation shall be covered with a

flame retardant all service jacket or durable coating consisting of cloth and finish. Insulated equipment includes, but is not limited to, ductwork, air separators, expansion tanks, hot water storage tanks, plumbing piping, hydronic and steam system piping, air conditioning unit condensate piping, and pumps. Insulation shall not be omitted from ductwork or piping in conditioned or concealed spaces, or plenums except for exhaust ductwork attached to a continuously operating exhaust fans. All hot, chilled and condensate piping shall be insulated. Insulation thicknesses shall be the more stringent of the CEGS insulation specification and ASHRAE Std. 90.

2.1.2 Duct Insulation and Liner Materials:

Duct insulation shall be mineral fiber meeting the requirements of ASTM C 553. Exposed insulation in mechanical rooms shall be board type. Concealed insulation shall be blanket type. Ducts which receive internal lining for acoustical purposes, which is at least 25mm thick, shall not require external insulation. Duct liner shall be of a type which consists of long textile-type glass fibers which are bonded together with a thermosetting resin into a resilient, tough lining material. The airstream surface shall be overlaid with a tough, durable fire resistant surface material. The surface material shall add strength and provide abrasion and de-lamination resistance. The surfacing material shall be treated with an EPA registered antimicrobial agent.

2.1.3 Pipe Insulation:

2.1.3.1 Cold Pipe Insulation Materials:

Above ground cold pipe insulation shall be cellular glass type meeting the requirements of ASTM C 240, Type I. Thermal conductivity shall be a maximum of 0.036 W/(m K) at 24 deg C.

2.1.3.2 Hot Pipe Insulation Materials:

Above ground cold pipe insulation shall be preformed mineral fiber type meeting the requirements of ASTM C 547, Type I or Type II as required for the operating temperature range. Thermal conductivity shall be a maximum of 0.036 W/(m K) at 24 deg C.

2.1.3.3 Below Ground Pipe Insulation:

Pipe carrying steam, hot water, or chilled water which is direct buried shall use a insulated conduit type of construction. Minimum Insulation thicknesses shall be as per CEGS insulation specification and ASHRAE Std. 90. Insulation thicknesses shall be increased if required by the piping system manufacturer.

2.2 FIRE PROTECTION

2.2.1 General:

All new and altered spaces shall be protected with automatic preaction sprinkler systems which shall be designed and constructed to conform to NFPA 13, MIL-HDBK-1008C, Wright-Patterson AFB Base Facility Standard, and AF ETL 93-5. All sprinkler systems shall be hydraulically

designed. Sprinkler system design requirements in MIL-HDBK-1008C shall be used for the hydraulic design of the sprinkler systems. The requirements are as follows:

Light Hazard Density = Not allowed per WPAFB Base Facility Standard

Ordinary Hazard, Group 1 Density = 6 L/Min/sq m
Design Area = 280 sq m
Combined Inside & Outside Hose = 1920 L/Min

Ordinary Hazard, Group 2 Density = 8 L/Min/sq m
Design Area = 280 sq m
Combined Inside & Outside Hose = 1920 L/Min

2.2.2 Water Supply:

The following flow test information was provided by WPAFB: 331 kPa static pressure and 207 kPa residual pressure at a flow rate of 4,240 L/Min. The pressure hydrant tested was F-30 and the flow hydrant was F-32. The Design/Build Contractor shall obtain his own flow test before design is started and shall notify the government of any significant deviations in the flow test data.

2.2.3 Fire Alarm Device:

Sprinkler discharge shall activate the fire alarm device as required in NFPA 13 and MIL-HDBK-1008C. Connection to the fire alarm system shall be as specified in other sections of this RFP.

2.2.4 Exterior Connection:

The sprinkler system shall have a Stortz connection for fire department use, located in a readily accessible location as per the requirements of NFPA 13 and MIL-HDBK-1008C. WPAFB Fire Department approval is required for the connection design and construction.

2.2.5 Sprinklers:

Fire sprinklers shall be closed head type meeting the requirements of NFPA 13 and MIL-HDBK-1008C. They shall be listed by UL or FM.

2.2.6 Fire Pumps:

Calculate total flow rate demands for the new Avionics Research Lab Phase IIIA. Provide a fire pump in the mechanical room, if total demands exceed water supply capabilities. Fire pump shall be electric motor driven and shall conform to NFPA 20.

2.2.7 Piping and Valves:

Fire protection piping under buildings shall be ductile iron to a point 1.5m outside the building. Inside piping shall be steel. All valves shall be OS&Y type. Provide tamper switches on all control valves and dielectric fittings at joints of dissimilar pipe materials. All interior sprinkler

piping shall be a minimum of schedule 40. Building fire protection system shall be isolated from the base water supply with a double check backflow preventer.

2.2.8 Sterilization:

After the sprinkler system has been installed and pressure tested, it shall be sterilized in accordance with Design/Build RFP requirements in specification section “Utility Systems.”

2.3 PLUMBING

2.3.1 General:

Design the plumbing system, including calculations of hot and cold water domestic water supplies, to conform to the National Standard Plumbing Code. Velocities in the domestic water piping shall not exceed 2.4 meters per second (m/s). All domestic water piping shall be copper. A domestic hot water recirculation system shall be provided. Domestic hot water recirculation pipe sizing shall be based on a nominal water friction of 400 Pa/m. The Designer shall provide calibrated balancing valves and indicate in the design the flow rate through each domestic hot water recirculation circuit. Water lines from mains to the new Avionics Research Lab Phase IIIA shall be metered. The building sanitary system shall drain to a sewage ejector located in either the Phase IIIA first floor or basement mechanical room. The waste shall be pumped to an existing sewer line located north of this facility. Refer to the Civil Section for exact locations.

2.3.2 Domestic Hot Water Generator:

The hot water service for the facility will be provided by a steam to hot water converter with a steam bundle and an ASME rated steel storage tank. The steam heat exchanger shall be be a double-wall type to separate the potable water from the steam heating medium. The water heater capacity shall be based on a demand calculated as outlined in the National Standard Plumbing Code, and the ASHRAE Chapter on Service Water Heating. The heater shall maintain a 60 deg C water temperature to limit the potential for legionella bacteria growth. Water temperature shall be tempered by a thermostatic mixing valve to provide hot water at a temperature of 49 deg C water to the facility.

2.3.3 Valves and Fittings:

Specify that valves and fittings shall meet the material, fabrication, and operation requirements of the Manufacturers Standardization Society of the Valve and Fitting Industry (MSS).

2.3.4 Relief Valves:

Relief valves shall conform to and be rated in accordance with ASME.

2.3.5 Fixtures, Carriers and Flush Valves:

Fixtures shall be water conservation type in accordance with NAPHCC-01. Fixtures for use by the physically handicapped shall be in accordance with CABO A117.1. Vitreous china fixtures,

non-absorbent, hard-burned, and vitrified throughout the body shall be provided. Porcelain enameled ware shall have specially selected, clear white acid-resisting enamel coating evenly applied on the surfaces. Fixtures shall be supported by one of the methods specified in the CEGS. Water closets shall be wall hung units. Lavatories shall be counter top mounted. Design for use of flush valves on all water closets and urinals. All external hose bibbs shall be freeze-proof type with integral vacuum breaker. External hose bibbs shall be provided on all sides of the new Avionics Research Lab Phase IIIA, with more provided as necessary with maximum spacing between external hose bibbs limited to 30 m. Additionally, provide one new external hose bibb immediately adjacent to the door(s) of the main mechanical room. New inside hose bibbs shall be provided in the new main mech room and the 2 new hydraulic pump spaces. The number of fixtures of each type required shall be as shown.

2.3.6 Pipe:

Pipe materials for plumbing shall be as listed herein. Pipe schedules will be determined by application. Jointing methods shall be selected based upon size of pipe. Maximum pipe velocities shall not exceed 1.8 m/s. Dielectric unions shall be provided on piping where connecting to dissimilar metals for both plumbing and HVAC piping. Inside piping shall extend to a point 1.5m outside the building.

2.3.6.1 Drainage, Waste and Vent Piping

Drainage, waste and vent piping shall be cast iron hub and spigot, ASTM A74, with compression gaskets for all below grade piping. Above grade DWV piping shall be either cast iron hub and spigot or no hub cast iron.

2.3.6.2 Domestic Water Piping

Pressure supply piping for the domestic water piping system shall be seamless copper water tube, ASTM B88, type K or L, with wrought or cast copper solder joint fittings, ANSI B16.18 or B16.22.

2.3.7 Pipe Hangers:

Pipe hangers shall be specified to conform to MSS standards.

2.3.8 Water Hammer Arresters:

Specify commercial type water hammer arresters to be used for shock suppression. Specify placement of water hammer arresters to be placed in accordance with PDI-WH 201. In addition to quick closing automatic valves, water hammer arresters shall be utilized on all plumbing fixtures having either a flush valve or hand operated valve such as a sink or lavatory. Water hammer arrestors are not required for electric water coolers.

2.3.9 Reduced Pressure Backflow Preventers:

Include in the plumbing design the installation of reduced pressure backflow preventers (RPBP) for all domestic water connections to mechanical hydronic water systems. The domestic water entrance shall also be provided with a RPBP. Backflow preventers shall be located between 0.3 and 1.0 m above floor level. Provide drain pans or funnels to serve backflow preventer isolation chamber drains and provide connecting pipes to floor drains.

2.3.9.1 Domestic Water Supply:

All fixtures which have potential for hose connection, ie. hose bibbs, wall hydrants, and service sinks, shall utilize a vacuum breaker hose fitting.

2.3.9.2 Domestic Water Connections to Mechanical Equipment:

Separate water makeup “trains” shall be provided for each recirculating mechanical or HVAC water system. Each makeup system shall provide an RPBP, isolation valves for all components, pressure reducing valve with inlet and outlet pressure gages, pressure relief valve, full line size bypass around the pressure reducing valve with line size globe valve and sufficient unions to allow easy breakdown of piping “train”, etc.

2.3.10 Subsurface Drainage:

All below grade walls and slabs shall have subsurface drainage, refer to the Architectural drawings and sections 03300 and 07000. These subsurface drainage systems shall tie together to sumps located in the Phase IIIA basement mechanical room. Sump pumps shall be of the duplex, extended shaft type. Pumps shall be complete with controls and basins. The high limit control shall be tied into the building EMCS control system to notify the base EMCS office on a high limit alarm.

2.4 HVAC PUMPS AND PIPING SYSTEMS

2.4.1 Pumps:

Chilled water and heating water pumps shall be base mounted, end suction centrifugal type with back pull-out and mechanical seals. Bases shall be welded structural steel. Pumps shall be electric motor driven. The motor sizes shall be selected such that the non-overloading brake horsepower of the pump is no greater than 90% of the nominal motor nameplate horsepower, without considering the service factor. Pumps shall be selected such that the required impeller diameter is no greater than 90% of the maximum impeller diameter. Hydronic system pumps for each system shall be installed with 2 pumps in parallel, each running continuously, with each pump delivering 50 percent of the total flow at the total required head. Parallel pumps shall be selected to be non-overloading with a single pump in operation.

2.4.2 Pump Accessories:

Pumps shall be installed with the following accessories: Isolation valves on both the supply and return side of the pump; check valve; calibrated balancing valve with pressure taps and memory stops or balancing cock with a calibrated orifice, pressure taps and memory stops; suction diffuser

with strainer and valved strainer blow down to a floor drain; and valved pressure gage arrangement to read differential pressures across either the pump or strainer. Individual check, isolation and balancing valves shall be used in lieu of a "triple duty" valve.

2.4.3 Expansion Tanks:

Heating water pressurization system shall include a diaphragm type expansion tank which will accommodate the expanded water of the system generated within the normal operating temperature range. Expansion tanks shall be the captive air type. The tank design shall be such that the water is in the diaphragm and not in contact with the tank. Tanks shall be floor mounted, vertical type. Tanks shall be welded steel, shall be constructed in accordance with Section VIII, Division 1 of the ASME Boiler and Pressure Vessel Code and stamped for 862 kPag working pressure. Verification shall be made that addition of this chilled water system will not affect the sizing of the existing expansion capability of the chilled water plant in Building 620.

2.4.4 Air Separator Tanks:

Heating water system design shall include an external air separation tank. Tank shall be centrifugal type, with steel construction. Tank shall be constructed in accordance with Section VIII, Division 1 of the ASME Boiler and Pressure Vessel Code and stamped for 862 kPag working pressure.

2.4.5 Piping Systems:

Piping for HVAC systems shall include heating and chilled water systems. Piping shall be sized based on a maximum friction rate of 0.45 kPa/m of pipe and a maximum velocity of 2.1 m/s. Pipe sizes 100 mm and below may be either steel or copper, sizes over 100 mm shall be steel. Pipe joints of dissimilar materials shall be provided with dielectric connections.

2.4.5.1 Steel Water Piping and Fittings:

Steel pipe shall conform to ASTM A 53, Schedule 40, Type E or S, Grades A or B. Type F pipe shall not be used. Joints and fittings shall be welded, flanged, or threaded as indicated. If not otherwise indicated, piping 25 mm and smaller shall be threaded. Piping larger than 25 mm and smaller than 80 mm shall be either threaded or welded. Piping 80 mm and larger shall be welded or flanged.

2.4.5.2 Welded joints and fittings:

Welded fittings shall conform to ASTM A 234, and identified with the appropriate grade and marking symbol. Butt-welding fittings shall conform to ASME B16.9. Socket-welding and threaded fittings shall conform to ASME B16.11

2.4.5.2 Copper Water Piping and Fittings:

Copper pipe shall conform to ASTM B88, type K or L. Fittings shall be copper and bronze solder joint pressure fittings, ANSI B16.22 or copper alloy solder joint pressure fittings, ANSI B16.18.

2.4.6 Chilled Water Systems:

Chilled water is available from the basement chiller plant in the B620 Northeast Wing. The chilled water lines to serve the Avionics Research Lab Phase IIIA shall be taken from this plant. Coordinate with the plant operators as to the exact location to connect to. The piping will be routed north through the knockout panel near the north stairway out of the basement of B620 Northeast Wing and into the Avionics Research Lab Phase IIIA basement.

2.4.7 Hot Water Heating Systems:

Heating hot water will be generated using steam which can either be obtained from steam mains on the site or from the steam main entrance into the north end of the basement of B620 Northeast Wing from an existing valved and blind flanged tee. The proposer shall evaluate the suitability of the options of locations. The heating water system shall utilize outside air temperature reset with a supply loop temperature of 82 deg C at outdoor air temperatures below minus 7 deg C and reducing to 32 deg C at outdoor temperatures above 15 deg C.

2.4.8 Valves, Strainers, and Calibrated Balancing Valves:

Valves shall meet the material, fabrication and operation requirements of ASME B31.1. Valve, strainer and fitting pressure class shall be suitable for the intended application. Circuit setters with flow measurement taps shall be used for balancing purposes. Plain balancing cocks shall not be provided.

2.4.9 Dielectric Unions:

Design the piping system so that dielectric unions are located on all pipe connections to dissimilar metals.

2.4.10 Thermometers and Pressure Gauges:

Thermometers shall be of brass construction, have a 230mm min. diameter face, and shall have graduation marks in both Fahrenheit (degrees F) and Celsius (degrees C) temperature scales. Pressure gauges shall conform to ASME B40.1 and shall be provided with a 6mm ball shutoff valve for maintenance and replacement. Gauges shall be a minimum of 80 mm in diameter and shall have a range from 0 kPa to approximately 1.5 times the system working pressure. Pressure gages shall have graduation marks in both pound per square inch (psi) and kilopascals (kPa).

2.4.11 Chemical Water Treatment:

HVAC heating water systems shall receive the contract prescribed treatment during the entire length of the contract including the warrantee period by the Contractor. Treatment shall be provided by a single firm, regularly engaged in water treatment of chilled and heating hot water

systems. The Contractor shall be responsible for analyzing the site "raw" potable water and proving the chemical treatment systems as prescribed herein. Water treatment by the Contractor shall be turn-key including all materials, chemicals, hardware, software, labor and incidentals required. All items shall be designed and included in the contract. Treated water systems shall be periodically analyzed during the contract and warrantee period and adjustments shall be made by the Contractor to the treatment to maintain optimal water treatment conditions. Treatment of closed loop systems shall utilize side stream feeders. The chilled water system shall be cleaned and flushed prior to connection to the central chilled water plant. The contractor shall analyze the water in the chilled water system and shall add appropriate chemicals to bring it back to the same condition after the new system is added onto the existing system. The chilled water system will not require the periodic maintenance during the warranty period, it will be serviced by the government.

2.5 HEATING WATER SYSTEMS

2.5.1 Hot Water Generator:

The new Avionics Research Lab Phase IIIA shall utilize a steam to hot water shell and tube converter to generate heating water.

2.6 CHILLED WATER SYSTEMS

2.6.1 Connection to Existing Chilled Water System:

Per information provided by the government, the existing chilled water plant in the basement of the B620 Northeast Wing has approximately 3300 tons installed and it is typically never loaded beyond 80% of 2 chillers at peak conditions. This leaves approximately 1,500 tons available. It is proposed that chilled water supply and return lines be extended to serve the Avionics Research Lab Phase IIIA. These lines can be connected into the main chilled water header in the chiller plant.

2.7 AIR DISTRIBUTION, VENTILATION AND EXHAUST SYSTEMS

2.7.1 General:

Return air systems, air transfer ducts and plenums shall be designed to prevent cross talk between adjacent rooms. The Designer shall conduct a complete acoustical analysis and provide a design for noise control per TM 5-805-4. Noise levels in rooms, caused by D/B Contractor installed mechanical equipment shall not exceed the NC levels listed in the Space Noise Criteria included as Table 15A at the end of this section. Supply ducts shall be designed based on maximum air friction rate of 0.816 Pa/m of duct. Exhaust, relief and return air duct systems shall be designed based on a maximum air friction rate of 0.33 Pa/m of duct. All outside air control dampers (in ducted systems, at wall louvers, etc.) shall be constructed of the low leakage type at 0.233L/s/sq. meter maximum leakage at 995 Pa static pressure when closed. The Designer shall show the duct pressure classes on the plans. Fire and Smoke detectors as required by NFPA shall be provided in all air handling systems. Exhaust fans shall be located on the north addition roof mechanical area or in the main mechanical room. Summer ventilation of the mechanical room shall be

accomplished by using a supply fan. Medium and high pressure ductwork shall be designed and constructed to SMACNA seal class A. Low pressure ductwork shall be constructed to the seal class recommended by SMACNA. Design air distribution system such that flow rates at each outlet can be adjusted to within plus 10%, minus 0%, of the designed level. Design air distribution systems, terminal airflows, fans, etc. using the calculated flow at the elevation listed above for Wright-Patterson AFB. Require that equipment selections be based on this elevation.

2.7.2 Ductwork Construction:

Ductwork, except as specified for nonmetallic flexible duct below, shall be constructed of galvanized steel. Fiberglass duct board shall not be used or proposed for any purpose. All aspects of metal ductwork construction, including all fittings, components, and sealing of joints and seams shall comply with SMACNA "HVAC Duct Construction Standards, Metal and Flexible." Dampers controlling outside, return, and relief air shall be located in ducts rather than in the mixing boxes. The design shall show access marked doors for fire/smoke dampers and for flow measurement stations. All AHUs shall be fully ducted in the mechanical room, i.e. no mechanical rooms shall be used for return outside air or relief air plenums.

2.7.3 Insulated Nonmetallic Flexible Duct Runouts:

Flexible runouts shall be pre-insulated factory fabricated type and shall conform to SMACNA "HVAC Duct Construction Standards, Metal and Flexible" and UL 181, class as applicable. Flexible runout lengths shall be a maximum of 1.5 meters. Flexible ducts shall be routed and supported with correct radii and straight runs approaching each diffuser connection to produce optimum air diffusion. Flexible duct runouts shall only be used for connection of metal ducts to diffusers, registers, or air terminal devices.

2.7.4 Space Air Distribution:

Single duct VAV terminal units with hot water reheat shall be utilized in the design of the VAV air distribution system. In general the maximum air quantity through a single VAV terminal unit should be limited to approximately 850 L/s. The minimum airflow setting of the VAV boxes shall allow for continuous operation of the supply air handler to provide continuous building pressurization and code required quantity of outside air. Spaces served by a single terminal unit shall all have similar functions, orientations, and load profiles. The air distribution system shall be designed for uniform distribution of air without causing drafts, air movements faster than 0.254m/s in occupied zone, or dead spots anywhere in conditioned area. All diffusers and registers in toilets shall be constructed of aluminum and finished to match color of surrounding areas. Space air distribution devices shall be as follows and they shall match building surface and finish. Diffusers for variable air volume (VAV) supply air applications: Provide slot type diffusers with insulated plenum boxes of lengths to match the dimensions of the suspended ceiling grids designed. Diffusers for constant volume supply air applications in areas with suspended removable grid or hard ceilings: Diffusers shall be match those used for VAV supply air applications. Diffusers for use in spaces where ductwork is not concealed, electrical room: Diffusers shall be one of the following types. Die stamped steel square with nested conical, louver shapes and no corner seams, similar to TITUS square ceiling diffusers model TMS. Perforated plate face diffusers shall not utilized. Air distribution shall normally be a true 360 degree pattern.

Where air distribution devices are attached to the side of supply air ductwork, the device shall be a supply air register with steel border and horizontally and vertically adjustable rows of aluminum airfoil vanes. Devices shall be similar to TITUS Aero-Blade supply air registers and shall be designed with the manufacturers steel damper attached to the rear of the register. Space return air intake devices: Lighting "troffers" may be used for transfer of return air from an occupied space into a ceiling return air plenum; however, the pressure drop across the ceiling (thru the return air devices) shall be limited to 5 Pa static pressure. If additional return air devices are necessary to limit the return air pressure drop as described above, the Contractor shall utilize the following. Aluminum or steel construction "louver" grid style grilles with border style and grid spacing as required to complement the architectural design. The louver grilles shall be similar to TITUS model 25RL. The louver grilles shall also be utilized for ducted and non-ducted return across ceilings and where the grilles are attached to exposed ductwork. All ceiling return air grilles shall be treated with return air security/sound treatment.

2.7.4.1 Spaces Served with Computer Room Units:

Spaces served with computer room units shall still receive ventilation air from the main air handling systems of a sufficient quantity to provide, at a minimum, the code required ventilation air quantity, at all occupied times.

2.7.5 Mechanical Rooms:

Provide summer ventilation of mechanical and electrical rooms in the amount of 20 air changes per hour with thermostat control containing an H-O-A switch. Ventilation shall be through fixed louvers with motorized dampers (fan intake) and motorized relief damper (relief wall), each interlocked with the supply air fan. The design shall provide for separation of exhaust outlets and outside air intakes as required by criteria to avoid cross-contamination.

2.8 AIR HANDLERS, TERMINAL UNITS AND COILS

2.8.1 Factory-fabricated Air Handling Units (AHU):

The units shall preheat, heat, cool, ventilate, and humidify to provide ventilation and pressurization air to the building spaces. The air handler supply air shall be ducted to ceiling mounted supply air diffusers as required elsewhere herein. Relief air shall be plenum return to the building exterior surface and ducted to the AHU where it will be relieved via motorized volume damper. The air handlers shall provide sufficient outside air to pressurize all spaces on a continuous basis and shall incorporate ductwork and controls, etc., to provide air to each space at space temperature. It is anticipated that there shall be a minimum of two of these type units. Each AHU shall be of the horizontal draw-through type with supply fan section, access sections between the coils, a chilled water cooling coil section, hot water heating and/or preheating coils, a combination filter/mixing box section, and a return fan section, if required due to return system pressure drop. All preheating coils shall be supplied with a coil circulation pump and all controls necessary for freeze proofing. Coils shall be fin and tube type constructed of seamless copper tubes and aluminum fins mechanically bonded or soldered to the tubes. Coils shall conform to the provisions of ARI 410. AHU sections shall be insulated double wall, with either a solid interior liner or perforated as required to meet acoustical criteria. Factory-fabricated sound attenuators,

sound traps, etc. shall be used where determined to be necessary by acoustical analysis. The AHU shall be controlled by a multi-loop direct digital (MLDDC) control system installed inside in a temperature controlled space, inside the building. The AHU shall be internally or externally vibration isolated, galvanized construction with access doors to all sections. The cooling coil airflow velocity shall not exceed 2.54 m/s and the cooling coil drain pan shall be constructed of stainless steel. Filters shall be minimum 50mm thick rigid cartridge type with a minimum efficiency of 45% and shall be provided in factory racks in a low velocity configuration. Motors for variable volume supply and return fans shall be equipped with variable frequency drives wired for optimum performance; ramp-up and ramp-down periods and safety controls shall be provided as required. The air handlers shall utilize chilled water for cooling and hot water for heating from the new addition chilled and hot water systems.

2.8.2 Single Duct Variable-Air-Volume Terminal Units:

Box enclosures shall be factory fabricated and be supplied with an electronic/mechanical air volume control system and reheat coil. Boxes shall be supplied with electronic VAV box controllers from the factory and shall be hard wired for full two-way control and data transfer to associated air handling unit variable air volume MLDDC controllers. The air flow sensing element shall be of the multi-port, center averaging type. The terminal box reheat coils shall utilize heating hot water from the new addition heating hot water system. Two portable operators terminals (POT) shall be provided for checkout, trouble shooting and setup of the VAV boxes and MLDDC controls and shall become property of the Government. All of the MLDDC controls shall be provided by the same manufacturer. This requirement shall apply to all controls on this project.

2.8.3 Computer Room Air Conditioning Units:

The Design/Build Contractor shall determine which spaces receive computer room air-conditioning units based on the load density of the space. Computer room air-conditioning units, where located, shall provide complete HVAC with humidity control. The CRUs shall utilize a chilled water for cooling and electricity for reheating and humidification. The number and location shall meet design HVAC requirements. The location of the units shall generally be around the perimeter of the space served but the location shall be fully coordinated with the Government/user. None of the locations for the CRUs shall in any way interfere with user operations. All of the CRUs in the new addition shall be connected to the new addition chilled water system and shall be provided with a support structure for installation in the raised computer floor system. Supply air shall be down-flow into supply air computer floors. Return air shall be through the top of the units from the space. All utilities serving CRUs shall strictly be located in either underfloor plenums or in architectural wall furred-ins (where underfloor supply is not at possible). CRUs located in areas without raised floors shall be equipped for and mounted on the finished floor surface. CRUs which are not mounted on raised floor supply air plenums shall have front return air inlets and top supply air discharge plenums with the manufacturers standard adjustable supply air register installed in the front and sides of the supply air plenum. The raised computer room floor registers shall comprise approximately 20% of the computer floor area with part of the air entering user electronics directly through floor openings below equipment. This shall be confirmed with user and designed. The design/build contractor shall provide computer room floor diffusers to distribute CRU supply air to the occupied space as recommended by the

CRU manufacturer or as required for proper operation with the above percentage of floor register to be considered a minimum requirement. The diffusers shall distribute air which is excess to the needs of user computer equipment, which take supply air directly from the plenum. The diffusers shall be steel and shall be designed for a flush mounting in the finished floor surface. Additionally, the diffusers shall be designed to support the same structural loading as the computer raised floor. Color and finish of floor diffuser shall be fully coordinated with architectural room finish requirements and shall be approved by the Government. Location of floor diffusers shall be designed to suit user equipment and be fully coordinated with and approved by the Government.

2.9 CONTROL SYSTEMS

2.9.1 General:

Building system controls shall be Multi-loop Direct Digital Control (MLDDC). Single-loop controls are not acceptable. Guidance controls is contained in TI 810-11. Provide a system design which shall control all entire HVAC system including the AHU, interlocked fans, VAV terminal reheat boxes, hot water converters, hot and chilled water pumps. The only systems anticipated to use simple electric, stand-alone controls are systems for unit heaters or ventilation fans for space heating and ventilation for spaces such as the mech and fire pump rooms.

2.9.2 Direct Digital Control System:

The DDC system shall be designed to industry standards and provide for individual stand-alone equipment controllers. As a minimum DDC panels shall be provided for heating water system, pumps, VAV terminal reheat boxes and individual air handlers. All MLDDC panels shall be located in mechanical or electrical spaces with the equipment controlled or conditioned spaces as described herein. The DDC system shall be as manufactured by either Johnson or Staefa and shall be 100 percent compatible with either the Base’s existing central Johnson or Staefa system. The control systems for this building shall tie into the Base’s existing EMCS system.

2.10 TESTING AND BALANCING

2.10.1 General:

The Design/Build Contractor shall specify and provide commissioning and testing and balancing of the mechanical systems to ensure that the intent of the design requirements are met. The testing and balancing shall include both the water and air side systems of all mechanical building and user equipment cooling systems. the design shall require a complete and comprehensive water balance for all water systems.

2.10.2 Standards:

The Design/Build Contractor shall select AABC MN-1 or NEBB-01 as the standard for providing testing, adjusting and balancing of air and water systems. The same selected standard shall be used throughout the project.

2.10.3 Qualifications:

Testing, adjusting, and balancing shall be accomplished by a firm certified for testing and balancing by the Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB).

2.10.4 Reports:

The testing agency shall submit the initial and final test and balance report for Government approval

2.11 Relocation of Existing Equipment:

2.11.1 The existing cooling tower serving the Phase I Addition shall be relocated as shown on the civil plans. The condenser water lines, water makeup line, electrical service, HVAC controls, etc. shall all be relocated to create complete and fully operational system. Work shall be scheduled such that as much preliminary work as possible shall be performed in advance. The relocation of the cooling tower, reconnection of the piping, new pumps, etc. shall occur over a weekend, from normal close of business on Friday to normal opening of business on Monday. The contractor shall give the government a 14 day advance notice of when the work will occur and notice that the HVAC system for the Phase I Addition will be inoperable during that time.

The exact location of the piping and other services from the Phase I Addition to the cooling tower is unknown. The location as shown on the civil plans is the best information available from the government at the time of preparation of this RFP. Any differences in the routing from that shown shall be brought to the attention of the Contracting Officer immediately. The intent is that the finished product will not have any piping, controls, etc. serving this cooling tower beneath any on grade floor slab of this facility. The existing condenser water lines shall be rearranged to exit the Phase I Addition to the north of this facility. This will require offsetting the lines into the stairwell to a new exit point. The pipe shall be located such that the new routing does not in any way affect the usage of the stair. The new exit point shall be properly sleeved and water proofed. The existing exit point shall be properly closed and patched.

The design/build contractor shall determine the existing flow rate of the cooling tower before any work is accomplished. This value shall be verified against the minimum recommended flow for the existing chillers. If it is below this minimum the flow shall be increased to the minimum, otherwise the new arrangement shall flow no less than the existing arrangement. The design/build contractor shall evaluate the new routing of the piping and shall determine the pumping capacity required. New pumps shall be selected and installed including all associated electrical work.

2.11.2 The existing fire department connection located on the east wall near the stair tower for the existing Phase I Addition shall be relocated. It shall be routed within the stair to exit the building at least 1 meter north of the point where this new facility will tie in to the existing. The routing of the piping shall be such that the usage of the stair is not affected in any way. The new exit point shall be properly sealed weather tight. The existing exit point shall properly closed and sealed.

PART 3 EXECUTION

3.1 COMMISSIONING

3.1.1 Commissioning:

The Design/Build Contractor shall perform full commissioning of each item of mechanical equipment. The Corps of Engineers Guide Specification (CEGS) section 15995, "Commissioning of HVAC Systems" shall be edited to suit this particular project and shall be used as the basis for performing the commissioning of the mechanical systems.

3.2 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.2.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements. However the CEGS specification requirements of all listed sections for submittals, testing, training, commissioning and balancing shall be included in any final specification.

3.2.2 Revision of CEGS:

CEGS Specification Sections 15895 and 15990 reference the Air Diffusion Council (ADC) in their body. The ADC is no longer updating their standard; in the interim utilize ASHRAE 70-1991. Delete the ADC reference and insert the industry standard ASHRAE 70 in the appropriate spaces.

3.2.3 List of CEGS Guide Specifications:

13080*	Seismic Protection for Mechanical, Electrical Equipment
13814*	Building Preparation for Energy Monitoring
15250	Thermal Insulation for Mechanical Systems
15320	Fire Pumps
15330	Wet Pipe Sprinkler System, Fire Protection
15400	Plumbing, General Purpose
15488	Gas Piping
15653	Air-Conditioning System (Unitary Type)
15895	Air Supply, Distribution, Ventilation, and Exhaust Systems
15951*	Direct Digital Control for HVAC Systems
15990*	Testing, Adjusting and Balancing of HVAC Systems
15995*	Commissioning of HVAC Systems

TABLE 15A

MAXIMUM ALLOWABLE ROOM OR SPACE NC LEVELS
DUE TO CONTRACTOR INSTALLED
MECHANICAL AND ELECTRICAL EQUIPMENT

Room or Space Name	NC Level
Electrical Equipment Room	60
Communications Equipment Rooms	50
Personal Office Area	35
Laboratory Area	40
Conference Rooms	30
Open Office Areas	40
Corridors	45
Restrooms	45
Mechanical Equipment Rooms	60
Fire Pump Room (pump not running)	60
Stairwells	55

END OF SECTION

SECTION 16000

ELECTRICAL WORK

PART 1 GENERAL

1.1 SUMMARY

Work covered by the section includes the following:

Exterior Electrical Work
Interior Electrical Work
Communications Systems

1.2 GENERAL DESIGN REQUIREMENTS

1.2.1 Standard Products

Material and equipment shall be standard products of a manufacturer regularly engaged in the manufacturing of such products which are of a similar material, design, and workmanship. The standard products shall have been in satisfactory commercial or industrial use for 2 years prior to bid opening. The two year use shall include application of equipment and materials under similar circumstances and of similar size. The two years experience must be satisfactorily completed by a product which has been sold or is offered for sale on the commercial market through advertisements, manufacturers' catalogs, or brochures. Products having less than a two year field service record will be acceptable if a certified record of satisfactory field operation, for not less than 6,000 hours exclusive of the manufacturer's factory tests, can be shown. The equipment items shall be supported by a service organization. The Contractor shall submit a certified list of qualified permanent service organizations and qualifications. These service organizations shall be reasonably convenient to the equipment installation and shall be able to render satisfactory service to the equipment on a regular and emergency basis during the warranty period. The fire alarm equipment provided for this project shall be supported by a service organization that can provide total service within 24 hours of notification of the need for service.

1.2.2 Delivery and Storage

Products shall be stored with protection from the weather, humidity and temperature variations, dirt and dust, and other contaminants, within the storage-condition limits published by the equipment manufacturers. No equipment or materials shall be stored on the ground.

1.2.3 Codes and Standards

Perform design and construction in accordance with the latest edition of the following codes and standards. (Base Standards and attached details shall take precedence over the listed standards.)

NFPA 70 National Electrical Code

NFPA 72	National Fire Alarm Code
NFPA 78	Lightning Protection Code
NFPA 101	Life Safety Code
HQUSACE	Standard Detail No. 40-06-04
ANSI C2	National Electrical Safety Code
IES	Illuminating Engineering Society of North America Handbooks
IEEE	STD 141, Recommended Practice For Electric Power Distribution For Industrial Plants.
EIA	Electronic Industries Association, 568/568A, Commercial Building Telecommunications Wiring Standard.
ETL 94-5	Fire Protection Engineering Criteria and Technical Guidance Emergency Lighting and Marking of Exists.
ETL 1110-3-403	Electrical Power Systems for Nonlinear Loads
ETL 1110-3-412	Transformer Application Guide
ETL 1110-3-432	Exit Signs
MIL-HDBK-1190	Facility Planning And Design Guide
ANSI Standards	As Referenced
NEMA Standards	As Referenced
U.L. Standards	As Referenced
MIL-HDBK-1008	Fire Protection for Facilities - Engineering, Design, and Construction
TM 5-811-1	Electric Power Supply And Distribution
Wright-Patterson Base	Standardization of Building/Utility Electrical Distribution Systems.
CESWD-AEIM	Architectural and Engineering Instruction Manual

1.2.4 Drawings of Existing Building

Obtain drawings of existing as built conditions from Base Civil Engineering Office. It is known that some areas have been modified from that shown on existing as built drawings and the Design/Build Contractor shall verify all as-built drawings and be responsible for all existing conditions.

1.2.5 Submittals

Submit Shop Drawings and Operations and Maintenance Manuals in accordance with the requirements of Division 1.

1.3 TRAINING

Provide 8 hours of training, for each system, on two different days in two different weeks, explaining the operation of exterior power, interior power, exterior lighting, interior lighting and communication systems and all other systems provided. Videotape classes and provide two copies of videotapes. Training times shall be coordinated and approved by the Contracting Officer.

PART 2 PRODUCTS

2.1 INTERIOR ELECTRICAL POWER

2.1.1 Interior Distribution

2.1.1.1 General

For existing building modify existing distribution system as required. Serve lighting and power loads at the highest voltage practical. Supply florescent and high intensity discharge (HID) lighting systems and building power loads by the 480Y/277 volt system. Use dry-type transformers to furnish 208Y/120 volt power for incandescent lighting, receptacle, and small equipment loads. Protective devices shall be selectively coordinated for overload and short-circuit protection.

2.1.1.2 Power Requirements

Provide 60 hz normal power to general purpose loads, receptacles, lighting and other motors equipment. Provide 60 hz conditioned power to all loads in Lab. area. Clean and filtered power, via Uninterrupted Power Supply (UPS), will be Government Furnished/Contractor Installed (GFCI). Power Conditioner will be similar to Liebert UDA63225A27A073. New unit will be 480Y/277V - 3 PH - 4W unit, with input filter Type B and 15 min. battery backup. All power and communication cables entering/leaving facility shall be filtered.

Design and construction shall include and accommodate user's equipments loads.

Receptacles commonly used in laboratory areas for various laboratory equipments:

NEMA No.	Description
5-20R	20 amps, 125 volts, 2 poles 3 wires, duplex.
L5-30R	30 amps, 125 volts, locking 2 poles, 3 wire
L6-30R	30 amps, 250 volts, locking 2 poles, 3 wire
L15-30R	30 amps, 250 volts, locking 3 poles, 4 wire, 3 phase.
L21-30R	30 amps, 208/120 locking 4 poles, 5 wire, 3 phase Y.

560C9W (Hubbell) 60 amps. 208/120 pin and sleeve connector 4 pole, 5 wire, 3 phase Y.

Hubbell 45305 receptacles, 30 amps, 208/120, Locking, 4 pole, 5 wires, 3 phase Y.

Hubbell 45315 plug, (cable end).

2.1.1.3 The Main Switchboard (Existing in Phase I)

Assemblies are metal-enclosed, freestanding ventilated type and installed to provide front and rear access, and are provided with bolt-in molded case circuit breakers with solid state tripping devices, with copper main, neutral and ground busses, and with existing energy metering. Switchboard conforms to NEMA PB-2 and UL 891. Main switchboard is full of active breakers, but includes a minimum of 2 spare breakers and space for future growth. Provide new circuit breakers to serve new Phase III electrical loads.

2.1.1.4 Feeder and Branch Circuit Panels

Feeder and branch circuit panels shall be bolt-in circuit breaker equipped and shall have copper bus bars. Where required by the design, nonlinear load panels shall be provided. Panelboards shall conform to NEMA-PB 1 and UL 67. Two and three pole circuit breakers shall have a common handle and be mechanically tied.

Each Laboratory Area shall be provided with a panelboard to provide 120VAC receptacles and 208VAC for small equipment loads. Each Lab panel shall be provided with a shunt-trip equipped main breaker for connection to an emergency shutdown system. Refer to Section 2.1.14.

2.1.1.5 Circuit Protective Devices

The Contractor shall calibrate, adjust, set and test each new adjustable circuit protective device to ensure that they will function properly prior to the initial energization of the new power system under actual operating conditions. All settings and tests shall be made under the supervision of a Registered Engineer, qualified by experience to perform such work.

2.1.1.6 Clearance

Provide clear space around switchboards, panelboards, transformers, switches and controllers for normal maintenance and operation as required by NEC. Maintain clearance from floor to bottom of wall or ceiling mounted equipment such as annunciators, clocks, lighting fixtures, etc., to keep from interfering with passage of personnel or equipment. Recess mount panelboards and cabinets located in finished areas, narrow passages, or corridors.

2.1.1.7 Accessibility and Labeling

All junction boxes, pull boxes, and similar points must be readily accessible. When wiring runs are above corridors or ceilings, in pipe chases or in trenches, install clearly identified access panels as necessary for proper maintenance and operation of the electrical distribution system. Design recesses for panels for ease of future cable modifications. Ensure that junction boxes are labeled with permanent markers or other approved method to identify them by system. For power junction boxes indicate panel and circuit number.

2.1.2 Spare Capacity

All distribution equipment and services shall be sized to allow 25 percent growth and shall be sized per ETL 1110-3-403 for nonlinear loads. Provide at least 25 percent spare spaces and capacity in each panelboard for future expansion. Provide 25% spare breakers in all lighting and appliance panels.

2.1.3 Conductors

Conductors shall be copper with 600 volt, 75 °C insulation. Aluminum conductors are not permitted.

2.1.4 Conduits and Raceways:

2.1.4.1 General

Conduits and raceways shall be provided and installed in accordance with the National Electrical Code. Minimum trade size for power, lighting, and control raceways shall be 16 mm and minimum trade size for communications raceways shall be 21 mm. In general, interior wiring must be installed in rigid conduit, or electrical metallic tubing (EMT). PVC conduits are not permitted for communication raceways, under floor or below slab. Aluminum conduit shall be used for 400 hz raceways only. Rigid nonmetallic conduit, electrical non-metallic tubing and metal-clad tubing (Type MC), shall not be used for interior wiring. Metal enclosed feeder or plug-in busways or surface metal raceways may be used where necessary. Surface metal raceways will only be used where specifically called for or where approved by the Contracting Officer. No exposed conduit or piping shall be permitted on exterior of building surface. All exposed conduits shall be painted to match wall finish

2.1.4.2 Raceways in Administrative Areas

Connections to equipment and furniture shall be made via raceways in walls or ceilings. Under raised floor raceways shall be used for communication systems.

2.1.4.3 Raceways in Rooms with Access Flooring

All wiring under access floors must be in raceways. Underfloor electrical ducts or cable space must be used in electronic data processing (EDP) or automated data processing (ADP) machine rooms.

2.1.5 Receptacles and Circuiting:

General purpose receptacles shall be duplex, 120V, 20 amp, hard use specification grade (or specification grade heavy duty). Coordinate color with architectural finishes, casework and equipment. Make electrical connections to screw posts rather than to poke-in compression connections. Provide a minimum of one general purpose 120 volt, 20 ampere duplex receptacle outlet per wall in each room. In rooms where walls exceed 3 meters, provide an additional duplex outlet for each additional 3 meters of wall or fraction thereof. Receptacles spacing shall not exceed 3 meters. The general purpose receptacles are in addition to the special purpose and dedicated outlets for special equipment. Outlets shall not be installed back-to-back through walls.

Locate receptacles in corridors for floor maintenance no greater than 15 meters apart. Duplex receptacles, 120 VAC, 20 amp, must be provided inside and adjacent to each exterior corridor door of the facility. Coordinate with user.

In mechanical, electrical and maintenance areas, provide receptacles for temporary work lights and power tools, at least one per usable wall and not more than 3.5 meters apart.

In communication closets, provide duplex receptacles, surge protection type, and circuits in accordance with the following instructions:

a. A dedicated power circuit, surge protected, shall be provided for each Premises Distribution Systems (PDS) equipment rack located within the room. The number of equipment racks in each Communication Room will be determined by the Contractor's Communication Consultant.

b. A dedicated power circuit, surge protected, shall be provided for each Fire Detection and Alarm System panel located in any Communication Room.

2.1.6 Motors

Motors, furnished under this section, shall be of the high-efficiency type and conform to the requirements of CEGS 16415, Electrical Work, Interior Work, paragraph, "Motor Efficiencies". Motors larger than 2.2 kW (3 HP) shall be provided with phase reversal and phase loss relays. Relays shall be integral part of starter and not require a separate enclosure.

2.1.7 Motor control centers

Motor control centers shall be NEMA Class II, Type B or as required.

2.1.8 Transformers

Transformers shall be dry-type in accordance with NEMA-ST 20 and UL 506 rated 480 volt delta to 208Y/120 volts. The average sound level in decibels (dB) of transformers shall not exceed the following levels:

KVA Range	DB Sound Level
1 - 50	50
51 - 150	55
151 - 300	58

Where required by the design, provide K-rated transformers with a schedule identifying K-factor rating of each transformer. Auto transformers are not acceptable. Windings shall be copper only. ETL-1110-3-412, “Transformer Application Guide”, shall be utilized in the selection and the application of dry-type transformers.

2.1.9 Boxes

Boxes shall be provided in the raceway systems for pulling of wires, making connections, and mounting devices and fixtures. Pull boxes shall be not less than the minimum size required by NFPA 70. Security boxes shall be tamper proof.

2.1.10 Grounding

Existing building counterpoise grounding system shall be extended to new building. Single point grounding shall be provided. This includes lab. areas and communication closets. Ground rods

shall be 3.05 m sectional, 19 mm copper clad steel. Grounding connections made below grade shall be fusion welded.

Ground neutral of 480/277V system at switchboard. Ground neutrals of 208/120V systems at dry type transformers to building steel.

Fall-of-potential ground testing method will be used to validate grounding. Because of the sensitivity of the equipment, the grounding electrode system shall have a maximum resistance of 25 ohms to ground. The Design/Build Contractor will coordinate with the Contracting Officer if ground resistance of any single grounding electrode is greater than 25 ohms as required (per NFPA 70, Article 250-84).

Provide grounding conductor in all raceways containing power and lighting conductors.

2.1.11 Cable Trays and Wireways

Wireways shall be provided under raised floor for communication systems conductors. Communication room cable wireways shall be 204 mm x 204 mm, 153 mm x 153 mm or 102 mm x 102 mm. Cable trays shall be of the ventilated trough type with rungs a minimum of 102 mm wide and a maximum of 102 mm gap between the rungs. Trays and wireways shall be in accordance with the requirements of NFPA 70, National Electrical Code.

Install cable trays to allow 150 mm of clear space above the trays for access by cable installers. Cable tray fill shall not exceed 605. Communication room cable trays shall be routed around the periphery of the room with 305 mm clearance from the wall. Routing of communication cable trays to second floor and beyond shall be through the communication rooms. The Contractor shall coordinate with the User on communication routing throughout the facility, and for all other requirements.

2.1.12 Manufactured Wiring System

For rooms with access floor provide a Manufactured Wiring System in compliance with NEC Article 604. Provide receptacles in flush floor outlets or provide hardwire connection to the equipment or furnishings as required. Provide pre-manufactured flexible power cable assemblies which plug into floor outlets from power distribution point. Floor outlets shall have device covers which can be closed when outlet is not in use. Floor outlet cover plates shall be substantial enough that they will not be damaged if the roller of an occupied chair is on top of them with a force of 62.5 pounds on the wheel (250 pound person in a chair with four wheels). Provide distribution panel or point as required by manufacturer.

2.1.13 NonLinear Loads

This project contains a multitude of computer and electronic equipment which produces high harmonic currents. Validate the nonlinear load requirements for each equipment function category and identify the multiplier for equipment and building wire size. Drawings shall indicate which circuits will serve nonlinear loads such as electronic and computer equipment. Provide larger (full

size minimum) or multiple neutrals and ground conductors to accommodate the resulting harmonic currents. Do not share with other circuits. (See Corps of Engineers ETL 1110-3-403.)

For those areas with high nonlinear load, K-Factor rated transformers shall be provided. Provide a schedule identifying the K-Factor rating. Provide nonlinear load panels and switches where required.

Power circuits serving workstations shall be sized to accommodate personal computer equipment at each workstation.

Analysis of the connected loads shall be made to determine the harmonic contents and the appropriate K-Factor rating. Use K-4 rating when connected loads are comprised of a large number of 100 percent nonlinear single phase electronic equipment. Use K-13 rating when connected loads are comprised of single, large electronic loads, or small numbers of comparatively large single phase loads (i.e., mainframe computers or on-line UPS systems). Caution should be used in specifying K-ratings above K-13, as the impedance generally decreases as the K-ratings increase. Impedances below 3 percent are not recommended for computer loads connected to transformers with high K-ratings, as even higher neutral currents could result and possibly cause malfunctions or damage sensitive load equipment.

2.1.14 Emergency Shutdown Systems

Provide emergency shutdown systems for all power (except lighting) where required by user. In each room requiring emergency shutdown, With the exception of lighting circuits, activation of any emergency switch will shut down all power, including duplex receptacles, within the room. All control devices used for emergency shutdown system and power restoration shall be of industrial grade and quality. Shutdown systems shall be capable of fully resetting the system back to operation.

2.2 INTERIOR LIGHTING

2.2.1 Lighting Intensity Levels

2.2.1.1 Lighting Intensity

Lighting intensity lux (footcandle) levels shall be in compliance with Appendix "A" of MIL-HDBK-1191 as modified by appropriate ETL's and with general guidance provided by the Illumination Engineering Society (IES) Lighting Handbook. The light lux (footcandle) levels for exterior areas not listed in MIL-HDBK-1191 or STD DET 40-06-04 shall be in accordance with the IES Lighting Handbook.

2.2.1.2 General Illumination Levels

General illumination levels shall be in accordance with the following:

Area	Lux*	Footcandles*
Administrative	500	50

Non-Work Areas	100	10
Laboratories	700	70
Classrooms	700	70
Communications Closets	500	50
Electrical/Mechanical Spaces	500	50

*Maintained levels after two years.

2.2.2 Lighting Fixture Types

HQUSACE Standard Detail No. 40-06-04 and changes thereto, and "Lighting Fixtures" dated February 1991 shall be used where applicable. Specially selected design products shall have been proven reliable, primarily as shown by successful commercial service, shall be used.

Integrate luminaries with the architecture of the room or area. The correct use of luminaries is of special importance in large rooms or areas with high or sloping ceilings; therefore, the design selection and installation of luminaries must make sure that the desired architectural effort and function of the space are not impaired. Administration area lighting shall match existing administration area lighting in existing building. Indirect lighting shall be used where appropriate. The finish and color of surrounding surfaces, equipment and furniture must be selected for reduced glare, increased light use and acceptable brightness balance. Lighting equipment and layout must be coordinated with other facilities to prevent interferences and to promote good appearance.

Illumination shall be provided with fluorescent luminaries. Incandescent and high discharge (HID) fixtures may be used in special areas or for architectural design. Lighting Fixture Guideplate, STD DET 40-06-04, shall be used to the largest extent possible. Where STD DET 40-06-04 does not provide the desired fixture type, commercial standard fixtures and custom light fixtures may be used. Provide a standard fixture guideplate for those fixtures not covered in STD DET 40-06-04.

The fluorescent light fixtures shall be rated 277 volt operation, except certain light fixtures will be rated for 120 volt operation.

Emergency egress illumination shall be provided as required by NFPA 101.

Recessed light fixtures will be supported from the structure or from clips to the main ties of the ceiling grids. Incorporate a typical support detail on the drawings.

In addition to lighting levels, the minimizing of brightness in the zones of direct and reflected glare is of prime importance when selecting and locating lighting equipment. The selection of lighting fixtures is extremely important and, therefore, due consideration must be given to the quality of light provided by the fixtures selected.

Corridors and general purpose areas shall typically have 600 mm x 1200 mm recessed fluorescent parabolic louvers and two to four lamps per fixture. Lighting in administration area shall utilize fluorescent parabolic louvers, with specular finish.

Offices, laboratories, and areas with numerous personal computer (PC) workstations and/or video display units shall have low glare and low brightness type luminaries with deep parabolic louvers to reduce reflected images on the PC screens and to improve visual comfort. Parabolic louvers shall be minimum of 4-1/4 inch deep.

Small storage rooms, mechanical rooms, electrical rooms, and communication rooms shall have 305 mm x 1220 mm surface or pendant mounted fluorescent luminaries with wrap-around virgin acrylic lenses, two lamps per fixture.

High intensity discharge (HID) luminaries shall be used in areas with high ceilings and open construction.

Provide multi-level lighting where fluorescent luminaries with 3 or more lamps are provided.

Provide occupancy sensing switches to control lighting where applicable to conserve energy.

2.2.3 Special Lighting

Provide red strobe or flashing (non-mechanical) lighting system throughout the facility (in each conference room, CCC, lab area, secure workspace or general workspace) with switch located at entrance to each separate space so that when visitor enters, the strobe or flashing light fixture can be switched on to alert occupants. This system shall be similar to existing building system. D/B Contractor shall coordinate sign message amd location with facility user.

2.2.4 Lamps

Fluorescent lamps shall be F32T8, cool white equivalent, 32 watts energy savings types, with a temperature of 4100K and a minimum CRI of 80.

2.2.5 Ballasts

Fluorescent ballasts shall be the high power factor, electronic, solid-state, energy saver type with a five year parts and labor warranty. The invertor frequency shall be at the level and frequency range as not to interfere with operation and calibration of electronic equipment. The nonlinear load generated by the switch-mode power supply will not exceed 10 percent of the fundamental current. Electronic ballasts are not recommended where the ambient temperature, for any reason, could exceed 40 degrees C.

2.2.6 Emergency and Egress Lighting

Battery powered emergency lighting, integral to the light fixture, shall be provided for egress routes and exit marking by corridor lighting fixtures and exit signs, and in accordance with ETL 94-5. Wall-mounted emergency lights are not acceptable. The emergency lights shall relight within 10 seconds after the loss of normal power and shall meet or exceed NFPA 70 requirements and NFPA 101, Chapter 5, Section 5-9 requirements. Exit signs shall be LED and shall conform to the ETL 1110-3-432 and the performance equipments within the ETL.

Emergency egress lighting in corridors shall generally be provided within the normal corridor lighting fixtures.

2.2.7 Energy Efficient Design

Energy efficient design considerations shall include use of efficient lamps and luminaries, automatic lighting control, and other alternatives which meet the reliability, durability, and maintainability requirements of the mission. Utility areas may use low cost, low efficiency lighting where justified by low usage and by some automatic shutoff such as door switches.

2.2.8 Interior Lighting Controls and Switching

Switching of light fixtures in rooms shall typically consist of switches adjacent to the entrance which control all general room lighting. Occupancy sensing switches shall be provided to control lighting where appropriate. Provide multiple switching of two ballast fixtures.

Switching shall be provided in labs, and large rooms to allow switching of individual zones or areas. Each zone shall be provided with a separate switch.

Special areas such as entries and the lobby shall be switched through lighting control panels. Photoelectric control units switch the lights off when daylight is sufficient to illuminate the space.

Wall switches shall be specification grade, heavy duty, hard use, rated 20 amperes, 120/277 volts. Coordinate color with architectural finishes.

2.3 EXTERIOR LIGHTING SYSTEM

2.3.1 General

New Parking Lot Light Fixtures and Poles shall match existing parking lot light fixtures and poles. Connect new parking lot lighting circuits to new panelboards in the new facility. Control of the parking lot lighting will be provided by photocell, timing mode to be as directed by the Contracting Officer. Site lighting circuits will be routed underground, coordinate routing with other site utilities.

2.3.2 Site Illumination Levels

Site illumination levels shall be in accordance with the recommended levels of the Illumination Engineering Society (IES) for the various types of roadways and areas. Provide 5 lux average computed in one-half meter intervals for general areas and 10 lux for handicapped and staff areas.

2.3.3 Lighting Standard

Lighting standard shall match existing system. Sidewalk lighting shall be accomplished using wall mounted HPS luminaries not to exceed 70 watts. Parking lot lighting, shall be accomplished using HPS luminaries where possible not to exceed 250 watts.

2.3.4 Switching

Exterior lighting shall be switched through a site lighting control panel, circuited to serve different areas of the site. Photoelectric control units shall switch the lights on at dusk and off when daylight is sufficient for illumination.

2.3.5 Exterior Egress Lighting

Provide egress lighting at all approaches to building. Coordinate fixture type with architecture.

2.4 LIGHTNING PROTECTION SYSTEM

A lightning protection system is required for this project and shall be provided for the new facility. The lightning protection system shall conform to NFPA 70 and 78, and UL 96A, except where requirements in excess thereof are specified. The system furnished shall consist of the standard products of a manufacturer regularly engaged in the production of lightning protection systems and shall be the manufacturer's latest UL approved design.

2.5 COMMUNICATION SYSTEMS

2.5.1 General

Communication systems shall conform to NFPA 70 and 72, and other applicable standards.

2.5.2 Security System

Intrusion and Detection system shall be provided via empty conduits with pull ropes and junction boxes. Designer shall provide detailed floor plan prior to interim submittal and the user will mark start/finish location for IDS conduit. Contractor is to provide empty conduits with pull rope and junction boxes every 65 meters of conduit length from origin to finish to all doors and other points of protection as directed by the user. Exterior junction boxes shall be tamper resistant. Conduit shall be 16 mm (½") EMT in building and RGS outside building. Pre-drill doors for "Flash Proximity Switch". User will provide detail for door Flash Proximity Switch installation. Security system designer shall closely coordinate design with the user.

2.5.3 Public Address System

Expand existing Public Address system to new facility via empty conduits and junction box system. New speakers and grilles shall match existing devices. Speakers shall be provided in main corridors and branch corridors only.

2.5.4 Telephone System

Provide telephone room on first floor with a telephone cable tray system under raised floor for both lower floor lab and other areas. Use only metal conduit for communication raceways. Provide two cable tray systems under raised floor area on both the first floor and mezzanine, one for communication and one for user lan systems. Cable trays system shall have minimum 3 feet

separation when ran parallel and must cross at right angles. Size as required by user. Provide 4-103 mm metal conduits between the existing building telephone backboard and each new telephone/communication room in new facility. Telephone back board shall be 1.2 m x 2.4 m with "110" punchdown blocks. Terminate each telephone cable on RJ45 connectors. Provide 103 mm conduit penetration at every column between the mezzanine and lower floor that parallels the communication tray.

2.6 FIRE DETECTION AND ALARM SYSTEM

2.6.1 Drawing Preparation

The following information shall be shown on the project drawings:

a. On separate floor plans, show location of the control panel, batteries and charger, the annunciator, primary power supply, remote trouble device, remote annunciator, detectors, all indicating devices, and each alarm initiating device.

b. Show single-line fire alarm riser diagram, zones, or zone schedule. Each device on the riser shall be provided with a device number indicating zone location (room number, etc.). Indicate connection of equipment by circuit runs or conduit runs.

2.6.2 Codes and Standards

Design and construction shall be in accordance with the latest edition of the following codes and standards:

NFPA 72	National Fire Alarm Code
NFPA 90A	Installation of Air Conditioning and Ventilating Systems
ADA	Americans with Disabilities Act
UFAS	Uniform Federal Accessibility Standards

Note: Additional requirements are described in SECTION: 01013: GENERAL DESIGN REQUIREMENTS.

2.6.3 System Design

The fire alarm and detection system shall be a complete, supervised fire alarm system and shall be integrated into the existing fire alarm control panel. The Fire Alarm System shall be connected to the existing Cerberus System, located in the Control Room of Bldg. 620.

a. Alarm initiating devices shall be connected to signal line circuits (SLC), Style 6, in . accordance with NFPA 72.

b. Alarm indicating appliances shall be connected to indicating appliance circuits dAC), Style X, in accordance with NFPA 72.

c. A two-loop conduit system shall be provided so that, if any one conduit and all conductors contained in that conduit are severed, all IAC or SLC on that circuit shall remain functional. Wiring for this type operation will not use the same raceway and will not follow the same path. A two-loop system is applicable to the central fire alarm communication center from the local panels.

d. All textual, audible, and visual appliances and systems shall comply with NFPA 72.

e. Fire alarm zones shall be from waterflow switches, duct detectors in HVAC units, and zones in the facility.

f. Manual stations shall be located so that it will not be necessary to travel more than 200 feet horizontally to a station.

g. Smoke detectors shall be located in air ducts according to NFPA 90A. Remote test and alarm panels shall be located in corridors for duct detectors concealed from view.

h. The building shall be equipped with sprinkler heads located throughout; therefore, smoke detectors will not be installed in corridor locations.

I. Connections shall be made to all sprinkler system waterflow switches and control valve supervisory switches.

j. Electronic horns are located at a nominal separation of 50 feet to sound alarms at 15 dBA above ambient noise levels. Electronic horns shall be located in office areas, mechanical/electrical equipment rooms, and other high noise areas.

k. Flashing strobe lights for the hearing impaired shall be located in toilets, computer room, and in egress paths at distances not to exceed 100 feet.

1. The system shall be provided to automatically and manually accomplish general alarm system and control functions and transmit any trouble or alarm condition to the Base Fire Station, as indicated above.

m. Duct detectors shall be placed in supply and return air ducts (in fans above 15,000 cbm), in accordance with NFPA-90A, and at all penetrations of smoke barriers. The fire alarm system will incorporate "alarm verification," automatically verifying a true alarm condition, and greatly reducing unnecessary and nuisance alarms.

n. Sprinkler flow switches and valves shall be connected to the alarm system for alarm and supervision conditions.

o. Smoke detectors shall be of the photoelectric type. In raised floor areas, smoke detectors shall be located in the ceiling and under the raised floor.

p. The fire alarm control panel shall indicate each alarm initiating device graphically. Alarm and trouble conditions shall be indicated for each alarm initiating device.

q. Manual Control Switches shall be provided for the following functions:

- System Reset
- Alarm Silence
- Trouble Silence
- Manual Evacuation
- Alarm Acknowledge (NFPA-72)
- Trouble Acknowledge (NFPA-72)
- Supervisory Service Acknowledge (NFPA-72)
- AHU Control
- City Disconnect

r. Raised floor shall be protected via alarm initiating devices.

2.6.3.1 Temperature monitoring and notification system

A temperature monitoring and notification system shall be provided. Sensors shall be provided in laboratory areas and shall be connected to control panel. An alarm shall sound at the control panel when the temperature exceeds the pre set temperature. Coordinate with user for requirements and locations of sensors.

2.6.4 Delivery and Storage

All equipment delivered and placed in storage shall be stored with protection from the weather, humidity and temperature variation, dirt and dust, and any other contaminants.

2.6.5 Qualifications

Installation drawings, shop drawings and as-built drawings shall be prepared by, or under the supervision of, a qualified technician. A Qualified Technician shall be an individual who is experienced with the types of work specified herein, and is currently certified by the National Institute for Certification in Engineering Technologies (NICET) as an Engineering Technician with minimum Level-III certification in Fire Alarm System Program. Design/Build Contractor shall submit data showing the name and certification of the Technician at or prior to submittal of drawings.

2.6.6 Installer

The Design/Build Contractor shall provide documentation demonstrating that its fire detection and alarm system installer is currently certified by the National Institute for Certification in Engineering Technologies (NICET) as an Engineering Technician with minimum Level-II certification in Fire Alarm System Program.

2.7 TESTS

After the interior-wiring-system installation is completed, and at such time as the Contracting Officer may direct, the Contractor shall conduct an operating test for approval. The equipment shall be demonstrated to operate in accordance with the requirements of this specification. Continuity test shall be conducted on the telephone wiring system. The test shall be performed in the presence of the Contracting Officer. The Design/Build Contractor shall furnish all instruments and personnel required for the tests, and the Government will furnish the necessary electric power. Provide test to demonstrate resistance to ground. Test reports shall indicate the location of the rod and the resistance and the soil conditions at the time the test was performed.

Provide tests to indicate that all receptacles are connected correctly with regards to polarity and grounding.

Tests shall include the meggering of all system conductors to determine that the system is free from grounded, shorted, or open circuits. The meager test shall be conducted prior to the installation of fire alarm equipment. If deficiencies are found, corrections shall be made and the system shall be retested to assure that it is functional.

PART 3 EXECUTION

3.1 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.1.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.1.2 List of CEGS Guide Specifications:

16415*	Electrical Work, Interior
16475	Coordinated Power System Protection
16528	Exterior Lighting Including Security and CCTV Applications
16610	Uninterruptible Power Supply (UPS) System Above 15 KVA Capacity
16670	Lightning Protection System
16710*	Premises Distribution System
16711*	Telephone, Outside Plant
16721	Fire Detection and Alarm System
16752*	Electronic Entry Control Systems
16768*	Fiber Optic Data Transmission System
16770	Radio and Public Address Systems

--End of Section—

SECTION 16710

PREMISES DISTRIBUTION SYSTEM

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ELECTRONIC INDUSTRIES ASSOCIATION (EIA)

EIA ANSI/TIA/EIA-568-A	(1995) Commercial Building Telecommunications Cabling Standard
EIA ANSI/TIA/EIA-569	(1996) Commercial Building Standard for Telecommunications Pathways and Spaces
EIA ANSI/TIA/EIA-606	(1993) Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
EIA ANSI/TIA/EIA-607	(1994) Commercial Building Grounding and Bonding Requirements for Telecommunications
EIA TSB 67	(1995) Transmission Performance Specifications for Field Testing of Unshielded Twisted Pair Cabling Systems

IBM PUBLICATION CORPORATION (IBM)

IBM GA27-3361-07	(1987) LAN Cabling System - Planning and Installation
IBM GA27-3773-0	(1987) Cabling System Technical Interface Specifications

INSULATED CABLE ENGINEERS ASSOCIATION (ICEA)

ICEA S-80-576	(1994) Communications Wire and Cable for Wiring of Premises
ICEA S-83-596	(1994) Fiber Optic Premises Distribution Cable

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(1996; Errata) National Electrical Code

UNDERWRITERS LABORATORY (UL)

UL 50	(1995; Rev thru Oct 1997) Enclosures for Electrical Equipment

1.2 SYSTEM DESCRIPTION

The premises distribution system shall consist of unclassified and classified inside-plant horizontal, riser, and backbone cables and connecting hardware to transport telephone and data (including LAN) signals between equipment items in a building.

Note: The contractor shall coordinate the premise unclassified and classified inside-plant horizontal, riser, and backbone distribution system with the Corps of Engineers, the 88th Civil Engineering and Communication Groups, the base TEMPEST officer, the base Special Security Officer (SSO), and the tase Systems Telecommunications Engineering Manager (STEM) to validate unclassified and classified requirements prior to the 35% design review.

1.3 ENVIRONMENTAL REQUIREMENTS

Connecting hardware shall be rated for operation under ambient conditions of 0 to 60 degrees C (32 to 140 degrees F) and in the range of 0 to 95 percent relative humidity, noncondensing.

1.4 QUALIFICATIONS

1.4.1 Minimum Contractor Qualifications

All work under this section shall be performed by and all equipment shall be furnished and installed by a certified Telecommunications Contractor, hereafter referred to as the Contractor. With the exception of furnishing and installing conduit, electrical boxes, and pullwires, this work shall not be done by the Electrical Contractor. The Contractor shall have the following qualifications in Telecommunications Systems installation:

a. Contractor shall have a minimum of 3 years experience in the application, installation and testing of the specified systems and equipment.

b. All supervisors and installers assigned to the installation of this system or any of its components shall have factory certification from each equipment manufacturer that they are qualified to install and test the provided products. General electrical trade staff (electricians) shall not be used for the installation of the premises distribution system cables and associated hardware.

c. All installers assigned to the installation of this system or any of its components shall have a minimum of 3 years experience in the installation of the specified copper and fiber optic cable and components.

1.4.2 Minimum Manufacturer Qualifications

The equipment and hardware provided under this contract will be from manufacturers that have a minimum of 3 years experience in producing the types of systems and equipment specified.

1.5 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01331 SUBMITTAL PROCEDURES:

SD-01 Data

SD-04 Drawings

Premises Distribution System; GA.

Detail drawings including a complete list of equipment and material. Detail drawings shall contain complete wiring and schematic diagrams and other details required to demonstrate that the system has been coordinated and will function properly as a system. Drawings shall include vertical riser diagrams, equipment rack details, elevation drawings of telecommunications closet walls, outlet face plate details for all outlet configurations, sizes and types of all cables, conduits, and cable trays. Drawings shall show proposed layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the work including clearance for maintenance and operation.

Record Drawings; GA.

Record drawings for the installed wiring system infrastructure per EIA ANSI/TIA/EIA-606. The drawings shall show the location of all cable terminations and location and routing of all backbone and horizontal cables. The identifier for each termination and cable shall appear on the drawings.

SD-06 Instructions

Manufacturer's Recommendations; GA.

Where installation procedures, or any part thereof, are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations, prior to installation shall be provided. Installation of the item will not be allowed to proceed until the recommendations are received and approved.

SD-08 Statements

Test Plan; GA.

Test plan defining the tests required to ensure that the system meets technical, operational and performance specifications, 30 days prior to the proposed test date. The test plan must be approved before the start of any testing. The test plan shall identify the capabilities and functions to be tested, and include detailed instructions for the setup and execution of each test and procedures for evaluation and documentation of the results.

Qualifications; GA.

The qualifications of the Manufacturer, Contractor, and the Installer to perform the work specified herein. This shall include proof of the minimum qualifications specified herein.

SD-09 Reports

Test Reports.

Test reports in booklet form with witness signatures verifying execution of tests. Test results will also be provided on 89 mm 3-1/2 inch diskettes in Excel format. Reports shall show the field tests performed to verify compliance with the specified performance criteria. Test reports shall include record of the physical parameters verified during testing. Test reports shall be submitted within 7 days after completion of testing.

SD-13 Certificates

Premises Distribution System.

Written certification that the premises distribution system complies with the EIA ANSI/TIA/EIA-568-A, EIA ANSI/TIA/EIA-569, and EIA ANSI/TIA/EIA-606 standards.

Materials and Equipment.

Where materials or equipment are specified to conform, be constructed or tested to meet specific requirements, certification that the items provided conform to such requirements. Certification by a nationally recognized testing laboratory that a representative sample has been tested to meet the requirements, or a published catalog specification statement to the effect that the item meets the referenced standard, will be acceptable as evidence that the item conforms. Compliance with these requirements does not relieve the Contractor from compliance with other requirements of the specifications.

Installers; GA.

The Contractor shall submit certification that all the installers are factory certified to install and test the provided products.

SD-18 Records

Record Keeping and Documentation; GA.

Documentation on cables and termination hardware in accordance with EIA ANSI/TIA/EIA-606.

1.6 DELIVERY AND STORAGE

Equipment delivered and placed in storage shall be stored with protection from the weather, humidity and temperature variation, dirt and dust or other contaminants.

1.7 OPERATION AND MAINTENANCE MANUALS

Commercial off the shelf manuals shall be furnished for operation, installation, configuration, and maintenance for all products provided as a part of the premises distribution system. Specification sheets for all cable, connectors, and other equipment shall be provided.

1.8 RECORD KEEPING AND DOCUMENTATION

1.8.1 Cables

A record of all installed cable shall be provided in hard copy format and on electronic media using Windows based computer cable management software per EIA ANSI/TIA/EIA-606. A licensed copy of the cable management software including documentation, shall be provided. The cable records shall include the required data fields for each cable and complete end-to-end circuit report for each complete circuit from the assigned outlet to the entry facility per EIA ANSI/TIA/EIA-606.

1.8.2 Termination Hardware

A record of all installed patch panels and outlets shall be provided in hard copy format and on electronic media using Windows based computer cable management software per EIA ANSI/TIA/EIA-606. A licensed copy of the cable management software including documentation, shall be provided. The hardware records shall include only the required data fields per EIA ANSI/TIA/EIA-606.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products and shall be the manufacturer's latest standard design that has been in satisfactory use for at least 1 year prior to installation. Materials and equipment shall conform to the respective publications and other requirements specified below and to the applicable requirements of NFPA 70.

2.2 UNSHIELDED TWISTED PAIR CABLE SYSTEM

2.2.1 Cable Insulation

For each individual Category 5 cable, the insulation, material used on each pair shall be exactly the same in all physical, electrical, and chemical respects. The use of Teflon insulated, plenum rated Category 5 cable is acceptable for both plenum and non-plenum applications. If Teflon insulated plenum rated cable is used by the Contractor, it shall be Type 4x0, where all four pairs are Teflon insulated. Type 3x1 and 2x2 are not acceptable.

2.2.2 Riser Cable

Riser cable shall meet the requirements of ICEA S-80-576 and EIA ANSI/TIA/EIA-568-A for Category 3 100-ohm unshielded twisted pair cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Conductors shall be solid untinned copper 24 AWG. Cable shall be rated CMR per NFPA 70.

2.2.3 Horizontal Cable

Horizontal cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A for Category 5 horizontal cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Conductors shall be solid untinned copper 24 AWG. Cable shall be rated CMG per NFPA 70.

2.2.4 Connecting Hardware

Connecting and cross-connecting hardware shall be the same category as the cable it serves. Hardware shall be in accordance with and EIA ANSI/TIA/EIA-568-A.

2.2.4.1 Telecommunications Outlets

Wall and desk outlet plates shall come equipped with two modular jacks, with the top or left jack labeled "voice" and the bottom or right jack labeled "data" and two fiber optic ST type connectors with the top or left connector labeled "A" and the bottom or right connector labeled "B". Modular jacks shall be the same category as the cable they terminate and shall meet the requirements of EIA ANSI/TIA/EIA-568-A. Modular jack pin/pair configuration shall be T568A per EIA ANSI/TIA/EIA-568-A. Faceplates shall be provided and shall be ivory in color, impact resistant plastic. Mounting plates shall be provided for system furniture and shall match the system furniture in color. Outlet assemblies used in the premises distribution system shall consist of modular jacks assembled into both simplex and duplex outlet assemblies in single or double gang covers as specified in this section. The modular jacks shall conform to the requirements of EIA ANSI/TIA/EIA-568-A, Category 5.

2.2.4.2 Patch Panels

Patch panels shall consist of eight-position modular jacks, with rear mounted type 110 insulation displacement connectors, arranged in rows or columns on 480 mm (19 inch) rack

mounted wall mounted panels. Jack pin/pair configuration shall be T568A T568B per EIA ANSI/TIA/EIA-568-A. Panels shall be provided with labeling space.

2.2.4.3 Patch Cords

Patch cords shall be cable assemblies consisting of flexible, twisted pair stranded wire with eight-position plugs at each end. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Patch cords shall be wired straight through; pin numbers shall be identical at each end and shall be paired to match T568A patch panel jack wiring per EIA ANSI/TIA/EIA-568-A. Patch cords shall be factory assembled.

2.2.4.4 Terminal Blocks

Terminal blocks shall be wall mounted wire termination units consisting of insulation displacement connectors mounted in plastic blocks, frames or housings. Blocks shall be type 110 which meet the requirements of EIA ANSI/TIA/EIA-568-A for category 5. Blocks shall be mounted on standoffs or wall mounted distribution frames and shall include cable management hardware. Insulation displacement connectors shall terminate 22 or 24 gauge solid copper wire as a minimum, and shall be connected in pairs so that horizontal cable and connected jumper wires are on separate connected terminals.

2.3 SHIELDED TWISTED PAIR CABLE SYSTEM

2.3.1 Backbone Cable

Backbone cable shall meet the requirements of IBM GA27-3773-0 for 150 ohm Shielded Twisted Pair Cable and shall meet or exceed IBM performance requirements for Type 1A cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Cable shall be rated CMR per NFPA 70.

2.3.2 Horizontal Cable

Horizontal cable shall meet the requirements of IBM GA27-3773-0 for 150 ohm Shielded Twisted Pair Cable and shall meet or exceed IBM performance requirements for Type 1A cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Cable shall be rated CMG per NFPA 70.

2.3.3 Connecting Hardware

2.3.3.1 Connectors

Connectors for shielded twisted pair cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A for media interface connectors and IBM GA27-3773-0 for Type 1A data connectors. Connectors shall be of hermaphroditic design and shall be utilized for outlets and patch panel

terminations. Outlet faceplates shall be provided and shall be ivory in color, impact resistant plastic, single gang. Mounting plates shall be provided for systems furniture and shall match the systems furniture in color.

2.3.3.2 Patch Panels

Patch panels shall be 480 mm (19 inch) rack mounted or wall mounted panels with openings for shielded twisted pair connectors. Panels shall be metallic and shall ground the outer shield of the cable. Patch panels shall provide strain relief for cables. Panels shall be provided with labeling space.

2.3.3.3 Patch Cords

Patch cords shall be cable assemblies consisting of flexible shielded twisted pair cable with shielded twisted pair type connectors at each end. Cable shall meet the requirements of IBM GA27-3773-0 for 150 ohm Shielded Twisted Pair Cable and shall meet or exceed performance requirements for Type 6A patch panel data cable. Connectors shall meet or exceed the requirements of EIA ANSI/TIA/EIA-568-A for media interface connectors. Patch cords shall be factory assembled.

2.4 COAXIAL CABLE SYSTEM

2.4.1 Backbone Cable

Backbone cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A 10BASE5 for coaxial cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Cable shall be rated CMR per NFPA 70. Cable shall have band markings every 2.5 meters for transceiver tap placement.

2.4.2 Horizontal Cable

Horizontal cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A10BASE2 for coaxial cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Cable shall be rated CMG per NFPA 70.

2.4.3 Connecting Hardware

2.4.3.1 Connectors

Connectors shall meet the requirements of EIA ANSI/TIA/EIA-568-A or 10BASE2 for coaxial cable connectors, as required for the service. Connectors for station cable shall be BNC male. Station cable faceplates shall be provided and shall be ivory in color, impact resistant plastic, single gang, with double-sided female BNC coupler. Mounting plates shall be provided for system furniture and shall match the furniture system in color.

2.4.3.2 Patch Panels

Patch panels shall be 480 mm (19 inch) rack mounted or wall mounted panels. Connectors shall be double-sided BNC female, feedthrough type. Connector mounting surface shall ground the connector shields. BNC feedthrough connectors shall meet the requirements of EIA ANSI/TIA/EIA-568-A 10BASE2 for coaxial cable connectors. Panels shall be provided with labeling space.

2.4.3.3 Patch Cords

Patch cords shall be cable assemblies consisting of flexible coaxial cable with BNC male connectors at each end. Cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A 10BASE2 for coaxial cable. Connectors shall meet the requirements of EIA ANSI/TIA/EIA-568-A 10BASE2 for coaxial cable connectors.

2.5 FIBER OPTIC CABLE SYSTEM

2.5.1 Backbone Cable

2.5.1.1 Multimode

Multimode fiber optic backbone cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A and ICEA S-83-596 for 62.5/125 micrometer multimode graded index optical fiber cable. Numerical aperture for each fiber shall be a minimum of 0.275. Cable construction shall be tight buffered type. Individual fibers shall be color coded for identification. Cable shall be imprinted with fiber count and aggregate length at regular intervals. Cable shall be rated OFNR per NFPA 70.

2.5.1.2 Singlemode

Singlemode fiber optic backbone cable shall meet the requirements of ICEA S-83-596 and the following: operation at a center wavelength of 1310 nm; core/cladding diameter 8.3 nominal/125 micrometer; maximum attenuation 2.0 dB/km at 1300 nm, 1.75 dB/km at 1550 nm. Numerical aperture for each fiber shall be a minimum of 0.10. Cable construction shall be tight buffered type. Cable shall be imprinted with fiber count and aggregate length at regular intervals. Individual fibers shall be color coded for identification. Cable shall be rated OFNR per NFPA 70.

2.5.2 Horizontal Distribution Cable

2.5.2.1 Multimode

Multimode fiber optic horizontal cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A and ICEA S-83-596 for 62.5/125 micrometer multimode graded index optical fiber cable. Numerical aperture for each fiber shall be a minimum of 0.275. Cable construction shall be tight buffered type, two strands. Individual fibers shall be color coded for identification. Cable shall be imprinted with fiber count, fiber type, and aggregate length at regular intervals of 1.0 m. Cable shall be rated and marked OFNG per NFPA 70.

2.5.2.2 Singlemode

Singlemode fiber optic horizontal cable shall meet the requirements of ICEA S-83-596 and the following: operation at a center wavelength of 1310 nm; core/cladding diameter 8.3 nominal/125 micrometer; maximum attenuation 2.0 dB/km at 1300 nm, 1.75 dB/km at 1550 nm. Numerical aperture for each fiber shall be a minimum of 0.10. Cable construction shall be tight buffered type, two strands. Individual fibers shall be color coded for identification. Cable shall be imprinted with fiber count, fiber type, and aggregate length at regular intervals of 1.0 m. Cable shall be rated and marked OFNG per NFPA 70.

2.5.3 Connecting Hardware

2.5.3.1 Connectors

Connectors shall be ST type with ceramic ferrule material with a maximum insertion loss of .5 dB. Connectors shall meet performance requirements of EIA ANSI/TIA/EIA-568-A. Connectors shall be field installable. Connectors shall utilize adhesive for fiber attachment to ferrule. Connectors shall terminate fiber sizes as required for the service. Station cable faceplates shall be provided and shall be ivory in color, impact resistant plastic, double gang, with double-sided female ST coupler. Mounting plates shall be provided for system furniture and shall match the furniture system in color.

2.5.3.2 Patch Panels

Patch panels shall be a complete system of components by a single manufacturer, and shall provide termination, splice storage, routing, radius limiting, cable fastening, storage, and cross-connection. Patch panels shall be 480 mm (19 inch) rack mounted or wall mounted panels. Patch panels shall provide strain relief for cables. Panels shall be provided with labeling space. Patch panel connectors and couplers shall be the same type and configuration as used elsewhere in the system.

2.5.3.3 Patch Cords

Patch cords shall be cable assemblies consisting of flexible optical fiber cable with connectors of the same type as used elsewhere in the system. Optical fiber shall be the same type as used elsewhere in the system. Patch cords shall be complete assemblies from manufacturer's standard product lines.

2.6 EQUIPMENT RACKS

2.6.1 Floor Mounted Open Frame

Floor mounted equipment racks shall be aluminum relay racks with uprights to mount equipment 480 mm (19 inches) wide. Uprights shall be 75 mm 3 inch deep channel, 32 mm 1-1/4 inches wide, drilled and tapped 12-24 in a 13 mm 1/2 inch pattern. Racks shall be provided with a standard top crossmember, and predrilled base plate to allow floor fastening. Open

frame equipment racks shall be 2.1 m 7 feet in height and painted gray. AC outlets shall be provided as shown.

2.6.2 Wall Mounted Open Frame

Wall mounted open frame equipment racks shall be steel distribution frames to mount equipment 480 mm (19 inches) wide with standoff brackets for wall mounting. Uprights shall be drilled and tapped 12-24 in a 13 mm 1/2 inch pattern. Standoff brackets shall be of sufficient length for a 150 mm 6 inch clearance between rack and wall. Wall mounted open frame racks shall be hinged. AC outlets may be provided as shown.

2.6.3 Cable Guides

Cable guides shall be specifically manufactured for the purpose of routing cables, wires and patch cords horizontally and vertically on 480 mm (19 inch) equipment racks. Cable guides shall consist of ring or bracket-like devices mounted on rack panels for horizontal use or individually mounted for vertical use. Cable guides shall mount to racks by screws and/or nuts and lockwashers.

2.6.4 Floor Mounted Cabinets

Equipment cabinets shall be floor mounted enclosures with side panels, acrylic plastic front doors, rear louvered metal doors, depth-adjustable front and rear mounting rails, and louvered top. Ventilation fans will be included. Vertical cable management devices shall be integral to the cabinet. Power strips with 6 outlets shall be provided within the cabinet. Equipment racks shall mount equipment 480 mm (19 inches) wide and shall be 1828 mm (72 inches) high and 760 mm (30 inches) deep. Cabinet exteriors shall be painted blue.

2.6.5 Wall Mounted Cabinets

Wall mounted cabinets shall conform to UL 50 and have boxes constructed of zinc-coated sheet steel with dimensions not less than shown on drawings. Trim shall be fitted with hinged door and flush catch. Doors shall provide maximum openings to the box interiors. Boxes shall be provided with 19 mm 3/4 inch plywood backboard painted white or a light color. A duplex AC outlet shall be installed within the cabinet.

2.7 EQUIPMENT MOUNTING BACKBOARD

Plywood backboards shall be provided, sized as shown, painted with white or light colored paint.

2.8 TELECOMMUNICATIONS OUTLET BOXES

Electrical boxes for telecommunication outlets shall be 117 mm 4-11/16 inch square by 53 mm 2-1/8 inches deep with minimum 9 mm 3/8 inch deep single or two gang plaster ring as shown. Provide a minimum 25 mm 1 inch conduit.

PART 3 EXECUTION

3.1 INSTALLATION

System components and appurtenances shall be installed in accordance with NFPA 70, manufacturer's instructions and as shown. Necessary interconnections, services, and adjustments required for a complete and operable signal distribution system shall be provided. Components shall be labeled in accordance with EIA ANSI/TIA/EIA-606. Penetrations in fire-rated construction shall be firestopped in accordance with Section 07000. Conduits, outlets and raceways shall be installed in accordance with Section 16000 ELECTRICAL WORK. Wiring shall be installed in accordance with EIA ANSI/TIA/EIA-568-A and as specified in Section 16000 ELECTRICAL WORK.. Wiring, and terminal blocks and outlets shall be marked in accordance with EIA ANSI/TIA/EIA-606. Cables shall not be installed in the same cable tray, utility pole compartment, or floor trench compartment with ac power cables. Cables not installed in conduit or wireways shall be properly secured and neat in appearance and, if installed in plenums or other spaces used for environmental air, shall comply with NFPA 70 requirements for this type of installation.

3.1.1 Horizontal Distribution Cable

The rated cable pulling tension shall not be exceeded. Cable shall not be stressed such that twisting, stretching or kinking occurs. Cable shall not be spliced. Fiber optic cables shall be installed either in conduit or through type cable trays to prevent microbending losses. Copper cable not in a wireway shall be suspended a minimum of 200 mm 8 inches above ceilings by cable supports no greater than 1.5 m 60 inches apart. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items. Placement of cable parallel to power conductors shall be avoided, if possible; a minimum separation of 300 mm (12 inches) shall be maintained when such placement cannot be avoided. Cables shall be terminated; no cable shall contain unterminated elements. Minimum bending radius shall not be exceeded during installation or once installed. Cable ties shall not be excessively tightened such that the transmission characteristics of the cable are altered. In raised floor areas, cable shall be installed after the flooring system has been installed. Cable 1.8 meters 6 feet long shall be neatly coiled not less than 300 mm 12 inches in diameter below each feed point in raised floor areas.

3.1.2 Riser and Backbone Cable

Vertical cable support intervals shall be in accordance with manufacturer's recommendations. Cable bend radius shall not be less than ten times the outside diameter of the cable during installation and once installed. Maximum tensile strength rating of the cable shall not be exceeded. Cable shall not be spliced.

3.1.3 Telecommunications Outlets

3.1.3.1 Faceplates

As a minimum each jack shall be labeled as to its function and a unique number to identify cable link.

3.1.3.2 Cables

Unshielded twisted pair and fiber optic cables shall have a minimum of 150 mm 6 inches of slack cable loosely coiled into the telecommunications outlet boxes. Minimum manufacturers bend radius for each type of cable shall not be exceeded.

3.1.3.3 Pull Cords

Pull cords shall be installed in all conduit serving telecommunications outlets which do not initially have fiber optic cable installed.

3.1.4 Terminal Blocks

Terminal blocks shall be mounted in orderly rows and columns. Adequate vertical and horizontal wire routing areas shall be provided between groups of blocks. Industry standard wire routing guides shall be utilized.

3.1.5 Unshielded Twisted Pair Patch Panels

Patch panels shall be mounted in equipment racks with sufficient modular jacks to accommodate the installed cable plant plus 10 percent spares. Cable guides shall be provided above, below and between each panel.

3.1.6 Fiber Optic Patch Panels

Patch panels shall be mounted in equipment racks with sufficient ports to accommodate the installed cable plant plus 10 percent spares. A slack loop of fiber shall be provided within each panel. Loop shall be 900 mm 3 feet in length or provided as recommended by the manufacturer. The outer jacket of each cable entering a patch panel shall be secured to the panel to prevent movement of the fibers within the panel, using clamps or brackets specifically manufactured for that purpose.

3.1.7 Equipment Racks

Open frame equipment racks shall be bolted to the floor or floor slab. Cable guides shall be bolted or screwed to racks. Racks shall be installed level. Ganged racks shall be bolted together. Ganged rack cabinets shall have adjacent side panels removed. Wall mounted racks shall be secured to the mounting surface to prevent fully loaded racks from separating from the mounting surface.

3.1.8 Rack Mounted Equipment

Equipment to be rack mounted shall be securely fastened to racks by means of the manufacturer's recommended fasteners.

3.2 TERMINATION

Cables and conductors shall sweep into termination areas; cables and conductors shall not bend at right angles. Manufacturer's minimum bending radius shall not be exceeded. When there are multiple system type drops to individual workstations, relative position for each system shall be maintained on each system termination block or patch panel.

3.2.1 Unshielded Twisted Pair Cable

Each pair shall be terminated on appropriate outlets, terminal blocks or patch panels. No cable shall be unterminated or contain unterminated elements. Pairs shall remain twisted together to within the proper distance from the termination as specified in EIA ANSI/TIA/EIA-568-A. Conductors shall not be damaged when removing insulation. Wire insulation shall not be damaged when removing outer jacket.

3.2.2 Shielded Twisted Pair Cable

Each cable shall be terminated on panel-mounted connectors. Cables shall be grounded at patch panels using manufacturer's recommended methods. Shield braid shall be continuous to connector braid terminator. Wire insulation shall not be damaged when removing shield.

3.2.3 Coaxial Cable

Home run type station cables shall be terminated at each end. Backbone cables shall be terminated with appropriate connectors or end-of-line terminators as required. Loop-type cable systems shall be terminated with appropriate drop connectors and terminators as required. Backbone cable shield conductor shall be grounded to communications ground at only one point and shall not make electrical contact with ground anywhere else.

3.2.4 Fiber Optic Cable

Each fiber shall have connectors installed. The pull strength between the connector and the attached fiber shall be not less than 11.3 kg. 25 pounds. The mated pair loss, without rotational optimization, shall not exceed 1.0 dB. Fiber optic connectors shall be installed per EIA ANSI/TIA/EIA-568-A.

3.3 GROUNDING

Signal distribution system ground shall be installed in the telecommunications entrance facility and in each telecommunications closet in accordance with EIA ANSI/TIA/EIA-607 and Section 16415 ELECTRICAL WORK, INTERIOR. Equipment racks shall be connected to the electrical safety ground.

3.4 ADDITIONAL MATERIALS

The Contractor shall provide the following additional materials required for facility startup.

a. 10 of each type outlet.

b. 10 of each type cover plate.

c. 1 of each type terminal block for each telecommunications closet.

d. 4 Patch cords of 3 m 10 feet for each telecommunications closet.

e. 1 Set of any and all special tools required to establish a cross connect and to change and/or maintain a terminal block.

3.5 ADMINISTRATION AND LABELING

3.5.1 Labeling

3.5.1.1 Labels

All labels shall be in accordance with EIA ANSI/TIA/EIA-606.

3.5.1.2 Cable

All cables will be labeled using color labels on both ends with encoded unencoded identifiers per EIA ANSI/TIA/EIA-606.

3.5.1.3 Termination Hardware

All workstation outlets and patch panel connections will be labeled using color coded labels with encoded identifiers per EIA ANSI/TIA/EIA-606.

3.6 TESTING

Materials and documentation to be furnished under this specification are subject to inspections and tests. All components shall be terminated prior to testing. Equipment and systems will not be accepted until the required inspections and tests have been made, demonstrating that the signal distribution system conforms to the specified requirements, and that the required equipment, systems, and documentation have been provided.

3.6.1 Unshielded Twisted Pair Tests

All metallic cable pairs shall be tested for proper identification and continuity. All opens, shorts, crosses, grounds, and reversals shall be corrected. Correct color coding and termination of each pair shall be verified in the communications closet and at the outlet. Horizontal wiring shall be tested from and including the termination device in the communications closet to and including the modular jack in each room. Backbone wiring shall be tested end-to-end, including termination devices, from terminal block to terminal block, in the respective communications closets. These test shall be completed and all errors corrected before any other tests are started.

3.6.2 Category 3 and Category 5 Circuits

All category 5 circuits shall be tested using a test set that meets the Class II accuracy requirements of EIA TSB 67 standard. Testing shall use the Basic Link Test procedure of EIA TSB 67. If more than 5 percent of the category 3 circuits tested fail, then all category 3 circuits shall be tested. Cables which contain failed circuits shall be replaced and retested to verify the standard is met.

3.6.3 Shielded Twisted Pair

Wiring configuration shall be tested for continuity, opens, shorts, swaps and correct pin configuration; dc resistance both pair-to-pair and wire-to-shield shall be verified. Cable lengths shall be verified. Near end crosstalk shall be tested from 772 kHz to 300 MHz. Ground potential difference between wiring closets, ground potential difference between patch panel and wall outlet, and ground path resistance shall be tested per IBM GA27-3361-07.

3.6.4 Coaxial Cable

Cable shall be tested for continuity, shorts and opens. Characteristic impedance shall be verified over the range of intended operation. Cable length shall be verified. Cable shall be sweep tested for attenuation over the range of intended operation.

3.6.5 Fiber Optic Cable

Unless stated otherwise, tests shall be performed from both ends of each circuit. Connectors shall be visually inspected for scratches, pits or chips and shall be reterminated if any of these conditions exist. Each circuit leg and complete circuit shall be tested for insertion loss at 1310 and 1550 nm using a light source similar to that used for the intended communications equipment. High-resolution optical time domain reflectometer (OTDR) tests shall be performed from one end of each fiber. Scale of the OTDR trace shall be such that the entire circuit appears over a minimum of 80 percent of the X-axis.

3.7 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.7.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.7.2 List of CEGS Guide Specifications:

16710* Premises Distribution System

-- End of Section --

SECTION 16710

PREMISES DISTRIBUTION SYSTEM

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ELECTRONIC INDUSTRIES ASSOCIATION (EIA)

EIA ANSI/TIA/EIA-568-A	(1995) Commercial Building Telecommunications Cabling Standard
EIA ANSI/TIA/EIA-569	(1996) Commercial Building Standard for Telecommunications Pathways and Spaces
EIA ANSI/TIA/EIA-606	(1993) Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
EIA ANSI/TIA/EIA-607	(1994) Commercial Building Grounding and Bonding Requirements for Telecommunications
EIA TSB 67	(1995) Transmission Performance Specifications for Field Testing of Unshielded Twisted Pair Cabling Systems

IBM PUBLICATION CORPORATION (IBM)

IBM GA27-3361-07	(1987) LAN Cabling System - Planning and Installation
IBM GA27-3773-0	(1987) Cabling System Technical Interface Specifications

INSULATED CABLE ENGINEERS ASSOCIATION (ICEA)

ICEA S-80-576	(1994) Communications Wire and Cable for Wiring of Premises
ICEA S-83-596	(1994) Fiber Optic Premises Distribution Cable

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(1996; Errata) National Electrical Code

UNDERWRITERS LABORATORY (UL)

UL 50	(1995; Rev thru Oct 1997) Enclosures for Electrical Equipment

1.2 SYSTEM DESCRIPTION

The premises distribution system shall consist of unclassified and classified inside-plant horizontal, riser, and backbone cables and connecting hardware to transport telephone and data (including LAN) signals between equipment items in a building.

Note: The contractor shall coordinate the premise unclassified and classified inside-plant horizontal, riser, and backbone distribution system with the Corps of Engineers, the 88th Civil Engineering and Communication Groups, the base TEMPEST officer, the base Special Security Officer (SSO), and the tase Systems Telecommunications Engineering Manager (STEM) to validate unclassified and classified requirements prior to the 35% design review.

1.3 ENVIRONMENTAL REQUIREMENTS

Connecting hardware shall be rated for operation under ambient conditions of 0 to 60 degrees C (32 to 140 degrees F) and in the range of 0 to 95 percent relative humidity, noncondensing.

1.4 QUALIFICATIONS

1.4.1 Minimum Contractor Qualifications

All work under this section shall be performed by and all equipment shall be furnished and installed by a certified Telecommunications Contractor, hereafter referred to as the Contractor. With the exception of furnishing and installing conduit, electrical boxes, and pullwires, this work shall not be done by the Electrical Contractor. The Contractor shall have the following qualifications in Telecommunications Systems installation:

a. Contractor shall have a minimum of 3 years experience in the application, installation and testing of the specified systems and equipment.

b. All supervisors and installers assigned to the installation of this system or any of its components shall have factory certification from each equipment manufacturer that they are qualified to install and test the provided products. General electrical trade staff (electricians) shall not be used for the installation of the premises distribution system cables and associated hardware.

c. All installers assigned to the installation of this system or any of its components shall have a minimum of 3 years experience in the installation of the specified copper and fiber optic cable and components.

1.4.2 Minimum Manufacturer Qualifications

The equipment and hardware provided under this contract will be from manufacturers that have a minimum of 3 years experience in producing the types of systems and equipment specified.

1.5 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01331 SUBMITTAL PROCEDURES:

SD-01 Data

SD-04 Drawings

Premises Distribution System; GA.

Detail drawings including a complete list of equipment and material. Detail drawings shall contain complete wiring and schematic diagrams and other details required to demonstrate that the system has been coordinated and will function properly as a system. Drawings shall include vertical riser diagrams, equipment rack details, elevation drawings of telecommunications closet walls, outlet face plate details for all outlet configurations, sizes and types of all cables, conduits, and cable trays. Drawings shall show proposed layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the work including clearance for maintenance and operation.

Record Drawings; GA.

Record drawings for the installed wiring system infrastructure per EIA ANSI/TIA/EIA-606. The drawings shall show the location of all cable terminations and location and routing of all backbone and horizontal cables. The identifier for each termination and cable shall appear on the drawings.

SD-06 Instructions

Manufacturer's Recommendations; GA.

Where installation procedures, or any part thereof, are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations, prior to installation shall be provided. Installation of the item will not be allowed to proceed until the recommendations are received and approved.

SD-08 Statements

Test Plan; GA.

Test plan defining the tests required to ensure that the system meets technical, operational and performance specifications, 30 days prior to the proposed test date. The test plan must be approved before the start of any testing. The test plan shall identify the capabilities and functions to be tested, and include detailed instructions for the setup and execution of each test and procedures for evaluation and documentation of the results.

Qualifications; GA.

The qualifications of the Manufacturer, Contractor, and the Installer to perform the work specified herein. This shall include proof of the minimum qualifications specified herein.

SD-09 Reports

Test Reports.

Test reports in booklet form with witness signatures verifying execution of tests. Test results will also be provided on 89 mm 3-1/2 inch diskettes in Excel format. Reports shall show the field tests performed to verify compliance with the specified performance criteria. Test reports shall include record of the physical parameters verified during testing. Test reports shall be submitted within 7 days after completion of testing.

SD-13 Certificates

Premises Distribution System.

Written certification that the premises distribution system complies with the EIA ANSI/TIA/EIA-568-A, EIA ANSI/TIA/EIA-569, and EIA ANSI/TIA/EIA-606 standards.

Materials and Equipment.

Where materials or equipment are specified to conform, be constructed or tested to meet specific requirements, certification that the items provided conform to such requirements. Certification by a nationally recognized testing laboratory that a representative sample has been tested to meet the requirements, or a published catalog specification statement to the effect that the item meets the referenced standard, will be acceptable as evidence that the item conforms. Compliance with these requirements does not relieve the Contractor from compliance with other requirements of the specifications.

Installers; GA.

The Contractor shall submit certification that all the installers are factory certified to install and test the provided products.

SD-18 Records

Record Keeping and Documentation; GA.

Documentation on cables and termination hardware in accordance with EIA ANSI/TIA/EIA-606.

1.6 DELIVERY AND STORAGE

Equipment delivered and placed in storage shall be stored with protection from the weather, humidity and temperature variation, dirt and dust or other contaminants.

1.7 OPERATION AND MAINTENANCE MANUALS

Commercial off the shelf manuals shall be furnished for operation, installation, configuration, and maintenance for all products provided as a part of the premises distribution system. Specification sheets for all cable, connectors, and other equipment shall be provided.

1.8 RECORD KEEPING AND DOCUMENTATION

1.8.1 Cables

A record of all installed cable shall be provided in hard copy format and on electronic media using Windows based computer cable management software per EIA ANSI/TIA/EIA-606. A licensed copy of the cable management software including documentation, shall be provided. The cable records shall include the required data fields for each cable and complete end-to-end circuit report for each complete circuit from the assigned outlet to the entry facility per EIA ANSI/TIA/EIA-606.

1.8.2 Termination Hardware

A record of all installed patch panels and outlets shall be provided in hard copy format and on electronic media using Windows based computer cable management software per EIA ANSI/TIA/EIA-606. A licensed copy of the cable management software including documentation, shall be provided. The hardware records shall include only the required data fields per EIA ANSI/TIA/EIA-606.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products and shall be the manufacturer's latest standard design that has been in satisfactory use for at least 1 year prior to installation. Materials and equipment shall conform to the respective publications and other requirements specified below and to the applicable requirements of NFPA 70.

2.2 UNSHIELDED TWISTED PAIR CABLE SYSTEM

2.2.1 Cable Insulation

For each individual Category 5 cable, the insulation, material used on each pair shall be exactly the same in all physical, electrical, and chemical respects. The use of Teflon insulated, plenum rated Category 5 cable is acceptable for both plenum and non-plenum applications. If Teflon insulated plenum rated cable is used by the Contractor, it shall be Type 4x0, where all four pairs are Teflon insulated. Type 3x1 and 2x2 are not acceptable.

2.2.2 Riser Cable

Riser cable shall meet the requirements of ICEA S-80-576 and EIA ANSI/TIA/EIA-568-A for Category 3 100-ohm unshielded twisted pair cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Conductors shall be solid untinned copper 24 AWG. Cable shall be rated CMR per NFPA 70.

2.2.3 Horizontal Cable

Horizontal cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A for Category 5 horizontal cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Conductors shall be solid untinned copper 24 AWG. Cable shall be rated CMG per NFPA 70.

2.2.4 Connecting Hardware

Connecting and cross-connecting hardware shall be the same category as the cable it serves. Hardware shall be in accordance with and EIA ANSI/TIA/EIA-568-A.

2.2.4.1 Telecommunications Outlets

Wall and desk outlet plates shall come equipped with two modular jacks, with the top or left jack labeled "voice" and the bottom or right jack labeled "data" and two fiber optic ST type connectors with the top or left connector labeled "A" and the bottom or right connector labeled "B". Modular jacks shall be the same category as the cable they terminate and shall meet the requirements of EIA ANSI/TIA/EIA-568-A. Modular jack pin/pair configuration shall be T568A per EIA ANSI/TIA/EIA-568-A. Faceplates shall be provided and shall be ivory in color, impact resistant plastic. Mounting plates shall be provided for system furniture and shall match the system furniture in color. Outlet assemblies used in the premises distribution system shall consist of modular jacks assembled into both simplex and duplex outlet assemblies in single or double gang covers as specified in this section. The modular jacks shall conform to the requirements of EIA ANSI/TIA/EIA-568-A, Category 5.

2.2.4.2 Patch Panels

Patch panels shall consist of eight-position modular jacks, with rear mounted type 110 insulation displacement connectors, arranged in rows or columns on 480 mm (19 inch) rack

mounted wall mounted panels. Jack pin/pair configuration shall be T568A T568B per EIA ANSI/TIA/EIA-568-A. Panels shall be provided with labeling space.

2.2.4.3 Patch Cords

Patch cords shall be cable assemblies consisting of flexible, twisted pair stranded wire with eight-position plugs at each end. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Patch cords shall be wired straight through; pin numbers shall be identical at each end and shall be paired to match T568A patch panel jack wiring per EIA ANSI/TIA/EIA-568-A. Patch cords shall be factory assembled.

2.2.4.4 Terminal Blocks

Terminal blocks shall be wall mounted wire termination units consisting of insulation displacement connectors mounted in plastic blocks, frames or housings. Blocks shall be type 110 which meet the requirements of EIA ANSI/TIA/EIA-568-A for category 5. Blocks shall be mounted on standoffs or wall mounted distribution frames and shall include cable management hardware. Insulation displacement connectors shall terminate 22 or 24 gauge solid copper wire as a minimum, and shall be connected in pairs so that horizontal cable and connected jumper wires are on separate connected terminals.

2.3 SHIELDED TWISTED PAIR CABLE SYSTEM

2.3.1 Backbone Cable

Backbone cable shall meet the requirements of IBM GA27-3773-0 for 150 ohm Shielded Twisted Pair Cable and shall meet or exceed IBM performance requirements for Type 1A cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Cable shall be rated CMR per NFPA 70.

2.3.2 Horizontal Cable

Horizontal cable shall meet the requirements of IBM GA27-3773-0 for 150 ohm Shielded Twisted Pair Cable and shall meet or exceed IBM performance requirements for Type 1A cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Cable shall be rated CMG per NFPA 70.

2.3.3 Connecting Hardware

2.3.3.1 Connectors

Connectors for shielded twisted pair cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A for media interface connectors and IBM GA27-3773-0 for Type 1A data connectors. Connectors shall be of hermaphroditic design and shall be utilized for outlets and patch panel

terminations. Outlet faceplates shall be provided and shall be ivory in color, impact resistant plastic, single gang. Mounting plates shall be provided for systems furniture and shall match the systems furniture in color.

2.3.3.2 Patch Panels

Patch panels shall be 480 mm (19 inch) rack mounted or wall mounted panels with openings for shielded twisted pair connectors. Panels shall be metallic and shall ground the outer shield of the cable. Patch panels shall provide strain relief for cables. Panels shall be provided with labeling space.

2.3.3.3 Patch Cords

Patch cords shall be cable assemblies consisting of flexible shielded twisted pair cable with shielded twisted pair type connectors at each end. Cable shall meet the requirements of IBM GA27-3773-0 for 150 ohm Shielded Twisted Pair Cable and shall meet or exceed performance requirements for Type 6A patch panel data cable. Connectors shall meet or exceed the requirements of EIA ANSI/TIA/EIA-568-A for media interface connectors. Patch cords shall be factory assembled.

2.4 COAXIAL CABLE SYSTEM

2.4.1 Backbone Cable

Backbone cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A 10BASE5 for coaxial cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Cable shall be rated CMR per NFPA 70. Cable shall have band markings every 2.5 meters for transceiver tap placement.

2.4.2 Horizontal Cable

Horizontal cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A10BASE2 for coaxial cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Cable shall be rated CMG per NFPA 70.

2.4.3 Connecting Hardware

2.4.3.1 Connectors

Connectors shall meet the requirements of EIA ANSI/TIA/EIA-568-A or 10BASE2 for coaxial cable connectors, as required for the service. Connectors for station cable shall be BNC male. Station cable faceplates shall be provided and shall be ivory in color, impact resistant plastic, single gang, with double-sided female BNC coupler. Mounting plates shall be provided for system furniture and shall match the furniture system in color.

2.4.3.2 Patch Panels

Patch panels shall be 480 mm (19 inch) rack mounted or wall mounted panels. Connectors shall be double-sided BNC female, feedthrough type. Connector mounting surface shall ground the connector shields. BNC feedthrough connectors shall meet the requirements of EIA ANSI/TIA/EIA-568-A 10BASE2 for coaxial cable connectors. Panels shall be provided with labeling space.

2.4.3.3 Patch Cords

Patch cords shall be cable assemblies consisting of flexible coaxial cable with BNC male connectors at each end. Cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A 10BASE2 for coaxial cable. Connectors shall meet the requirements of EIA ANSI/TIA/EIA-568-A 10BASE2 for coaxial cable connectors.

2.5 FIBER OPTIC CABLE SYSTEM

2.5.1 Backbone Cable

2.5.1.1 Multimode

Multimode fiber optic backbone cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A and ICEA S-83-596 for 62.5/125 micrometer multimode graded index optical fiber cable. Numerical aperture for each fiber shall be a minimum of 0.275. Cable construction shall be tight buffered type. Individual fibers shall be color coded for identification. Cable shall be imprinted with fiber count and aggregate length at regular intervals. Cable shall be rated OFNR per NFPA 70.

2.5.1.2 Singlemode

Singlemode fiber optic backbone cable shall meet the requirements of ICEA S-83-596 and the following: operation at a center wavelength of 1310 nm; core/cladding diameter 8.3 nominal/125 micrometer; maximum attenuation 2.0 dB/km at 1300 nm, 1.75 dB/km at 1550 nm. Numerical aperture for each fiber shall be a minimum of 0.10. Cable construction shall be tight buffered type. Cable shall be imprinted with fiber count and aggregate length at regular intervals. Individual fibers shall be color coded for identification. Cable shall be rated OFNR per NFPA 70.

2.5.2 Horizontal Distribution Cable

2.5.2.1 Multimode

Multimode fiber optic horizontal cable shall meet the requirements of EIA ANSI/TIA/EIA-568-A and ICEA S-83-596 for 62.5/125 micrometer multimode graded index optical fiber cable. Numerical aperture for each fiber shall be a minimum of 0.275. Cable construction shall be tight buffered type, two strands. Individual fibers shall be color coded for identification. Cable shall be imprinted with fiber count, fiber type, and aggregate length at regular intervals of 1.0 m. Cable shall be rated and marked OFNG per NFPA 70.

2.5.2.2 Singlemode

Singlemode fiber optic horizontal cable shall meet the requirements of ICEA S-83-596 and the following: operation at a center wavelength of 1310 nm; core/cladding diameter 8.3 nominal/125 micrometer; maximum attenuation 2.0 dB/km at 1300 nm, 1.75 dB/km at 1550 nm. Numerical aperture for each fiber shall be a minimum of 0.10. Cable construction shall be tight buffered type, two strands. Individual fibers shall be color coded for identification. Cable shall be imprinted with fiber count, fiber type, and aggregate length at regular intervals of 1.0 m. Cable shall be rated and marked OFNG per NFPA 70.

2.5.3 Connecting Hardware

2.5.3.1 Connectors

Connectors shall be ST type with ceramic ferrule material with a maximum insertion loss of .5 dB. Connectors shall meet performance requirements of EIA ANSI/TIA/EIA-568-A. Connectors shall be field installable. Connectors shall utilize adhesive for fiber attachment to ferrule. Connectors shall terminate fiber sizes as required for the service. Station cable faceplates shall be provided and shall be ivory in color, impact resistant plastic, double gang, with double-sided female ST coupler. Mounting plates shall be provided for system furniture and shall match the furniture system in color.

2.5.3.2 Patch Panels

Patch panels shall be a complete system of components by a single manufacturer, and shall provide termination, splice storage, routing, radius limiting, cable fastening, storage, and cross-connection. Patch panels shall be 480 mm (19 inch) rack mounted or wall mounted panels. Patch panels shall provide strain relief for cables. Panels shall be provided with labeling space. Patch panel connectors and couplers shall be the same type and configuration as used elsewhere in the system.

2.5.3.3 Patch Cords

Patch cords shall be cable assemblies consisting of flexible optical fiber cable with connectors of the same type as used elsewhere in the system. Optical fiber shall be the same type as used elsewhere in the system. Patch cords shall be complete assemblies from manufacturer's standard product lines.

2.6 EQUIPMENT RACKS

2.6.1 Floor Mounted Open Frame

Floor mounted equipment racks shall be aluminum relay racks with uprights to mount equipment 480 mm (19 inches) wide. Uprights shall be 75 mm 3 inch deep channel, 32 mm 1-1/4 inches wide, drilled and tapped 12-24 in a 13 mm 1/2 inch pattern. Racks shall be provided with a standard top crossmember, and predrilled base plate to allow floor fastening. Open

frame equipment racks shall be 2.1 m 7 feet in height and painted gray. AC outlets shall be provided as shown.

2.6.2 Wall Mounted Open Frame

Wall mounted open frame equipment racks shall be steel distribution frames to mount equipment 480 mm (19 inches) wide with standoff brackets for wall mounting. Uprights shall be drilled and tapped 12-24 in a 13 mm 1/2 inch pattern. Standoff brackets shall be of sufficient length for a 150 mm 6 inch clearance between rack and wall. Wall mounted open frame racks shall be hinged. AC outlets may be provided as shown.

2.6.3 Cable Guides

Cable guides shall be specifically manufactured for the purpose of routing cables, wires and patch cords horizontally and vertically on 480 mm (19 inch) equipment racks. Cable guides shall consist of ring or bracket-like devices mounted on rack panels for horizontal use or individually mounted for vertical use. Cable guides shall mount to racks by screws and/or nuts and lockwashers.

2.6.4 Floor Mounted Cabinets

Equipment cabinets shall be floor mounted enclosures with side panels, acrylic plastic front doors, rear louvered metal doors, depth-adjustable front and rear mounting rails, and louvered top. Ventilation fans will be included. Vertical cable management devices shall be integral to the cabinet. Power strips with 6 outlets shall be provided within the cabinet. Equipment racks shall mount equipment 480 mm (19 inches) wide and shall be 1828 mm (72 inches) high and 760 mm (30 inches) deep. Cabinet exteriors shall be painted blue.

2.6.5 Wall Mounted Cabinets

Wall mounted cabinets shall conform to UL 50 and have boxes constructed of zinc-coated sheet steel with dimensions not less than shown on drawings. Trim shall be fitted with hinged door and flush catch. Doors shall provide maximum openings to the box interiors. Boxes shall be provided with 19 mm 3/4 inch plywood backboard painted white or a light color. A duplex AC outlet shall be installed within the cabinet.

2.7 EQUIPMENT MOUNTING BACKBOARD

Plywood backboards shall be provided, sized as shown, painted with white or light colored paint.

2.8 TELECOMMUNICATIONS OUTLET BOXES

Electrical boxes for telecommunication outlets shall be 117 mm 4-11/16 inch square by 53 mm 2-1/8 inches deep with minimum 9 mm 3/8 inch deep single or two gang plaster ring as shown. Provide a minimum 25 mm 1 inch conduit.

PART 3 EXECUTION

3.1 INSTALLATION

System components and appurtenances shall be installed in accordance with NFPA 70, manufacturer's instructions and as shown. Necessary interconnections, services, and adjustments required for a complete and operable signal distribution system shall be provided. Components shall be labeled in accordance with EIA ANSI/TIA/EIA-606. Penetrations in fire-rated construction shall be firestopped in accordance with Section 07000. Conduits, outlets and raceways shall be installed in accordance with Section 16000 ELECTRICAL WORK. Wiring shall be installed in accordance with EIA ANSI/TIA/EIA-568-A and as specified in Section 16000 ELECTRICAL WORK.. Wiring, and terminal blocks and outlets shall be marked in accordance with EIA ANSI/TIA/EIA-606. Cables shall not be installed in the same cable tray, utility pole compartment, or floor trench compartment with ac power cables. Cables not installed in conduit or wireways shall be properly secured and neat in appearance and, if installed in plenums or other spaces used for environmental air, shall comply with NFPA 70 requirements for this type of installation.

3.1.1 Horizontal Distribution Cable

The rated cable pulling tension shall not be exceeded. Cable shall not be stressed such that twisting, stretching or kinking occurs. Cable shall not be spliced. Fiber optic cables shall be installed either in conduit or through type cable trays to prevent microbending losses. Copper cable not in a wireway shall be suspended a minimum of 200 mm 8 inches above ceilings by cable supports no greater than 1.5 m 60 inches apart. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items. Placement of cable parallel to power conductors shall be avoided, if possible; a minimum separation of 300 mm (12 inches) shall be maintained when such placement cannot be avoided. Cables shall be terminated; no cable shall contain unterminated elements. Minimum bending radius shall not be exceeded during installation or once installed. Cable ties shall not be excessively tightened such that the transmission characteristics of the cable are altered. In raised floor areas, cable shall be installed after the flooring system has been installed. Cable 1.8 meters 6 feet long shall be neatly coiled not less than 300 mm 12 inches in diameter below each feed point in raised floor areas.

3.1.2 Riser and Backbone Cable

Vertical cable support intervals shall be in accordance with manufacturer's recommendations. Cable bend radius shall not be less than ten times the outside diameter of the cable during installation and once installed. Maximum tensile strength rating of the cable shall not be exceeded. Cable shall not be spliced.

3.1.3 Telecommunications Outlets

3.1.3.1 Faceplates

As a minimum each jack shall be labeled as to its function and a unique number to identify cable link.

3.1.3.2 Cables

Unshielded twisted pair and fiber optic cables shall have a minimum of 150 mm 6 inches of slack cable loosely coiled into the telecommunications outlet boxes. Minimum manufacturers bend radius for each type of cable shall not be exceeded.

3.1.3.3 Pull Cords

Pull cords shall be installed in all conduit serving telecommunications outlets which do not initially have fiber optic cable installed.

3.1.4 Terminal Blocks

Terminal blocks shall be mounted in orderly rows and columns. Adequate vertical and horizontal wire routing areas shall be provided between groups of blocks. Industry standard wire routing guides shall be utilized.

3.1.5 Unshielded Twisted Pair Patch Panels

Patch panels shall be mounted in equipment racks with sufficient modular jacks to accommodate the installed cable plant plus 10 percent spares. Cable guides shall be provided above, below and between each panel.

3.1.6 Fiber Optic Patch Panels

Patch panels shall be mounted in equipment racks with sufficient ports to accommodate the installed cable plant plus 10 percent spares. A slack loop of fiber shall be provided within each panel. Loop shall be 900 mm 3 feet in length or provided as recommended by the manufacturer. The outer jacket of each cable entering a patch panel shall be secured to the panel to prevent movement of the fibers within the panel, using clamps or brackets specifically manufactured for that purpose.

3.1.7 Equipment Racks

Open frame equipment racks shall be bolted to the floor or floor slab. Cable guides shall be bolted or screwed to racks. Racks shall be installed level. Ganged racks shall be bolted together. Ganged rack cabinets shall have adjacent side panels removed. Wall mounted racks shall be secured to the mounting surface to prevent fully loaded racks from separating from the mounting surface.

3.1.8 Rack Mounted Equipment

Equipment to be rack mounted shall be securely fastened to racks by means of the manufacturer's recommended fasteners.

3.2 TERMINATION

Cables and conductors shall sweep into termination areas; cables and conductors shall not bend at right angles. Manufacturer's minimum bending radius shall not be exceeded. When there are multiple system type drops to individual workstations, relative position for each system shall be maintained on each system termination block or patch panel.

3.2.1 Unshielded Twisted Pair Cable

Each pair shall be terminated on appropriate outlets, terminal blocks or patch panels. No cable shall be unterminated or contain unterminated elements. Pairs shall remain twisted together to within the proper distance from the termination as specified in EIA ANSI/TIA/EIA-568-A. Conductors shall not be damaged when removing insulation. Wire insulation shall not be damaged when removing outer jacket.

3.2.2 Shielded Twisted Pair Cable

Each cable shall be terminated on panel-mounted connectors. Cables shall be grounded at patch panels using manufacturer's recommended methods. Shield braid shall be continuous to connector braid terminator. Wire insulation shall not be damaged when removing shield.

3.2.3 Coaxial Cable

Home run type station cables shall be terminated at each end. Backbone cables shall be terminated with appropriate connectors or end-of-line terminators as required. Loop-type cable systems shall be terminated with appropriate drop connectors and terminators as required. Backbone cable shield conductor shall be grounded to communications ground at only one point and shall not make electrical contact with ground anywhere else.

3.2.4 Fiber Optic Cable

Each fiber shall have connectors installed. The pull strength between the connector and the attached fiber shall be not less than 11.3 kg. 25 pounds. The mated pair loss, without rotational optimization, shall not exceed 1.0 dB. Fiber optic connectors shall be installed per EIA ANSI/TIA/EIA-568-A.

3.3 GROUNDING

Signal distribution system ground shall be installed in the telecommunications entrance facility and in each telecommunications closet in accordance with EIA ANSI/TIA/EIA-607 and Section 16415 ELECTRICAL WORK, INTERIOR. Equipment racks shall be connected to the electrical safety ground.

3.4 ADDITIONAL MATERIALS

The Contractor shall provide the following additional materials required for facility startup.

a. 10 of each type outlet.

b. 10 of each type cover plate.

c. 1 of each type terminal block for each telecommunications closet.

d. 4 Patch cords of 3 m 10 feet for each telecommunications closet.

e. 1 Set of any and all special tools required to establish a cross connect and to change and/or maintain a terminal block.

3.5 ADMINISTRATION AND LABELING

3.5.1 Labeling

3.5.1.1 Labels

All labels shall be in accordance with EIA ANSI/TIA/EIA-606.

3.5.1.2 Cable

All cables will be labeled using color labels on both ends with encoded unencoded identifiers per EIA ANSI/TIA/EIA-606.

3.5.1.3 Termination Hardware

All workstation outlets and patch panel connections will be labeled using color coded labels with encoded identifiers per EIA ANSI/TIA/EIA-606.

3.6 TESTING

Materials and documentation to be furnished under this specification are subject to inspections and tests. All components shall be terminated prior to testing. Equipment and systems will not be accepted until the required inspections and tests have been made, demonstrating that the signal distribution system conforms to the specified requirements, and that the required equipment, systems, and documentation have been provided.

3.6.1 Unshielded Twisted Pair Tests

All metallic cable pairs shall be tested for proper identification and continuity. All opens, shorts, crosses, grounds, and reversals shall be corrected. Correct color coding and termination of each pair shall be verified in the communications closet and at the outlet. Horizontal wiring shall be tested from and including the termination device in the communications closet to and including the modular jack in each room. Backbone wiring shall be tested end-to-end, including termination devices, from terminal block to terminal block, in the respective communications closets. These test shall be completed and all errors corrected before any other tests are started.

3.6.2 Category 3 and Category 5 Circuits

All category 5 circuits shall be tested using a test set that meets the Class II accuracy requirements of EIA TSB 67 standard. Testing shall use the Basic Link Test procedure of EIA TSB 67. If more than 5 percent of the category 3 circuits tested fail, then all category 3 circuits shall be tested. Cables which contain failed circuits shall be replaced and retested to verify the standard is met.

3.6.3 Shielded Twisted Pair

Wiring configuration shall be tested for continuity, opens, shorts, swaps and correct pin configuration; dc resistance both pair-to-pair and wire-to-shield shall be verified. Cable lengths shall be verified. Near end crosstalk shall be tested from 772 kHz to 300 MHz. Ground potential difference between wiring closets, ground potential difference between patch panel and wall outlet, and ground path resistance shall be tested per IBM GA27-3361-07.

3.6.4 Coaxial Cable

Cable shall be tested for continuity, shorts and opens. Characteristic impedance shall be verified over the range of intended operation. Cable length shall be verified. Cable shall be sweep tested for attenuation over the range of intended operation.

3.6.5 Fiber Optic Cable

Unless stated otherwise, tests shall be performed from both ends of each circuit. Connectors shall be visually inspected for scratches, pits or chips and shall be reterminated if any of these conditions exist. Each circuit leg and complete circuit shall be tested for insertion loss at 1310 and 1550 nm using a light source similar to that used for the intended communications equipment. High-resolution optical time domain reflectometer (OTDR) tests shall be performed from one end of each fiber. Scale of the OTDR trace shall be such that the entire circuit appears over a minimum of 80 percent of the X-axis.

3.7 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.7.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.7.2 List of CEGS Guide Specifications:

16710* Premises Distribution System

-- End of Section --

SECTION 16752

ELECTRONIC ENTRY CONTROL SYSTEMS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ACGIH-02	(1993) 1993-1994 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices
ANSI C2	(1993) National Electrical Safety Code
ANSI X3.64	(1979; R 1990) Additional Controls for Use with American National Standard Code for Information Interchange
ANSI X3.92	(1981; R 1987) Data Encryption Standard
ANSI X3.154	(1988) Office Machines and Supplies - Alphanumeric Machines-Keyboard Arrangement
ASTM E 84	(1994) Surface Burning Characteristics of Building Materials
21 CFR 1020	Performance Standards for Ionizing Radiation Emitting Products
47 CFR 15	Radio Frequency Devices
DOD 3235.1	(Rev H) Test & Evaluation of System Reliability Availability and Maintainability - A Primer
EIA 232-E	(1991) Interface Between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange
EIA 310-D	(1992) Cabinets, Racks, Panels, and Associated Equipment
IEEE C62.41	(1991) Surge Voltages in Low-Voltage AC Power Circuits
IEEE Std 100	(1992) IEEE Standard Dictionary of Electrical and Electronics Terms
IEEE Std 142	(1992) IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems
ISO 7810	(1985) Identification Cards - Physical Characteristics
ISO 7811/1	(1985) Identification Cards - Recording Technique - Part 1: Embossing
ISO 7811/2	(1985) Identification Cards - Recording Technique - Part 2: Magnetic Stripe
ISO 7811/3	(1985) Identification Cards - Recording Technique - Part 3: Location of Embossed Characters on ID-1 Cards

ISO 7811/4	(1985) Identification Cards - Recording Technique - Part 4: Location of Read-Only Magnetic Tracks - Tracks 1 and 2
ISO 7811/5	(1985) Identification Cards - Recording Technique - Part 5: Location of Read-Write Magnetic Track - Track 3
NEMA 250	(1991) Enclosures for Electrical Equipment (1000 Volts Maximum)
NEMA ICS 1	(1993) Industrial Controls and Systems
NFPA 70	(1993) National Electrical Code
UL 6	(1993) Rigid Metal Conduit
UL 294	(1994; Rev Jul 1994) Access Control System Units
UL 681	(1991; Rev thru Sep 1991) Installation and Classification of Mercantile and Bank Burglar-Alarm Systems
UL 796	(1993) Printed-Wiring Boards
UL 972	(1984; Rev Feb 1989) Burglary-Resisting Glazing Material
UL 1037	(1994; Rev thru Jan 1995) Antitheft Alarms and Devices
UL 1076	(1988; Rev thru Dec 1994) Proprietary Burglar Alarm Units and Systems

1.2 SYSTEM DESCRIPTION

1.2.1 General

The Contractor shall configure the electronic entry control system (EECS) as a modular, digital-computer-based as specified and as shown. All components to be compatible with the existing Base EECS and alarm system. The EECS shall provide operator interface, interaction, and dynamic real-time process manipulation, including overall system supervision, coordination and control. All computing devices, as defined in 47 CFR 15, shall be certified to comply with the requirements for Class A or Class B computing devices and labeled as set forth in 47 CFR 15. Electronic equipment shall comply with 47 CFR 15.

1.2.2 Overall System Reliability Requirements

The EECS, including all components and appurtenances, shall be configured and installed to yield a mean time between failure (MTBF), as defined in IEEE Std 100, of at least 2000 hours continuous operation. Mean time between failure shall be calculated based on the configuration specified in paragraph "Overall System Reliability Calculations".

1.2.3 Alarm Classifications

Definitions and requirements apply to EECS and equipment.

1.2.3.1 Intrusion Alarm

The annunciation of an alarm by the EECS when entry into an access controlled area is attempted without using EECS procedures.

1.2.3.2 Nuisance Alarm

The annunciation of an alarm resulting from the detection of an alarm stimuli, but which does not represent an attempt to intrude into the protected area.

1.2.3.3 Environmental Alarm

The annunciation of a false alarm during environmental conditions which exceed those specified.

1.2.3.4 False Alarm

The annunciation of any alarm when there is no alarm stimulus.

1.2.3.5 Duress Alarm

The EECS shall provide a duress alarm. A duress alarm shall be annunciated when entering a special code into a keypad or by activating a panic switch. This alarm category shall take precedence over other alarm categories.

1.2.3.6 Guard Tour Alarm

The EECS shall provide a guard tour alarm. This shall be a special alarm that is annunciated at the console if a guard is either early or late at a specified check-in location.

1.2.3.7 Fail-Safe Alarm

The EECS shall include a fail-safe capability in its critical system functions. The EECS shall monitor for proper system functions and report an alarm when a failure is detected. This shall include, but not be limited to, the monitoring of communication circuit integrity and providing self-test. When diminished functional capabilities are detected, the system shall annunciate the fault.

1.2.3.8 Power Loss Alarm

The EECS shall detect and annunciate an alarm when system components experience loss of power exceeding 2 seconds. The alarm shall identify the zone experiencing the power loss. Circuitry shall be designed to fail to an alarm condition with the loss of power.

1.2.3.9 Access Control Alarm

An access control alarm shall be annunciated when the EECS detects improper use of EECS procedures or equipment.

1.2.4 Integrated System Performance Requirements

The installed and operating EECS shall perform as a complete and integrated system as specified.

1.2.4.1 False Alarm Rate

A false alarm rate of less than 1 false alarm per zone per 5 days shall be provided.

1.2.4.2 Error and Throughput Rates

Error rates shall be single portal performance rates obtained when processing individuals one at a time. If serial verification techniques or multiple attempts are required to satisfy error performance requirements, these features shall not reduce throughput.

1.2.4.3 Type I Error Rate

A Type I error means that the system denies access to an authorized, enrolled individual. The EECS Type I error rate shall be less than 1 percent.

1.2.4.4 Type II Error Rate

A Type II error means that the system grants access to an unauthorized individual. The EECS Type II error rate shall be less than [0.001] percent.

1.2.5 Definition of Passage

Passage shall be defined as ingress or egress past an entry control device, or through a portal. Entry control procedures and equipment shall be implemented for passage through each portal as shown.

1.2.6 Detection Resolution

The system shall have detection resolution sufficient to:

a. Locate intrusions at each device and zone.

b. Locate failures or tampering at individual devices.

1.2.7 Electrical Requirements

Electrically powered EECS equipment shall operate on 120 volt [60] Hz AC sources as shown. Equipment shall be able to tolerate variations in the voltage source of plus or minus 10 percent, and variations in the line frequency of plus or minus 2 percent with no degradation of performance.

1.2.8 Power Line Surge Protection

All equipment connected to alternating current circuits shall be protected from powerline surges. Equipment protection shall withstand surge test waveforms described in IEEE C62.41. Fuses shall not be used for surge protection.

1.2.9 Device Wiring and Communication Circuit Surge Protection

All inputs shall be protected against surges induced on device wiring. Outputs shall be protected against surges induced on control and device wiring installed outdoors and as shown. All communications equipment shall be protected against surges induced on any communications circuit. All cables and conductors, except fiber optics, which serve as communications circuits from console to field equipment, and between field equipment, shall have surge protection circuits installed at each end. Protection shall be furnished at equipment, and additional triple electrode gas surge protectors rated for the application on each wireline circuit shall be installed within 1 m (3 feet) of the building cable entrance. Fuses shall not be used for surge protection. The inputs and outputs shall be tested in both normal mode and common mode using the following two waveforms:

a. A 10 microsecond rise time by 1000 microsecond pulse width waveform with a peak voltage of 1500 volts and a peak current of 60 amperes.

b. An 8 microsecond rise time by 20 microsecond pulse width waveform with a peak voltage of 1000 volts and a peak current of 500 amperes.

1.2.10 System Reaction

1.2.10.1 System Response

All alarms shall be annunciated on the console within 2 seconds of them occurring at a local processor or devices controlled by a local processor, and within 100 milliseconds if the alarm occurs at the central processor. Alarm and status changes shall be displayed within 100 milliseconds after receipt of data by the central processor. This response time shall be maintained during system heavy load.

1.2.10.2 System Heavy Load Definition

System heavy load conditions are defined as the occurrence of alarms at the rate of 10 alarms per second distributed evenly among all local processors in the system. The alarm printer shall continue to print out all occurrences, including time of occurrence, to the nearest second.

1.2.11 Environmental Conditions

1.2.11.1 Interior, Controlled Environment

All system components except the console equipment installed in interior locations having controlled environments shall be rated for continuous operation under ambient environmental conditions of 1.7 to 49 degrees C (35 to 120 degrees F) dry bulb and 20 to 90 percent relative humidity, noncondensing.

1.2.11.2 Interior, Uncontrolled Environment

All system components installed in interior locations having uncontrolled environments shall be rated for continuous operation under ambient environmental conditions of minus 17.8 to plus 48.9 degrees C (0 to 120 degrees F) and 10 to 95 percent relative humidity, noncondensing.

1.2.11.3 Exterior Environment

System components that are installed in locations exposed to weather shall be rated for continuous operation under ambient environmental conditions of minus 34 degrees C to 50 degrees C (minus 30 to 122 degrees F) dry bulb and 10 to 95 percent relative humidity, condensing. In addition, the system components shall condensing. In addition, the system components shall be rated for continuous operation when exposed to performance conditions as specified in UL 294 for outdoor use equipment.

1.2.11.4 Hazardous Environment

System components located in areas where fire or explosion hazards may exist because of flammable gases or vapors, flammable liquids, combustible dust, or ignitable fibers or flyings, shall be rated and installed according to Chapter 5 of the NFPA 70 and as shown.

1.2.11.5 Console

All console equipment shall, unless designated otherwise, be rated for continuous operation under ambient environmental conditions of 16 to 29 degrees C (60 to 85 degrees F) and a relative humidity of 20 to 80 percent.

1.2.12 System Capacity

The EECS shall have the capacity to monitor, communicate and display up to [nine] alarm types. The system shall identify individual sensors, switches, and terminal devices in an alarm state.

1.3 DELIVERY OF TECHNICAL DATA AND COMPUTER SOFTWARE

All items of computer software and technical data (including technical data which relates to computer software), which is specifically identified in this specification shall be delivered strictly in accordance with the CONTRACT CLAUSES, SPECIAL CLAUSES, and Section 01331 SUBMITTAL PROCEDURES. All data delivered shall be identified by reference to the particular specification paragraph against which it is furnished.

1.3.1 Group I Technical Data Package

1.3.1.1 System Drawings

The data package shall include the following:

a. System block diagram.

b. Console installation, block diagrams, and wiring diagrams.

c. Local processor installation, typical block, and wiring diagrams.

d. Local processor physical layout and schematics.

e. Device wiring and installation drawings.

f. Details of connections to power sources, including power supplies and grounding.

g. Details of surge protection device installation.

1.3.1.2 Manufacturer's Data

The data package shall include manufacturers' data for all materials and equipment, including terminal devices, local processors and security center equipment provided under this specification.

1.3.1.3 System Description and Analyses

The data package shall include system descriptions, analyses, and calculations used in sizing equipment required by these specifications. Descriptions and calculations shall show how the equipment will operate as a system to meet the performance of this specification. The data package shall include the following:

a. Central processor memory size.

b. Communication speed and protocol description.

c. Rigid disk system size and configuration.

d. Flexible disk system size and configuration.

e. Alarm response time calculations.

f. Command response time calculations.

g. Start-up operations.

h. Expansion capability and method of implementation.

i. Sample copy of each report specified.

j. Color photographs representative of typical graphics.

k. System throughput calculation.

1.3.1.4 Software Data

The data package shall consist of descriptions of the operation and capability of system, command, and application software as specified.

1.3.1.5 Overall System Reliability Calculations

The data package shall include all manufacturer's reliability data and calculations required to show compliance with the specified reliability. The calculations shall be prepared using DOD 3235.1 as a guide. The calculation shall be based on the following configuration:

a. All console equipment.

b. Data Transmission Media (DTM) equipment associated with one DTM circuit, but excluding the circuit itself.

c. Assume sixteen local processors with total input-output (I/O) functions as specified in paragraph "Local Processor.

d. Assume four terminal devices per local processor.

1.3.1.6 Certifications

All specified manufacturer's certifications shall be included with the data package.

1.3.1.7 Key Control Plan

The Contractor shall provide a key control plan. The key control plan shall include the following:

a. Procedures that will be used to log and positively control all keys during installation.

b. A listing of all keys and where they are used.

c. A listing of all persons allowed access to the keys.

1.3.2 Group IV Technical Data Package

The Contractor shall prepare test procedures and reports for the performance verification test and the endurance test. The Contractor shall deliver the performance verification test and endurance test procedures to the Government for approval. After receipt by the Contractor of written approval of the test procedures, the Contractor may schedule the tests. The final performance verification and endurance test report shall be delivered after completion of the tests.

1.3.2.1 Operation and Maintenance Manuals

A draft copy of the operation and maintenance manuals, as specified for the Group V technical data package, shall be delivered to the Government prior to beginning the performance verification test for use during site testing.

1.3.2.2 Training Documentation

Lesson plans and training manuals for the training phases, including type of training to be provided, and a list of reference material, shall be delivered for approval.

1.3.2.3 Data Entry

The Contractor shall enter all data needed to make the system operational. The Contractor shall deliver the data to the Government on data entry forms, utilizing data from the contract documents, Contractor's field surveys, and all other pertinent information in the Contractor's possession required for complete installation of the data base. The Contractor shall identify and request from the Government, any additional data needed to provide a complete and operational EECS. The completed forms shall be delivered to the Government for review and approval at least 90 days prior to the Contractor's scheduled need date. Contractor’s responsibilities shall include entering facility personnel data into the datebase. Contractor shall assume a building population of 1,000.

1.3.2.4 Graphics

Where graphics are required and are to be delivered with the system, the Contractor shall create and install all graphics needed to make the system operational. The Contractor shall utilize data from the contract documents, Contractor's field surveys, and all other pertinent information in the Contractor's possession to complete the graphics. The Contractor shall identify and request from the Government, any additional data needed to provide a complete graphics package. Graphics shall have sufficient level of detail for the system operator to assess the alarm. The Contractor shall supply hard copy, color examples at least 203.2 by 254.0 mm (8 by 10 inches) in size, of each type of graphic to be used for the completed EECS. The graphics examples shall be delivered to the Government for review and approval at least 90 days prior to the Contractor's scheduled need date.

1.3.3 Group V Technical Data Package

Final copies of the manuals as specified bound in hardback, loose-leaf binders, shall be delivered to the Government within 30 days after completing the endurance test. The draft copy used during site testing shall be updated with any changes required prior to final delivery of the manuals. Each manual's contents shall be identified on the cover. The manual shall include names, addresses, and telephone numbers of each subcontractor installing equipment and systems, and nearest service representatives for each item of equipment for each system. The manuals shall have a table of contents and tab sheets. Tab sheets shall be placed at the beginning of each chapter or section and at the beginning of each appendix. The final copies delivered after completion of the endurance test shall include all modifications made during installation, checkout, and acceptance. The number of copies of each manual to be delivered shall be as specified on DD FORM 1423.

1.3.3.1 Functional Design Manual

The functional design manual shall identify the operational requirements for the system and

explain the theory of operation, design philosophy, and specific functions. A description of hardware and software functions, interfaces, and requirements shall be included for all system operating modes.

1.3.3.2 Hardware Manual

A manual describing all equipment furnished including:

a. General description and specifications.

b. Installation and checkout procedures.

c. Equipment electrical schematics and layout drawings.

d. System schematics and layout drawings.

e. Alignment and calibration procedures.

f. Manufacturer's repair parts list indicating sources of supply.

g. Interface definition.

1.3.3.3 Software Manual

The software manual shall describe the functions of all software and shall include all other information necessary to enable proper loading, testing, and operation. The manual shall include:

a. Definition of terms and functions.

b. Use of system and applications software.

c. Procedures for system initialization, start-up and shutdown.

d. Alarm reports.

e. Reports generation.

f. Data base format and data entry requirements.

g. Directory of all disk files.

h. Description of all communications protocols, including data formats, command characters, and a sample of each type of data transfer.

1.3.3.4 Operator's Manual

The operator's manual shall fully explain all procedures and instructions for the operation of the

system, including:

a. Computers and peripherals.

b. System start-up and shutdown procedures.

c. Use of system, command, and applications software.

d. Recovery and restart procedures.

e. Graphic alarm presentation.

f. Use of report generator and generation of reports.

g. Data entry.

h. Operator commands.

I. Alarm messages and printing formats.

j. System access requirements.

1.3.3.5 Maintenance Manual

The maintenance manual shall include descriptions of maintenance for all equipment including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

1.3.3.6 Final System Drawings

The Contractor shall maintain a separate set of drawings, elementary diagrams and wiring diagrams of the EECS to be used for final system drawings. This set shall be accurately kept up to date by the Contractor with all changes and additions to the EECS and shall be delivered to the Government with the final endurance test report. In addition to being complete and accurate, this set of drawings shall be kept neat and shall not be used for installation purposes. Upon completion of the final system drawings, a representative of the Government will review the final system work with the Contractor. If the final system work is not complete, the Contractor will be so advised and shall complete the work as required. Final drawings submitted with the endurance test report shall be finished drawings on mylar or vellum.

1.4 TESTING

1.4.1 General

The Contractor shall perform predelivery testing, site testing, and adjustment of the completed EECS. The Contractor shall provide all personnel, equipment, instrumentation, and supplies necessary to perform all testing. Written notification of planned testing shall be given to the

Government at least 14 days prior to the test, and in no case shall notice be given until after the Contractor has received written approval of the specific test procedures.

1.4.2 Test Procedures and Reports

Test procedures shall explain in detail, step-by-step actions and expected results demonstrating compliance with the requirements of the specification. Test reports shall be used to document results of the tests. Reports shall be delivered to the Government within 7 days after completion of each test.

1.5 TRAINING

1.5.1 General

The Contractor shall conduct training courses for designated personnel in the maintenance and operation of the EECS as specified. The training shall be oriented to the specific system being installed under this contract. Training manuals shall be delivered for each trainee with two additional copies delivered for archiving at the project site. The manuals shall include an agenda, defined objectives for each lesson, and a detailed description of the subject matter for each lesson. The Contractor shall furnish audio-visual equipment and other training materials and supplies. Where the Contractor presents portions of the course by audio-visual material, copies of the audio-visual material shall be delivered to the Government either as a part of the printed training manuals or on the same media as that used during the training sessions. A training day is defined as 8 hours of classroom instruction, including two 15-minute breaks and excluding lunchtime, Monday through Friday, during the daytime shift in effect at the training facility. For guidance in planning the required instruction, the Contractor should assume that attendees will have a high school education or equivalent, and are familiar with EECS. Approval of the planned training schedule shall be obtained from the Government at least 30 days prior to the training.

1.5.2 Operator's Training I

The first operator training course shall be taught at the project site for a period of three (3) consecutive training days during or after the Contractor's field testing, but before commencing the performance verification test. A maximum of six (6) personnel will attend the course. No part of the training given during this course will be counted toward completion of the performance verification test. The course shall include instruction on the specific hardware configuration of the installed system and specific instructions for operating the installed system. Upon completion of this course, each student should be able to start the system, operate the system, recover the system after a failure, and describe the specific hardware architecture and operation of the system.

a. General EECS hardware architecture.

b. Functional operation of the system.

c. Operator commands.

d. Data base entry.

e. Reports generation.

f. Alarm reporting.

g. Diagnostics.

1.5.3 Operator's Training II

The second operator training course shall be taught while the endurance test is in progress for a total of 16 hours of instruction per student, in time blocks of 4 hours. A maximum of six (6) personnel will attend the course. The Contractor shall schedule his activities during this period so that the specified amount of time will be available during the endurance test for instructing the students. The course shall consist of hands-on training under the constant monitoring of the instructor. The instructor shall be responsible for determining the appropriate password to be issued to the student commensurate with each student's acquired skills at the beginning of each of these individual training sessions. Upon completion of this course, the students should be fully proficient in the operation of the system. The Contractor shall prepare a written report describing the skill level of each student at the end of this course.

1.5.4 Maintenance Personnel Training

The system maintenance course shall be taught at the project site after completion of the endurance test for a period of three (3) training days. A maximum of two (2) personnel designated by the Government will attend the course. The training shall include:

a. Physical layout of each piece of hardware.

b. Troubleshooting and diagnostics procedures.

c. Repair instructions.

d. Preventive maintenance procedures and schedules.

e. Calibration procedures.

Upon completion of this course, the students shall be fully proficient in the maintenance of the system.

1.6 LINE SUPERVISION

1.6.1 Signal and Data Transmission Media (DTM) Line Supervision

All signal or DTM lines between terminal devices and the alarm annunciation console shall be supervised by the system. The system shall supervise the signal lines by monitoring the circuit for changes or disturbances in the signal, and for conditions as described in UL 1076 for line security equipment. The system shall initiate an alarm in response to a current change of 10 percent or greater. The system shall also initiate an alarm in response to opening, closing, shorting, or

grounding of the signal and DTM lines.

1.7 DATA TRANSMISSION MEDIA

The Contractor shall provide DTM systems as specified in Section [16768] and as shown.

1.8 EXPERIENCE

The Contractor shall submit written proof that the following experience requirements are being met.

1.8.1 Hardware Manufacturer's Experience

All system components shall be produced by manufacturers who have been regularly engaged in the production of EECS components of the types to be installed for at least 5 years.

1.8.2 Software Manufacturer's Experience

All system and application software shall be produced by manufacturers who have been regularly engaged in the production of EECS and application software of similar type and complexity as the specified system for at least 2 years.

1.8.3 System Installer Experience

The system shall be installed by a Contractor who has been regularly engaged in the installation of EECS equipment of similar type and complexity as the specified system for at least 2 years.

1.9 MAINTENANCE AND SERVICE

1.9.1 General Requirements

The Contractor shall provide all services required and equipment necessary to maintain the entire EECS in an operational state as specified for a period of one (1) year after formal written acceptance of the system, and shall provide all necessary material required for performing scheduled adjustments or other nonscheduled work.

1.9.2 Description of Work

The adjustment and repair of the EECS includes all computer equipment, software updates, communications transmission equipment and DTM, local processors, and access control, facility interface, and support equipment. Responsibility shall be limited to Contractor installed equipment. Provide the manufacturer's required adjustments and other work as necessary.

1.9.3 Personnel

Service personnel shall be certified in the maintenance and repair of similar types of equipment and qualified to accomplish all work promptly and satisfactorily. The Government shall be

advised in writing of the name of the designated service representative, and of any change in personnel.

1.9.4 Schedule of Work

1.9.4.1 Inspections

The Contractor shall perform two inspections at six (6) month intervals or more often if required by the manufacturers. These inspections shall include:

a. Visual checks and operational tests of all console equipment, peripheral equipment, local processors, facility interface/actuator devices, and electrical and mechanical controls.

b. Mechanical adjustments, new ribbons, and other necessary adjustments of printers.

c Clean system equipment, local processors, including interior and exterior surfaces.

d. Perform diagnostics on all equipment.

e. Check and calibrate each EECS device.

f. Check, test and calibrate personnel identity verification devices.

g. Run system software diagnostics and correct diagnosed problems.

h. Resolve any previous outstanding problems.

1.9.4.2 Scheduled Work

This work shall be performed during regular working hours, Monday through Friday, excluding federal holidays.

1.9.5 Emergency Service

The Government will initiate service calls when the EECS is not functioning properly. Qualified personnel shall be available to provide service to the complete EECS. The Government shall be furnished with a telephone number where the service supervisor can be reached at all times. Service personnel shall be at the site within [four (4)] hours after receiving a request for service. The EECS shall be restored to proper operating condition within [two (2)] calendar days after receiving a request for service.

1.9.6 Operation

Performance of scheduled adjustments and repair shall include verification of operation of the EECS as demonstrated by the applicable tests of the performance verification test.

1.9.7 Records and Logs

The Contractor shall keep records and logs of each task, and shall organize cumulative records for each major component, and for the complete system chronologically. A continuous log shall be maintained for all devices. The log shall contain calibration, repair, and programming data. Complete logs shall be kept and shall be available for inspection on site, demonstrating that planned and systematic adjustments and repairs have been accomplished for the EECS.

1.9.8 Work Requests

The Contractor shall separately record each service call request, as received. The form shall include the serial number identifying the component involved, its location, date and time the call was received, specific nature of trouble, names of the service personnel assigned to the task, instructions describing what has to be done, the amount and nature of the materials to be used, the time and date work started, and the time and date of completion. The Contractor shall deliver a record of the work performed within 5 days after work is accomplished.

1.9.9 System Modifications

The Contractor shall make recommendations for system modification in writing to the Government. No system modifications, including operating parameters and control settings, shall be made without prior approval of the Government. Modifications made to the systems shall be incorporated into the operations and maintenance manuals, and other documentation affected.

1.9.10 Software

The Contractor shall provide software updates and verify operation in the system as required. These updates shall be accomplished in a timely manner, fully coordinated with the EECS operators, and shall be incorporated into the operations and maintenance manuals, and software documentation. There shall be at least one scheduled update near the end of the first year's warranty period, at which time the Contractor shall install and validate the latest released version of the manufacturer's software.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

2.1.1 Materials and Equipment

Units of the same type of equipment shall be products of a single manufacturer. All material and equipment shall be new and currently in production. Each major component of equipment shall have the manufacturer's model and serial number in a conspicuous place. Equipment shall conform to UL 294 and UL 1076. Equipment located at the Security Center or at a remote control/monitoring station shall be rack mounted as shown.

2.1.2 Enclosures

System enclosures shall be metallic.

2.1.2.1 Interior Terminal Device

All terminal devices to be used in an interior environment shall be housed in an enclosure that provides protection against dust, falling dirt, and dripping noncorrosive liquids.

2.1.2.2 Exterior Terminal Device

All terminal devices to be used in an exterior environment shall be housed in an enclosure that provides protection against conditions as specified under UL 294 performance requirements for outdoor use equipment, and shall be undamaged by the formation of ice on the enclosure.

2.1.2.3 Interior Electronics

All system electronics to be used in an interior environment shall be housed in enclosures which meet the requirements of NEMA 250 Type 12.

2.1.2.4 Exterior Electronics

All system electronics to be used in an exterior environment shall be housed in enclosures which meet the requirements of NEMA 250 Type 4X.

2.1.2.5 Corrosion Resistant

All system electronics to be used in a corrosive environment shall be housed in enclosures which meet the requirements of NEMA 250 Type 4X.

2.1.2.6 Hazardous Environment Equipment

All system electronics to be used in a hazardous environment shall be housed in enclosures which meets the requirements of paragraph "Hazardous Environment."

2.1.3 Nameplates

Nameplates shall be provided for EECS equipment and devices. Laminated plastic nameplates shall be provided for central and local processors. Each nameplate shall identify the processor and its location within the system. Laminated plastic shall be 3.2 mm (1/8 inch) thick, white with black center core. Nameplates shall be a minimum of 25.4 by 76.2 mm (1 inch by 3 inches), with minimum 6.5 mm (1/4 inch) high engraved block lettering. Nameplates shall be attached to the inside of the enclosure housing the local processor. Other major components of the system shall have the manufacturer's name, address, type or style, model or serial number, and catalog number on a corrosion-resistant plate secured to the item of equipment. Nameplates shall not be required for devices smaller than 25.4 by 76.2 mm (1 inch by 3 inches).

2.1.4 Tamper Provisions

2.1.4.1 General

Enclosures, cabinets, housings, boxes, and fittings of every description having hinged doors or removable covers, and which contain circuits or connections of the EECS equipment or power supplies, shall be provided with cover operated, corrosion resistant tamper switches, arranged to initiate an alarm signal when the door or cover is moved. Tamper switches shall be mechanically mounted to maximize the defeat time when enclosure covers are opened or removed. It shall take longer than 1 second to depress or defeat the tamper switch after opening or removing the cover. The enclosure and the tamper switch shall function together to not allow direct line of sight to any internal components and tampering with the switch or the circuits before the switch activates. Tamper switches shall be inaccessible until the switch is activated; have mounting hardware concealed so that the location of the switch cannot be observed from the exterior of the enclosure; be connected to circuits which are under electrical supervision at all times, irrespective of the protection mode in which the circuit is operating; shall be spring-loaded and held in the closed position by the door cover; and shall be wired so that they break the circuit when the door or cover is disturbed.

a. Nonsensor Enclosures: Tamper switches on nonsensor enclosures, which must be opened to make routine maintenance adjustments to the system and to service the power supplies, shall be push/pull-set, automatic reset type.

b. Sensor Enclosures: Tamper switches on terminal device enclosures, which must be opened to make routine maintenance adjustments to the device, shall be single pole single throw type.

2.1.4.2 Enclosure Covers

Covers of pull and junction boxes provided to facilitate installation of the system need not be provided with tamper switches if they contain no splices or connections, but shall be protected by tack welding or brazing the covers in place. Zinc labels shall be affixed to such boxes indicating they contain no connections. These labels shall not indicate that the box is part of the security system.

2.1.4.3 Conduit-Enclosure Connections

All conduit-enclosure connections shall be protected by tack welding or brazing the conduit to the enclosure. Tack welding or brazing shall be done in addition to standard conduit enclosure connection methods as described in NFPA 70.

2.1.5 Locks and Key-Lock Operated Switches

2.1.5.1 Locks

All locks required to be installed on system enclosures for maintenance purposes shall be UL listed, [round-key type, with three dual, one mushroom, and three plain pin tumblers]. Keys shall be stamped U.S. GOVT. DO NOT DUP. The locks shall be so arranged that the key can only be withdrawn when in the locked position. All maintenance locks shall be keyed alike and only two keys shall be furnished for all of these locks. These keys shall be controlled in accordance with the key control plan as specified in paragraph "Key Control Plan".

2.1.5.2 Key-Lock-Operated Switches

All key-lock-operated switches required to be installed on system components shall be UL listed, [round-key type, with three dual, one mushroom, and three plain pin tumblers]. Keys shall be stamped "U.S. GOVT. DO NOT DUP." Key-lock-operated switches shall be two position, with the key removable in either position. All key-lock-operated switches shall be keyed differently and only two keys shall be furnished for each key-lock-operated-switch. These keys shall be controlled in accordance with the key control plan as specified in paragraph "Key Control Plan."

2.1.5.3 Construction Locks

If the Contractor requires locks during installation and construction, a set of temporary locks shall be used. The final set of locks installed and delivered to the Government shall not include any of the temporary locks.

2.1.6 System Component Design

EECS components shall be designed for continuous operation. All electronic components shall be solid state type, mounted on printed circuit boards conforming to UL 796. Circuitry shall not be so densely placed as to impede maintenance. Printed circuit board connectors shall be plug-in, quick-disconnect type. Power dissipating components shall incorporate safety margins of not less that 25 percent with respect to dissipation ratings, maximum voltages, and current carrying capacity. Light duty relays and similar switching devices shall be solid state type or sealed electromechanical.

2.1.6.1 Modularity

The Contractor shall provide equipment designed for increase of system capability by installation of component modules. System components shall be designed to facilitate maintenance through replacement of modular subassemblies and parts.

2.1.6.2 Maintainability

Components shall be designed to be maintained using commercially available tools and equipment. Components shall be arranged and assembled so they are accessible to maintenance personnel. There shall be no degradation in tamper protection, structural integrity, EMI/RFI attenuation, or line supervision after maintenance when it is performed in accordance with manufacturer's instructions. The system shall be configured and installed to yield a mean time to repair (MTTR) of not more than 8 hours. Repair time is the clock time from the time maintenance personnel are given entrance to the EECS and begin work until the EECS is fully functional.

2.1.6.3 Interchangeability

The system shall be constructed with off-the-shelf components which are physically, electrically and functionally interchangeable with equivalent components as complete items. Replacement of equivalent components shall not require modification of either the new component or of other components with which the replacement items are used. Custom designed or one-of-a-kind items

shall not be used. Interchangeable components or modules shall not require trial and error matching in order to meet integrated system requirements, system accuracy, or restore complete system functionality.

2.1.6.4 Electromagnetic and Radio Frequency Interference (EMI/RFI)

EECS components generating EMI/RFI shall be designed and constructed in accordance with 47 CFR 15.

2.1.6.5 Product Safety

EECS components shall conform to applicable rules and requirements of NFPA 70 and UL 294. EECS components, shall be equipped with instruction plates including warnings and cautions, describing physical safety, and special or important procedures to be followed in operating and servicing EECS equipment.

2.1.7 Controls and Designations

Controls and designations shall be as specified in NEMA ICS 1.

2.1.8 Special Test Equipment

The Contractor shall provide all special test equipment, special hardware, software, tools, and programming or initialization equipment needed to start or maintain any part of the system and its components. Special test equipment is defined as any test equipment not normally used in an electronics maintenance facility.

2.2 ELECTRONIC ENTRY CONTROL SYSTEM OPERATION

2.2.1 General

The Contractor shall furnish the EECS complete and ready for operation. The EECS shall operate in a continuous interrogation, control, and response mode. The EECS shall provide a user interface and an operator interface to control system functions. The EECS shall provide a means to enter time, date, and installation-related data such as portal numbers, portal descriptors, central processor addresses, and local processor addresses. Under normal operations, the EECS shall record transactions as they occur. This record shall include identification of the individual, location, time of day, and date. If access is denied, an access denial alarm shall be initiated and the EECS shall record reason for denial.

2.2.2 EECS Definitions

2.2.2.1 EECS Identifiers

An identifier shall be a proximity card credential. Identifiers shall be used by the EECS for the purpose of validating passage requests for areas under the control of the EECS.

2.2.2.2 EECS Devices

A terminal device shall be any piece of equipment which gives a user the means to input identifier data into the EECS for verification. A facility interface device shall be any type of mechanism which is controlled in response to passage requests and allows passage through a portal.

2.2.3 EECS Interfaces

2.2.3.1 User Interface

The EECS shall control passage. The decision to grant or deny passage shall be based upon identifier data to be input at a specific location during the current time period. If all conditions are met, a signal shall be sent to the input device location to activate the appropriate electric strike, bolt, electromagnetic lock or other type of portal release or facility interface device.

2.2.3.2 System Operator Interface

EECS operation shall be entirely automatic under control of the EECS central processor and local processors except for simple control key operations required for map display, alarm acknowledgment, zone and portal status change operations, audible or visual alarm silencing and audio annunciation. The EECS shall immediately annunciate changes in zone and portal status. The system console printer shall print a permanent record of each alarm and status change. The map displays or graphics screens shall display the current status of EECS zones and portals. The EECS shall immediately display the current status of any zone or portal upon command. While the EECS is annunciating an unacknowledged zone or portal alarm, keyboard operations at the system operator console other than alarm acknowledgment shall not be possible. The EECS shall provide the capability to change zone and portal status from alarm (after alarm acknowledgment) or access to secure, from alarm (after alarm acknowledgment) or secure to access, or from access to secure by simple control operations. If the operator attempts to change zone status to secure while there is an alarm output for that zone or portal, the EECS shall immediately annunciate an alarm for that zone or portal.

2.2.3.3 Enrollment Operator Interface

An enrollment stations shall be provided. The enrollment station shall not be the same equipment designated for use as the system operator interface. All hardware and software needed to create the data for enrolling or disenrolling a person in the EECS shall be provided as part of each enrollment station. The enrollment station shall provide database management functions for the EECS, and shall allow an operator to change and modify the data entered in the EECS as needed. The enrollment station shall not have any alarm response or acknowledgment functions. Multiple, password protected access levels shall be provided at the enrollment station. Database management and modification functions shall require a higher operator access level than personnel enrollment functions. A printer shall be provided for the enrollment station.

2.2.3.4 Secondary Alarm Annunciation Interface

Secondary alarm annunciation and monitoring shall occur at the site cental security monitoring

point. The EECS shall be fully integratable with the existing site security monitoring system.

2.2.4 Electronic Entry Control System Functions

The EECS shall implement the following functions under system manager/operator control.

2.2.4.1 Multiple Security Levels

The EECS shall have multiple security levels. Each of the security levels shall be delineated by facility barriers. Access to each security level shall be through portals in the facility barriers using designated EECS procedures. The EECS shall provide at least 8 security levels. Any attempt to access an area beyond an individual's security level shall initiate an access denial alarm.

2.2.4.2 Immediate Access Change

The EECS shall provide functions to disenroll and deny access to any identifier or combination of identifiers without consent of the individual or recovery of a credential. The design of the EECS shall provide access change capability to system operators and managers with appropriate password clearance at the system operator or enrollment consoles.

2.2.4.3 Identifier and Terminal Tracking

The EECS shall track the movements and activity of an identifier throughout the site at any terminal device. The EECS shall use this data to generate, and store a log of this activity. The log shall be updated every time a transaction involving an identifier or terminal device is completed. The design of the EECS shall provide identifier tracking data for at least 1 year, and terminal device tracking for at least 1000 transactions without loss of log data. The EECS shall provide hard copy report generation for the log of each type of identifier and terminal device.

2.2.4.4 Multiple Time Zones

The EECS shall provide multiple time zone access control. Personnel enrolled in the EECS shall only be allowed access to a facility during the time of day they are authorized to access the facility. Time zone access control shall also include the ability to specify beginning and ending dates that an individual will be authorized to access a facility. The EECS shall provide automatic activation and deactivation of access authorization. The design of the EECS shall provide at least [64] time zones with overlapping time zones. The EECS shall provide a means for system operators with proper password clearance, to define custom names for each time zone, and to change the time zone's beginning and ending times through the system operator and enrollment interfaces. The EECS shall automatically disenroll individuals at the end of their predefined facility access duration. Any attempt during a 24 hour period by an individual or an identifier to gain facility access outside of the authorized time zone shall initiate an access denial alarm.

2.2.4.5 Multiple Operator Levels

The EECS shall provide a means to define system operator capability and functions through multiple, password protected operator levels. At least three (3) operator levels shall be provided.

System operators and managers with appropriate password clearances shall be able to change operator levels for all operators. Three successive attempts by an operator to execute functions beyond their defined level during a 24-hour period shall initiate a software tamper alarm.

2.2.4.6 Output Relay Control

The EECS shall individually control and monitor the state of all output relays.

2.2.4.7 Guard Tour

The EECS shall provide guard tour monitoring capability. The EECS shall monitor a security guard's progress and timing as he performs physical inspection of a facility, by having the guard check in at EECS terminal devices. The EECS shall provide a means for operators and managers with appropriate password levels to define facility check points, and create time windows of the shortest and longest times necessary to get from one check point on the tour to the next. The time window between check points shall be adjustable over a range of at least one (1) minute to one (1) hour with a resolution of at least one (1) minute. The system shall annunciate an alarm if the guard does not log in at the next check point within the allotted time window. Time measurements shall be reset at each terminal device check point when the guard logs in so that cumulative time variations do not result in false alarms. The guard tour shall have a random start/ stop function so that a tour may start from any designated station at any designated time, and in either a forward or reverse direction to insure that patrol patterns cannot be deduced by observation. The system operator shall be able to reposition or halt a guard during a tour to allow time for investigations to be made. The system guard tour feature shall be able to store at least 128 programmed guard tours in memory with at least 12 tours active at any one time, and at least 24 check points for each tour. Guard tours shall be configured as needed for the site.

2.2.4.8 Hard Copy Report Generation

The EECS shall generate hard copy reports of identifier, terminal, and guard tour tracking reports, and versions with defined parameters of the manufacturer's standard management and activity reports.

2.2.4.9 Enrollment

The EECS shall provide a method to enter personnel identifying information into the EECS database files through enrollment stations. The EECS shall allow entry of this data into the system database files through the use of simple menu selections and data fields. The data field names shall be customized to suit user and site needs. All personnel identity verification subsystems selected for use with the EECS shall fully support the enrollment function and shall be compatible with the EECS database files.

2.2.5 Electronic Entry Control System Capacities

The EECS shall be designed and configured to provide the following capacities.

2.2.5.1 Enrollees

The EECS shall be configured for [10,000] enrollees. The EECS shall provide a facility-tailorable reference file database containing personal, access authorization, identifier and verification data for each enrollee as required.

2.2.5.2 Transaction History File Size

The EECS capacity shall be at least the amount of transactions for the system during one (1) year without any loss of transaction data.

2.2.5.3 Number of Portals

The EECS shall monitor and control the portals shown.

2.2.5.4 Number of Output Relays

The EECS shall monitor and control the number of output relays shown.

2.2.5.5 Local Processor Interrogation

The EECS shall sequentially interrogate each local processor in the system until all processors in the system have been interrogated. The interrogation shall be repeated on a continuous basis. The EECS shall complete each interrogation cycle of all EECS local processors and associated zones and portals, and show the status of all zones, portals and local processors within five (5) seconds or less exclusive of new data exchange. The local processor shall exchange new data with the central processor during each polling sequence. Alarms or data requests needed for controlling passage will be communicated immediately to the central processor. If a local processor fails to respond to an interrogation, the EECS shall annunciate a local processor off-line alarm.

2.2.5.6 Terminal Device Status

The local processor shall provide basic diagnostics of terminal devices and upon command shall communicate the status of the terminal devices to the system operator.

2.2.5.7 Facility Interface Device Status

The local processor shall communicate the status of the facility interface devices to the system operator.

2.3 ELECTRONIC ENTRY ANNUNCIATION SYSTEM

The system shall include all equipment, cabling, connectors, adapters, terminators, and appurtenances as needed for a complete and operational EECS. Equipment located in the Security Center or at a redundant or remote control/monitoring station shall be rack mounted as shown.

2.3.1 Central Processor

The central processor shall be a digital, computer based system and shall include the central processing unit and all hardware, graphics controllers, input/output (I/O) controllers, control circuitry, random access memory, real-time clock/calendar, software, and firmware as required to provide a fully functional processor. All components shall be housed within a single enclosure. Central processor operating speed and random access memory configuration shall be as needed to meet the response time as specified in paragraph "System Reaction". The central processor shall also incorporate an interface port to communicate with the system printer. The disk operating system programs, software and firmware, shall be furnished as an integral part of the processor assembly. The central processor shall not include any hardware precluding the purchase of a standard maintenance and service contract from the computer manufacturer.

2.3.1.1 Number of Processors

The EECS shall consist of [1] central processors configured as [a single master processor].

2.3.1.2 Diagnostics

The central processor shall incorporate built-in diagnostics implemented in software/firmware, hardware or both. Each time the central processor is started or re-booted, it shall automatically execute a series of built-in tests and report equipment malfunctions, configuration errors, and inaccuracies on the system monitor screen and on the system printer. The EECS shall annunciate an audible alarm if the central processor fails the built-in diagnostics. Central processors used in a peer processing environment as described in paragraph "Peer Processors" shall provide continuous internal program, data memory, and hardware self test.

2.3.1.3 Real-Time Clock/Calendar

The system real-time clock/calendar shall be continuously updated and be provided with battery backup sufficient to operate for not less than 1 year without external power input. Accuracy shall be within 1/2 second per day. The real-time clock/calendar shall maintain time in a 24-hour format including seconds, minutes, hours, date, and month. The real-time clock/calendar shall be resetable by the operator, and shall update the clock/calendar in the local processors at least once every 24 hours. The real-time clock shall have at least one EIA 232-E output port to provide time data in ASCII format to other equipment in the console.

2.3.1.4 Long Term Data Storage

The central processor shall include long term storage media. The central processor shall have a fixed hard disk with at least 4 gigabytes of storage space and an average access time of 40 milliseconds or less. A 1.2 megabyte 133 mm (5-1/4 inch) floppy disk drive or 1.44 megabyte 90 mm (3-1/2 inch) semi-floppy disk drive shall be provided. [The central processor shall also include a [magnetic tape] drive for system backups and archives.]

2.3.2 Local Processor

The local processor shall be a microprocessor controlled solid state electronic device. The local processor shall include a real-time clock/ calendar which shall be updated at least once every 24

hours by the central processor. The local processor shall monitor portal status and associated terminal device and facility interface device status, and shall communicate the status to the central processor. The local processor shall be able to support paired card readers on a single portal for anti-passback functions, and system wide anti-passback functions. The local processor shall provide electric strike or other facility interface device power and control, and an electric strike or other facility interface device release which is time adjustable from 1 to 30 seconds. The local processor shall be housed in a tamper-alarmed enclosure.

2.3.2.1 Local Processor and Enclosure Size and Weight

The local processor and its tamper-protected enclosure shall not exceed 510 mm (20 inches) in height by 510 mm (20 inches) in width by 205 mm (8 inches) in depth and shall not weigh more than 34 kg (75 lbs).

2.3.2.2 Local Alarm Annunciation

The local processor shall provide local audible alarm annunciation for itself and its associated portals/zones and terminal devices. The local alarm annunciation feature shall be enabled and disabled from the central processor under operator control. This function shall be password protected.

2.3.2.3 Communications Protocol

The communications protocol shall be compatible between the local processor, its associated EECS terminal devices, and the central processor.

2.3.2.4 Terminal and Facility Interface Device Support

The local processor shall interface to the full range of EECS terminal and facility interface devices as shown.

2.3.2.5 Response Times

The local processor shall initiate a response to a central processor interrogation within 100 milliseconds. The local processor shall respond to valid passage requests from its associated EECS terminal devices by generating a signal to the appropriate electric strike or other type of facility interface device within 100 milliseconds after identifier verification.

2.3.2.6 Autonomous Local Control

In the event of a communication loss, the local processor shall automatically convert to autonomous local control and monitoring of its associated EECS terminal devices or facility interface devices. The local processor shall automatically revert to central control upon restoration of communications. System transactions occurring during the communications outage shall be recorded and retained in local processor memory and reported to the central database files upon restoration of communications. The local processor shall begin the report to the central database within ten (10) seconds after communications have been restored.

2.3.2.7 Local Processor Capacities

The local processor shall be able control a combination of at least four (4) electric door strikes, card readers, keypads, or other EECS terminal devices and facility interface devices. The local processor shall store a subset of the EECS reference file database sufficient to support access through each portal controlled by the local processor, and including personal access authorization, and identifier data for each enrollee as needed to support passage requests. The local processor shall provide a local transaction history file with capacity to store at least 1000 transactions without losing any data.

2.3.2.8 Diagnostics

The local processor shall incorporate built-in diagnostics implemented in software/firmware, hardware or both. Each time the local processor is started it shall automatically execute a series of built-in tests, and report equipment malfunctions, configuration errors, and inaccuracies to the central processor and on the system printer. The EECS shall annunciate a fail-safe alarm if the local processor fails the built-in diagnostics. Diagnostic aids shall be provided within the local processor to aid in system set-up, maintenance, and troubleshooting.

2.3.3 Printers

Printers shall be of the laserjet type with print speeds resulting in no less than eight (8) pagers per minutes. Separate printer stands with paper trays shall be provided for each printer. Seven thousand sheets of printer paper and 12 toner cartridges shall be furnished after successful completion of the endurance test for each printer.

2.3.4 Color Graphics Monitor Display

The color graphic display shall consist of a microprocessor based color monitor with a minimum diagonal measurement of 431 mm (17 inches) and display at least eight colors. The unit shall have refresh memory with a screen refresh rate of at least 60 times per second, noninterlaced. The monitor shall have a minimum screen display of 1920 characters (24 lines with 80 characters each). The screen display shall have a minimum resolution of 640 by 350 pixels.

2.3.5 Keyboards

Keyboards shall be furnished for use with the monitor. As a minimum, the keyboard shall include a 96-character standard ASCII character set based on ANSI X3.154. The keyboard shall provide the man/machine interface to allow the operator to interact with EECS command and applications software.

2.3.6 Enhancement Hardware

Enhancement hardware such as special function keyboards, special function keys, light pens, touch screen devices, or mouse shall be provided if they are required to operate the system.

2.3.7 System Maintenance Hardware

Hardware recommended by the system manufacturer for performing system maintenance shall be provided.

2.4 SOFTWARE

Software shall be categorized as system software and application software. System software shall consist of software to support system setup, system operation, routine hard drive back-ups, and other maintenance routines. Application software shall consist of software to provide complete operation of the EECS. The Contractor shall provide software in modules to meet the requirements of the system to be installed at the site.

2.4.1 User Alteration

The design of processor assemblies shall preclude user-alteration of the integral firmware and shall preclude use of the processor assemblies for purposes other than the intended system, portal, and zone status monitoring, control, annunciation, and display.

2.4.2 System Software

System software including the operating system shall be complete off-the-shelf, modifiable for the site specific needs of the EECS. The system software shall be compatible with all system hardware and applications software. System software shall support the application programs. Each program shall be assigned a priority level. The priority levels shall be sufficient in number to provide total functional operation as specified. The standard system software supplied shall not be modified in any way that would preclude the purchase of a standard maintenance and service contract from the computer manufacturer.

2.4.2.1 Bootstrap Program

The software shall include a bootstrap loader program adequate to automatically initiate EECS operation when console equipment is powered up. The bootstrap loader program shall also load the central processor memory from the fixed hard disk system.

2.4.2.2 Disk Operating System

A currently available and supported disk operating system shall be utilized, including:

a. Program control functions including program loading, execution, and termination.

b. Error detection and recovery.

c. Device drivers shall be supplied as needed for operation of the keyboard, monitor, printer, disk systems, and enhancement hardware.

d. File management including creation and deletion of files, searching, sequential and random file access, and maintenance of a file directory and subdirectories.

e. Disk management including drive selection, partitioning, space allocation and recovery, write verification, and a copy routine to transfer information between any two devices.

f. Diagnostic programs to check the status of the Operator's Console on its screen.

g. Maintain current date and time.

2.4.3 Disk Compress Software

Utility software shall be provided to recover file space lost to fragmentation by making files on the fixed hard disk and floppy disk archives as contiguous as possible.

2.4.4 Application Software

Application software shall be comprised of computer programs and computer databases as required. Application software shall be menu driven or command driven. The software programs provided shall not require modification to monitor and control the number of output relays and zones specified or shown. The manufacturer shall upgrade, update, revise, or otherwise modify software and firmware as required to incorporate manufacturer developed improvements or firmware options for a period of one year after installation.

2.4.4.1 Password Control

Any action which could compromise the security or integrity of the EECS shall be password controlled. A minimum of three (3) password levels shall be provided.

2.4.4.2 Data Entry

Installation-related characteristics shall be user-entered by keyboard control operations prompted by display instructions for the operator. Entry of installation-related data shall not require specific computer training or knowledge of computer operation, computer languages, or programming procedures. Data entry shall neither require nor permit processor assembly or microprocessor programming or modification of the integral firmware.

2.4.4.3 Input Error Recovery

The system shall supervise operator inputs to ensure they are correct for proper execution. Operation assistance shall be provided whenever a command cannot be executed because of operator input errors. The system shall explain to the operator, in English words and phrases, why the command cannot be executed. Error responses shall not require an operator to look up a code in a manual or other hardcopy document. Conditions for which operator error assistance messages shall be generated include but not be limited to:

a. The command used is incorrect or incomplete.

b. The operator is restricted from using that command.

c. The command addresses a point which is disabled or out of service.

d. The command addresses a point which does not exist.

e. The command would violate constraints.

2.5 ELECTRONIC ENTRY CONTROL SYSTEM ALARMS

The EECS shall annunciate an alarm when the following conditions occur. All alarms shall be annunciated at the console both audibly and visually. An alarm report shall also be printed on the system printer. The alarm annunciation shall continue until acknowledged by the system operator. Only one control key shall be needed to acknowledge an alarm. The EECS shall control, monitor, differentiate, rank, annunciate, and allow operators to acknowledge, in real time, alarm signals generated by EECS equipment. The EECS shall also provide a means to define and customize the annunciation of each alarm type. The EECS shall use audio and visual information to differentiate the various types of alarms. Each alarm type shall be assigned an audio and a unique visual identifier.

2.5.1 Local Processor Failure

The EECS shall continuously supervise local processor bus lines by monitoring the presence of communications with local processors and shall annunciate an alarm if a communications failure is detected.

2.5.2 Duress

The EECS shall annunciate a duress alarm when a duress code is entered at a keypad or a duress switch is activated. Duress alarms shall be annunciated in such a manner as to distinguish them from all other system alarms. Duress alarms shall not be annunciated or otherwise indicated locally nor shall a duress alarm cause any special or unusual indications at the portal or area initiating the duress alarm. Duress alarms shall only be annunciated at the operator console and remote displays. Alarms shall be annunciated on the monitor and shall be logged on the printer.

2.5.3 Guard Tour

The EECS shall annunciate an alarm when a security guard does not arrive at a guard tour check point during the defined time window.

2.5.4 Software Tamper

The EECS shall annunciate a tamper alarm when unauthorized changes to the EECS database files are attempted. Three consecutive unsuccessful attempts to log onto an EECS central processor shall generate a software tamper alarm. A software tamper alarm shall also be generated when an operator or other individual makes 3 consecutive unsuccessful attempts to invoke central processor functions beyond their authorization level. The EECS application software shall maintain a transcript file of the last 5000 commands entered at each central processor to serve as an audit trail. The EECS shall not allow write access to the system

transcript files by any person, regardless of their authorization level. The EECS shall only allow acknowledgment of software tamper alarms and read access to the EECS transcript files by operators and managers with the highest password authorization level available in the system.

2.5.5 Access Denial

The EECS shall annunciate an alarm when an attempt has been made to pass through a controlled portal and access has been denied.

2.5.6 Portal Open

The EECS shall annunciate an alarm when an access controlled portal has been open longer than a predefined time delay. The time delay shall be adjustable, under operator control, over a range of at least from one (1) second to one (1) minute with a maximum resolution of one (1) second.

2.5.7 Bolt Not Engaged

The EECS shall annunciate an alarm when the bolt at an access controlled portal has been open longer than a predefined time delay and generate an access control alarm. The time delay shall be adjustable, under operator control, over a range of at least from 1 second to 1 minute with a maximum resolution of 1 second.

2.5.8 Strike Not Secured

The EECS shall annunciate an alarm when the strike at an access controlled portal has been left unsecured longer than a predefined time delay and generate an access control alarm. The time delay shall be adjustable, under operator control, over a range of at least from 1 second to 1 minute with a maximum resolution of 1 second.

2.5.9 Intrusion Alarm

The EECS shall annunciate alarms based on sensor or tamper alarm. Intrusion alarms shall generate a single unique signal indicative of this alarm type.

2.5.9.1 Map Displays/Graphics Linked to Alarms

The EECS shall relate map displays or other graphics to alarms. Whenever one of the predefined alarms is annunciated on an EECS control terminal, the map display or graphic related to the alarm shall be automatically displayed. The definition of which map displays or graphics shall be displayed with which alarms shall be selectable by system operators through simple menu choices.

2.5.9.2 User Defined Prompts/Messages Linked to Alarms

The EECS shall provide a means to relate operator defined prompts and other messages to predefined alarms. Whenever one of the predefined alarms is annunciated on an EECS control terminal, the prompts or messages related to the alarm shall be automatically displayed.

2.5.9.3 Alarm Shunting/System Bypass

The EECS shall provide a means to ignore operator selected alarm types at operator selected portals in order to allow standard access control procedures to be bypassed (shunted). Predefined alarm shunting shall only be available to system operators with the proper password. With the system on-line, the operators shall be able to select at least 16 alarms and 16 portals to be shunted. The EECS shall also provide for predefined alarm shunting based upon time zones. This capability shall only apply to the access control alarm type.

2.6 SYSTEM SELF-TEST

The design of the EECS computer equipment shall provide for continuous internal program and data memory self test.

2.7 SYSTEM EXPANSION CAPABILITY

The EECS central processor, associated hardware, and system and application software shall allow for a system expansion of at least [50] percent more portals. The additional portals shall include associated terminal and facility interface devices, local processors, and output relays. All EECS functions, response times, and throughput rates shall be maintained at all portals.

2.8 FIELD HARDWARE

2.8.1 Card Readers and Credential Cards

EECS card readers shall use unique coded data stored in or on a compatible credential card as an identifier. The card readers shall be proximity type, and shall incorporate built-in heaters or other cold weather equipment to extend the operating temperature range as needed for operation at the site. Communications protocol shall be compatible with the local processor. The Contractor shall furnish card readers to read passive proximity detection credential cards, and the matching credential cards. The cards shall contain coded data arranged as a unique identification code stored on or within the card, and of the type readable by the EECS card readers. The Contractor shall include within the card's encoded data a nonduplicated unique facility identification code common to all EECS credential cards provided. Enrollment equipment to support local encoding of badges including cryptographic and other internal security checks shall be supplied. Cards, card readers, and enrollment equipment shall be compatible.

2.8.1.1 Proximity

Proximity card readers shall use passive proximity detection and shall not require contact with the proximity credential card for proper operation. Passive detection proximity card readers shall use a swept-frequency, radio frequency field generator to read the resonant frequencies of tuned circuits laminated into compatible credential cards. The resonant frequencies read shall constitute a unique identification code number. The card reader shall read proximity cards in a range from 0 mm (0 inches) to at least 150 mm (6 inches) from the reader. The credential card design shall allow for a minimum of 32,000 unique identification codes per facility.

2.8.1.2 Card Reader Display

The card readers shall include an LED or other visual indicator display. The display shall indicate power on/off, and whether user passage requests have been accepted or rejected. Audilbe indication shall also be provided. Card reader operation shall be in full compliance with the Americans with Disabilities Act (ADA) requirements.

2.8.1.3 Card Reader Response Time

The card reader shall respond to passage requests by generating a signal to the local processor. The response time shall be 800 milliseconds or less from the time the card reader finishes reading the credential card until a response signal is generated.

2.8.1.4 Card Reader Size and Weight

The card reader shall not be more than 255 mm (10 inches) high by 255 mm (10 inches) wide by 130 mm (5 inches) deep. The card reader shall not weigh more than 7 kg (15 pounds).

2.8.1.5 Card Reader Power

The card reader shall be powered from the source as shown and shall not dissipate more than 150 watts.

2.8.1.6 Card Reader Mounting Method

Card readers shall be suitable for surface, semi-flush, pedestal, or weatherproof mounting as required. Card reader mounting method and height shall be in full compliance with ADA.

2.8.1.7 Credential Card Modification

EECS cards shall be able to be modified by lamination or direct permanent color printing during the enrollment process for use as a picture and identification badge as needed for the site without reduction of readability. The design of the credential cards shall allow for the addition of at least one slot or hole to accommodate the attachment of a clip for affixing the credential card to the type of badgeholder used at the site.

2.8.1.8 Card Size and Dimensional Stability

Credential cards shall be [54.0 by 85.7 mm (2-1/8 by 3-3/8 inches)]. The credential card material shall be dimensionally stable in the sense that an undamaged card with deformations resulting from normal use shall be readable by the card reader.

2.8.1.9 Card Materials and Physical Characteristics

The credential card shall be abrasion resistant, non-flammable, and present no toxic hazard to humans when used in accordance with manufacturer's instructions. The credential card shall be impervious to solar radiation and the effects of ultra-violet light.

2.8.1.10 Card Construction

The credential card shall be of core and laminate or monolithic construction. Lettering, logos and other markings shall be hot stamped into the credential material. [The Contractor shall provide a means to allow on-site assembly and lamination of credential cards by Government personnel.]

2.8.1.11 Card Durability and Maintainability

The credential cards shall be designed and constructed to yield a useful lifetime of at least 5000 insertions or swipes or five (5) years whichever results in a longer period of time. The credential card shall be able to be cleaned by wiping the credential card with a sponge or cloth wetted with a soap and water solution.

2.8.2 Keypads

EECS keypads shall use a unique combination of alphanumeric and other symbols as an identifier. Keypads shall contain an integral alphanumeric/special symbols keyboard with symbols arranged in [ascending ASCII code ordinal sequence] [random scrambled order]. Communications protocol shall be compatible with the local processor.

2.8.2.1 Keypad Display

Keypads shall include an LED or other type of visual indicator display and provide visual [and audible] status indications and user prompts. The display shall indicate power on/off, and whether user passage requests have been accepted or rejected. [The design of the keypad display or keypad enclosure shall limit the maximum horizontal and vertical viewing angles of the keypad. The maximum horizontal viewing angle shall be plus and minus 5 degrees or less off a vertical plane perpendicular to the plane of the face of the keypad display. The maximum vertical viewing angle shall be plus and minus 15 degrees or less off a horizontal plane perpendicular to the plane of the face of the keypad display.]

2.8.2.2 Keypad Response Time

The keypad shall respond to passage requests by generating a signal to the local processor. The response time shall be 800 milliseconds or less from the time the last alphanumeric symbol is entered until a response signal is generated.

2.8.2.3 Keypad Size and Weight

The keypad shall not be more than 255 mm (10 inches) high by 255 mm (10 inches) wide by 128 mm (5 inches) deep. The keypad shall not weigh more than 4.5 kg (10 pounds).

2.8.2.4 Keypad Power

The keypad shall be powered from the source as shown and shall not dissipate more than 150 watts.

2.8.2.5 Keypad Mounting Method

Keypads shall be suitable for surface, semi-flush, pedestal, or weatherproof mounting as required.

2.8.2.6 Keypad Duress Codes

Keypads shall provide a means for users to indicate a duress situation by entering a special code. Upon receipt of the special duress code, the EECS shall annunciate a duress alarm.

2.8.3 Enrollment Center Equipment

The Contractor shall provide enrollment equipment to enroll personnel into, and disenroll personnel from the EECS database. The enrollment equipment shall only be accessible to authorized EECS enrollment personnel. The Contractor shall provide enough credential cards for all personnel to be enrolled at the site plus an extra [50] percent for future use. The enrollment equipment shall include subsystem configuration controls and electronic diagnostic aids for subsystem set-up and troubleshooting with the central processor(s).

2.8.4 Console Accessories

A steel desk-type console, a swivel chair on casters and equipment racks shall be provided. The console shall be as specified in EIA 310-D. Equipment racks shall be as specified in EIA 310-D. All equipment, with the exception of the printers, shall be rack mounted in the console and equipment racks. The console and equipment racks and cabinets shall be color coordinated. A locking cabinet approximately 1.8 m (6 feet) high, 900 mm (3 feet) wide, and 600 mm (2 feet) deep with three adjustable shelves, and two storage racks for storage of disks, tapes, printouts, printer paper, ribbons, manuals, and other documentation shall be provided.

2.8.5 Uninterruptible Power Supplies

2.8.5.1 Local Processor and Console Power Supply

Local processors, terminal devices and console equipment shall be powered from an uninterruptible power source. The uninterruptible power source shall provide 4 hours battery back-up in the event of primary power failure, and shall automatically fully recharge the batteries within 12 hours after primary power is restored. There will be no equipment malfunctions or perturbations during the switch from primary to battery power and vice versa. Batteries shall be sealed, non-outgassing type.

2.9 DATA COMMUNICATIONS

2.9.1 Data Transmission Media

DTM shall be provided as specified in Section 16768 FIBER OPTIC DATA TRANSMISSION SYSTEM and in accordance with the manufacturer’s recommendations. Wireline DTM circuits shall not be used to power the local processors. Interrogation and response communications between the EECS and local processor shall use one circuit for interrogation and one circuit for

response and may have one or more parallel branches.

2.9.2 Error Detection and Retransmission

A cyclical redundancy code or equivalent error detection scheme shall be used with communications between the local processor and the central processor which shall detect all single and double bit errors, all burst errors of eight bits or less, and at least 99 percent of all other multi-bit and burst error conditions. Interactive or product error detection codes alone shall not be acceptable. A message shall be declared in error if a single bit is received incorrectly. The system shall retransmit all messages which were transmitted with errors. A two digit decimal number shall be operator assignable to each DTM circuit representing the number of retransmission attempts. When the number of consecutive retransmission attempts equals the assigned quantity, the central processor shall annunciate a communications failure alarm. The system shall monitor the frequency of data transmission errors for display and logging.

2.10 WIRE AND CABLE

2.10.1 General

The Contractor shall provide all wire and cable not indicated as GFE. All wiring shall meet NFPA 70 standards.

2.10.2 Terminal Device Wiring

Terminal device wiring shall be shielded and as needed to match hardware. Multiconductor wire shall be at least 20 AWG and shall have an outer jacket of PVC.

2.10.3 Class 2 Low Energy Conductors

The conductor sizes specified for digital functions shall take precedence over any requirements for Class 2 low energy signal circuit conductors specified elsewhere.

2.11 INTRUSION DETECTION DEVICES

The following intrusion detection devices shall be monitored by the EECS.

2.11.1 Passive Infrared Motion Sensor

The passive infrared sensors shall be used as an intrusion detection sensor in controlled areas of the facility as shown. Passive infrared sensors shall also be used as request to exit devices within the facility as shown. The passive infrared motion sensor shall detect changes in the ambient level of infrared emissions caused by the movement of a standard intruder within the sensor's field of view. Upon detecting such changes, the sensor shall transmit an alarm signal to the alarm annunciation system. The sensor shall detect a change in temperature of no more than minus 16.6 degrees C (2 degrees F), and shall detect a standard intruder traveling within the sensor's detection pattern at a speed of 7.62 to 190.5 mm/s (0.3 to 7.5 feet per second) across two adjacent segments of the field of view. Emissions monitored by the sensor shall be in the 8 to 14

micron range. The sensor shall be adjustable to obtain the coverage pattern shown. The sensor shall be equipped with a temperature compensation circuit.

2.11.1.1 Test Indicator

The passive infrared motion sensor shall be equipped with an LED walk test indicator. The walk test indicator shall not be visible during normal operations. When visible, the walk test indicator shall light when the sensor detects an intruder. The sensor shall either be equipped with a manual control, located within the sensor's housing, to enable/disable the test indicator or the test indicator shall be located within the sensor such that it can only be seen when the housing is open/removed.

2.11.1.2 Remote Test

A remote test capability shall be provided. The remote test hardware may be integral to the sensor or a separate piece of equipment. The remote test shall be initiated when commanded by the alarm annunciation system. The remote test shall excite the sensing element and associated electronics causing an alarm signal to be transmitted to the alarm annunciation system. The sensor stimulation generated by the remote test hardware shall simulate a standard intruder moving within the sensor's detection pattern.

2.11.2 Balanced Magnetic Switch (BMS)

Balanced magnetic switches shall be used to monitor the position of doors as shown and shall be monitored by the EECS. The BMS shall detect a 6 mm (1/4 inch) of separating relative movement between the magnet and the switch housing. Upon detecting such movement, it shall transmit an alarm signal to the alarm annunciation system.

2.11.2.1 BMS Subassemblies

The BMS shall consist of a switch assembly and an actuating magnetic assembly. The switch mechanism shall be of the balanced magnetic type. Each switch shall be provided with an overcurrent protective device, rated to limit current to 80 percent of the switch capacity. Switches shall be rated for a minimum lifetime of one million operations. The magnet assembly shall house the actuating magnet.

2.11.2.2 Housing

The housings of surface mounted switches and magnets shall be made of nonferrous metal and shall be weatherproof. The housings of recess mounted switches and magnets shall be made of nonferrous metal or plastic.

2.11.2.3 Remote Test

A remote test capability shall be provided. The remote test shall be initiated when commanded by the alarm annunciation system. The remote test shall activate the sensor's switch mechanism causing an alarm signal to be transmitted to the alarm annunciation system. The remote test shall

simulate the movement of the actuating magnet relative to the switch subassembly.

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall install all system components, including Government furnished equipment, and appurtenances in accordance with the manufacturer's instructions, ANSI C2 and as shown, and shall furnish all necessary interconnections, services , and adjustments required for a complete and operable system as specified and shown. Contractor installation shall be performed by technicians trained on the equipment to be installed and approved by the manufacturer. Control signal, communications, and data transmission line grounding shall be installed as necessary to preclude ground loops, noise, and surges from adversely affecting system operation.

3.1.1 Installation

The contractor shall install the EECS in accordance with the standards for safety, NFPA 70, UL 681, UL 1037 and UL 1076, and the appropriate installation manual for each equipment type. Components within the system shall be configured with appropriate service points to pinpoint system trouble in less than 20 minutes. All wiring, including low voltage wiring outside the security control console, cabinets, boxes, and similar enclosures, shall be installed in rigid galvanized steel conduit conforming to UL 6. Minimum size of conduit shall be 15 mm (1/2 inch). Connections shall be tight tapered threaded. No threadless fittings or couplings shall be used. Conduit outlet boxes, pull boxes, junction boxes, conduit fittings and similar enclosures shall be cast metal or malleable iron with threaded hubs or bodies. Electric metallic tubing (EMT), armored cable, nonmetallic sheathed cable, or flexible conduit will not be permitted except where specifically shown. DTM shall not be pulled into conduits or placed in raceways, compartments, outlet boxes, junction boxes, or similar fittings with other building wiring. Flexible cords or cord connections shall not be used to supply power to any components of the system, except where specifically noted herein. Grounding shall be installed as necessary to preclude ground loops, noise, and surges from adversely affecting system operation.

3.1.2 Enclosure Penetrations

All enclosure penetrations shall be from the bottom unless the system design requires penetrations from other directions. Penetrations of interior enclosures involving transitions of conduit from interior to exterior, and all penetrations on exterior enclosures shall be sealed with rubber silicone sealant to preclude the entry of water. The conduit riser shall terminate in a hot-dipped galvanized metal cable terminator. The terminator shall be filled with an approved sealant as recommended by the cable manufacturer, and in such a manner that the cable is not damaged.

3.1.3 Cold Galvanizing

All field welds and/or brazing on factory galvanized boxes, enclosures, conduits, etc., shall be coated with a cold galvanized paint containing at least 95 per cent zinc by weight.

3.1.4 Installation - Software

The Contractor shall load all software as specified and required for an operational EECS, including data bases and all specified programs. Upon successful completion of the endurance test, the Contractor shall provide original and backup copies on floppy disk of all accepted software including diagnostics.

3.2 SYSTEM STARTUP

The Contractor shall not apply power to the EECS until after:

a. EECS equipment items and DTM have been set up in accordance with manufacturer's instructions.

b. A visual inspection of the EECS has been conducted to insure that defective equipment items have not been installed and that there are no loose connections.

c. System wiring has been tested and verified as correctly connected as indicated.

d. All system grounding and transient protection systems have been verified as properly installed and connected as indicated.

e. Power supplies to be connected to the EECS have been verified as the correct voltage, phasing, and frequency as indicated.

f. Satisfaction of the above requirements shall not relieve the Contractor of responsibility for incorrect installations, defective equipment items, or collateral damage as a result of Contractor work/equipment.

3.3 SUPPLEMENTAL CONTRACTOR QUALITY CONTROL

The following requirements supplement the contractor quality control requirements specified elsewhere in the contract. The contractor shall provide the services of technical representatives who are thoroughly familiar with all components and installation procedures of the installed EECS and are approved by the Contracting Officer. These representatives will be present on the job site during the preparatory and initial phases of quality control to provide technical assistance. These representatives shall also be available on an as needed basis to provide assistance with follow-up phases of quality control. These technical representatives shall participate in the testing and validation of the system and shall provide certification that their respective system portions meet its contractual requirements.

3.4 SITE TESTING

3.4.1 General

The Contractor shall provide all personnel, equipment, instrumentation, and supplies necessary to perform all site testing. The Government will witness all performance verification and endurance testing. Written permission must be obtained from the Government before proceeding with the next phase of testing. Original copies of all data produced during performance verification and

endurance testing shall be turned over to the Government at the conclusion of each phase of testing prior to Government approval of the test.

3.4.2 Contractor's Field Testing

The Contractor shall calibrate and test all equipment, verify DTM operation, place the integrated system in service, and test the integrated system. The Contractor shall deliver a report describing results of functional tests, diagnostics, and calibrations including written certification to the Government that the installed complete system has been calibrated, tested, and is ready to begin performance verification testing. The report shall also include a copy of the approved performance verification test procedure.

3.4.3 Performance Verification Test

The Contractor shall demonstrate that the completed EECS complies with the contract requirements. Using approved test procedures, all physical and functional requirements of the project shall be demonstrated and shown. The performance verification test, as specified, shall not be started until after receipt by the Contractor of written permission from the Government, based on the Contractor's written report. This shall include certification of successful completion of testing as specified in paragraph "Contractor's Field Testing", and upon successful completion of training as specified. The Government may terminate testing at any time when the system fails to perform as specified. Upon termination of testing by the Government or by the Contractor, the Contractor shall commence an assessment period as described for Endurance Testing Phase II. Upon successful completion of the performance verification test, the Contractor shall deliver test reports and other documentation as specified to the Government prior to commencing the endurance test.

3.4.4 Endurance Test

a. General: The Contractor shall demonstrate system reliability and operability at the specified throughput rates for each portal, and the Type I and Type II error rates specified for the completed system. The endurance test shall be conducted in phases as specified. The endurance test shall not be started until the Government notifies the Contractor, in writing, that the performance verification test is satisfactorily completed, training as specified has been completed, and correction of all outstanding deficiencies has been satisfactorily completed. The Contractor shall provide one operator to operate the system 24 hours per day, including weekends and holidays, during Phase I and Phase III endurance testing, in addition to any Government personnel that may be made available. The Government may terminate testing at any time the system fails to perform as specified. Upon termination of testing by the Government or by the Contractor, the Contractor shall commence an assessment period as described for Phase II. During the last day of the test the Contractor shall verify the operation of each terminal device. Upon successful completion of the endurance test, the Contractor shall deliver test reports and other documentation as specified to the Government prior to acceptance of the system.

b. Phase I (Testing): The test shall be conducted 24 hours per day for 15 consecutive calendar days, including holidays, and the system shall operate as specified. The Contractor shall make no repairs during this phase of testing unless authorized by the Government in writing. If

the system experiences no failures during Phase I testing, the Contractor may proceed directly to Phase III testing after receipt by the Contractor of written permission from the Government.

c. Phase II (Assessment): After the conclusion of Phase I, the Contractor shall identify all failures, determine causes of all failures, repair all failures, and deliver a written report to the Government. The report shall explain in detail the nature of each failure, corrective action taken, results of tests performed, and shall recommend the point at which testing should be resumed. After delivering the written report, the Contractor shall convene a test review meeting at the jobsite to present the results and recommendations to the Government. The meeting shall not be scheduled earlier than 5 business days after receipt of the report by the Government. As a part of this test review meeting, the Contractor shall demonstrate that all failures have been corrected by performing appropriate portions of the performance verification test. Based on the Contractor's report and the test review meeting, the Government will determine the restart date, or may require that Phase I be repeated. If the retest is completed without any failures, the Contractor may proceed directly to Phase III testing after receipt by the Contractor of written permission from the Government.

d. Phase III (Testing): The test shall be conducted 24 hours per day for 15 consecutive calendar days, including holidays, and the system shall operate as specified. The Contractor shall make no repairs during this phase of testing unless authorized by the Government in writing.

e. Phase IV (Assessment): After the conclusion of Phase III, the Contractor shall identify all failures, determine causes of all failures, repair all failures, and deliver a written report to the Government. The report shall explain in detail the nature of each failure, corrective action taken, results of tests performed, and shall recommend the point at which testing should be resumed. After delivering the written report, the Contractor shall convene a test review meeting at the jobsite to present the results and recommendations to the Government. The meeting shall not be scheduled earlier than 5 business days after receipt of the report by the Government. As a part of this test review meeting, the Contractor shall demonstrate that all failures have been corrected by repeating appropriate portions of the performance verification test. Based on the Contractor's report and the test review meeting, the Government will determine the restart date, and may require that Phase III be repeated. The Contractor shall not commence any required retesting until after receipt of written notification by Government. After the conclusion of any retesting which the Government may require, the Phase IV assessment shall be repeated as if Phase III had just been completed.

f. Exclusions: The Contractor will not be held responsible for failures in system performance resulting from the following:

(1) An outage of the main power in excess of the capability of any backup power source, provided that the automatic initiation of all backup sources was accomplished and that automatic shutdown and restart of the EECS performed as specified.

(2) Failure of a Government furnished communications circuit, provided that the failure was not due to Contractor furnished equipment, installation, or software.

(3) Failure of existing Government owned equipment, provided that the failure

was not due to Contractor furnished equipment, installation, or software.

(4) The occurrence of specified nuisance alarms.

(5) The occurrence of specified environmental alarms.

3.5 U.S. ARMY CORPS OF ENGINEERS GUIDE SPECIFICATION REQUIREMENTS

3.5.1 Guide Specifications Requirements:

Included hereinafter is the listing of Corps of Engineers Guide Specification (CEGS) applicable to portions of the project. The use of CEGS marked with an asterisk (*) is mandatory for preparation of construction specifications. Master specifications such as Masterspec, Specsintact, or others may be used at the option of the Contractor and with the approval of the Contracting Officer. These specifications shall be edited as required to reflect the project requirements.

3.5.2 List of CEGS Guide Specifications:

16752* Electronic Entry Control Systems

-- End of Section --

AVIONICS RESEARCH LAB PHASE IIIA, WRIGHT-PATTERSON AFB, OHIO

SECTION 16768

FIBER OPTIC DATA TRANSMISSION SYSTEM
(FOR D/B CONTRACTOR INFORMATION ONLY)

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

47 CFR 15	Radio Frequency Devices
EIA 170	(1957) Electrical Performance Standards - Monochrome Television Studio Facilities
EIA 310-D	(1992) Cabinets, Racks, Panels, and Associated Equipment.
EIA 455-13	(1984; R 1990) FOTP-13 Visual and Mechanical Inspection of Fibers Cables, Connectors and/or Other Fiber Optic Devices.
EIA 455-25A	(1989) FOTP-25 Repeated Impact Testing of Fiber Optic Cables and Cable Assemblies.
EIA 455-30B	(1991) FOTP-30 Frequency Domain Measurement of Multimode Optical Fiber Information Transmission Capacity.
EIA 455-41	(1985) FOTP-41 Compressive Loading Resistance of Fiber Optic Cables.
EIA 455-46A	(1990) FOTP-46 Spectral Attenuation Measurement for Long-Length, Graded-Index Optical Fibers.
EIA 455-47B	(1992) FOTP-47 Output Far-Field Radiation Pattern Measurement.
EIA 455-58A	(1990) FOTP-58 Core Diameter Measurement of Graded-Index Optical Fibers.
EIA 455-59	(1989) FOTP-59 Measurement of Fiber Point Defects Using an OTDR.
EIA 455-61	(1989) FOTP-61 Measurement of Fiber or Cable Attenuation Using an OTDR.
EIA 455-65	(1988) FOTP-65 Optical Fiber Flexure Test
EIA 455-81A	(1991) FOTP-81 Compound Flow (Drip) test for File Fiber Optic Cable
EIA 455-82B	(1992) FOTP-82 Fluid Penetration Test for Fluid-Blocked Fiber Optic Cable

EIA 455-88	(1987) FOTP-88 Fiber Optic Cable Bend Test
EIA 455-91	(1986; R 1991) FOTP-91 Fiber Optic Cable Cyclic Flexing Test.
EIA 455-104A	(1993) FOTP-104 Fiber Optic Cable Cyclic Flexing Test
EIA 455-170	(1989) FOTP-170 Cable Cutoff Wavelength of Single-Mode Fiber by Transmitted Power
EIA 455-171	(1987) FOTP-171 Attenuation by Substitution Measurement - for Short-Length Multimode Graded-Index and Single-Mode Optical Fiber Cable Assemblies
EIA 455-177A	(1992) FOTP-177 Numerical Aperture Measurement of Graded-Index Optical Fibers
EIA 485	(1983) Standard for Electrical Characteristics of Generators and Receivers for Use in Balanced Digital Multipoint Systems
EIA 606	(1993) Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
IEEE C62.41	(1991) Surge Voltages in Low-Voltage AC Power Circuits
NEMA 250	(1991) Enclosures for Electrical Equipment (1000 volts Maximum)
NFPA 70	(1996) National Electrical Code
UL 910	(1995; Rev May 1995) Test for Flame-Propagation and Smoke-Density Values for Electrical and Optical-Fiber Cables Used in Spaces Transporting Environmental Air
UL 1666	(1991) Test for Flame Propagnation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts

1.2 SYSTEM DESCRIPTION

1.2.1 General

A fiber optics (FO) data transmission system (DTS) shall be provided. The data transmission system shall consist of fiber optic transmission media, transmitter and receiver modules, FO modems, transceiver modules, repeaters, power line surge protection and terminal devices (such as connectors, patch panels and breakout boxes). The data transmission system shall interconnect system components as shown. Computing devices, as defined in 47 CFR 15, shall be certified to comply with the requirements for Class B computing devices and labeled as set forth in 47 CFR

15.

1.2.2 Environmental Requirements

Equipment and cable to be utilized indoors shall be rated for continuous operation under ambient environmental conditions of 0 to 50 degrees C (35 to 120 degrees F) dry bulb and 10 to 95 percent relative humidity, noncondensing. Equipment shall be rated for continuous operation under the ambient environmental temperature, pressure, humidity, and vibration conditions specified or normally encountered for the installed location. Fiber optic cable for outdoor installation shall be rated for [minus 40 to plus 60 degrees C (minus 40 to plus 122 degrees F).

1.2.3 Hazardous Environment

System components located in fire or explosion hazard areas shall be rated and installed according to Chapter 5 of NFPA 70 and as shown.

1.2.4 Electrical Requirements

The equipment shall operate from a voltage source as shown, plus or minus 10 percent, and 60 Hz, plus or minus 2 percent.

1.2.5 Input Line Surge Protection

Inputs and outputs shall be protected against surges induced on wiring including wiring installed outdoors. Communications equipment shall be protected against surges induced on any communications circuit. Cables and conductors (except fiber optics which serve as communications circuits from consoles to field equipment) and between field equipment, shall have surge protection circuits installed at each end. Protection shall be furnished at equipment, and additional triple electrode gas surge protectors rated for the application on each wire line circuit shall be installed within 1 meter (3 feet) of the building cable entrance. Fuses shall not be used for surge protection. The inputs and outputs shall be tested in both normal mode and common mode using the following two waveforms:

a. A 10 microsecond rise time by 1000 microsecond pulse width waveform with a peak voltage of 1500 volts and a peak current of 60 amperes.

b. An 8 microsecond rise time by 20 microsecond pulse width waveform with a peak voltage of 1000 volts and a peak current of 500 amperes.

1.2.6 Power Line Surge Protection

Equipment connected to ac circuits shall be protected from power line surges. Equipment shall

meet the requirements of IEEE C62.41. Fuses shall not be used for surge protection.

1.3 DELIVERY OF TECHNICAL DATA

Computer software and technical data (including technical data which relates to computer software), which are specifically identified in this specification shall be delivered strictly in accordance with the CONTRACT CLAUSES, SPECIAL CONTRACT REQUIREMENTS, and in accordance with the Contract Data Requirements List (CDRL), DD Form 1423, which is attached to and thereby made a part of this contract. All data delivered shall be identified by reference to the particular specification paragraph against which it is furnished. If the DTM system is being installed in conjunction with another system such as an intrusion detection system, electronic entry control system, closed circuit television system, energy monitoring and control system, or utility monitoring and control system, the Technical Data Packages shall be submitted as part of the Technical Data Package for Section 16752.

1.3.1 Group I Technical Data Package

1.3.1.1 System Drawings

The package shall include the following:

a. Communications system block diagram.

b. FO receivers, transmitters, transceivers, and FO modem installation, block diagrams, and wiring diagrams.

c. FO receivers, transmitters, transceivers, and FO modem physical layout and schematics.

d. Details of interfaces with other systems.

e. Details of connections to power sources, including grounding.

f. Details of surge protection device installations.

g. Details of cable splicing and connector installations.

h. Details of aerial cable and messenger installation on poles, cable entrance to buildings, and termination inside enclosures.

i. Details of underground cable installation, cable entrance into buildings, and terminations inside enclosures.

1.3.1.2 Equipment Data

A complete data package shall be delivered for all material, including field and system equipment.

1.3.1.3 Data Transmission System Description and Analyses

The data package shall include complete system description, and analyses and calculations used in sizing equipment required by these specifications. Descriptions and calculations shall show how the equipment will operate as a system to meet the specified performance. The data package shall include the following:

a. FO receivers, transmitters, transceivers, FO modem transmit and receive levels, and losses in decibels (dB) on each communication link.

b. Digital transmitter and receiver communication speed and protocol description.

c. Analog signal transmission method and bandwidth of the transmitter and receiver.

d. Data transmission system expansion capability and method of implementation.

e. FO system signal-to-noise ratio calculation for each communication link.

f. Flux-budget and gain margin calculation for each link.

1.3.1.4 Certifications

Specified manufacturer's certifications shall be included with the data package.

1.3.2 Group IV Technical Data Package

1.3.2.1 Performance Verification and Endurance Testing Data

The Contractor shall prepare procedures and reports for the performance verification test and endurance test. Test procedures shall be prepared in accordance with Section 16000 and this specification. Testing shall use the configured and installed system as approved by the Government. Where required, the Contractor shall simulate conditions of operation to demonstrate the performance of the system. The test plan shall describe the applicable tests to be performed, other pertinent information such as specialized test equipment required, length of performance verification test and endurance test, and location of the performance verification test and endurance test. The procedures shall explain in detail, step-by-step actions and expected results to demonstrate compliance with the requirements of this specification, and the methods for simulating the necessary conditions of operation to demonstrate performance of the system. The

test report shall describe the results of testing to include the date, time, location and system component designations of material and equipment tested. Testing action shall be recorded whether successful or not. Reasons for termination of testing for any reason shall be recorded in the report. Testing work sheets, printouts, strip charts, oscilloscope or OTDR photographs, raw data, analyzed data and testing conclusions shall be included in the report. The Contractor shall deliver the performance verification test and endurance test procedures to the Government for approval. After receipt of written approval of test procedures, the Contractor may schedule the performance verification and endurance tests. The Contractor shall provide written notice of the performance verification test and the endurance test to the Government at least 2 weeks prior to the scheduled start of the test. The final performance verification test and endurance test report shall be delivered 30 days after completion of testing.

1.3.2.2 Operation and Maintenance Data

A draft copy of the operation and maintenance data, in manual format, as specified for the Group V technical data package, shall be delivered to the Government prior to beginning the performance verification test for use during site testing.

1.3.2.3 Training Data

Lesson plans and training manuals, including type of training to be provided, with a list of reference material shall be delivered for approval by the Government prior to starting any training.

1.3.3 Group V Technical Data Package

The Group V package consists of the operation and maintenance data, in manual format. Final copies of the manuals bound in hardback, loose-leaf binders, shall be delivered to the Government within 30 days after completing the endurance test. The draft copy used during site testing shall be updated with any changes required prior to final delivery of the manuals. Each manual's contents shall be identified on the cover. The manuals shall include the names, addresses, and telephone numbers of each subcontractor installing equipment and systems, and of the nearest senice representative for each item of equipment and each system. The manuals shall have a table of contents and tab sheets. Tab sheets shall be placed at the beginning of each chapter or section and at the beginning of each appendix. The final copies delivered after completion of the endurance test shall include all modifications made during installation, checkout, and acceptance. Manuals delivered shall include those specified in SECTION 16752.

a. FunctionalDesign Manual: two copies.

b. Hardware Manual: two copies.

c. Operator's Manual: six copies.

d. Maintenance Manuals: two copies.

1.3.3.1 Functional Design Manual

The functional design manual shall identify the operational requirements for the data transmission system and explain the theory of operation, design philosophy, and specific functions. A description of hardware functions, interfaces, and requirements shall be included for all system operating modes.

1.3.3.2 Hardware Manual

A manual describing equipment furnished, including:

a. General description and specifications.

b. Installation and checkout procedures.

c. Equipment electrical schematics and layout drawings.

d. Data transmission systems schematics.

e. Alignment and calibration procedures.

f. Manufacturer's repair parts list indicating sources of supply.

g. Interface definition.

1.3.3.3 Operator's Manual

The operator's manual shall fully explain procedures and instructions for operation of the system.

1.3.3.4 Maintenance Manual

The maintenance manual shall include descriptions of maintenance for all equipment including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.

1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Fiber Optic System; GA.

Equipment calculations for flux budgets and gain margins.

Spare Parts; GA.

Data lists of spare parts, tools, and test equipment for each different item of material and equipment specified, after approval of detail drawings not later than three months prior to the date of beneficial occupancy. The data shall include a list of parts and supplies, with current unit prices and source of supply, and a list of the parts recommended by the manufacturer to be replaced after 3 years of service.

SD-04 Drawings

Fiber Optic System; GA.

Detail drawings including a complete list of equipment and material, including manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions. Detail drawings shall contain complete wiring and schematic diagrams and any other details required to demonstrate that the system has been coordinated and will properly function with its associated systems. Drawings shall show proposed layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the work including clearance for maintenance and operations. System drawings shall show final configuration, including location, type and termination of inside fiber optics and showing the location, duct and innerduct arrangement, or fiber assignment of outside plant. The ac power consumption and heat dissipation shall be shown under both normal and maximum operating conditions.

SD-06 Instructions

Manufacturers' Recommendations; GA.

Where installation procedures, or any part thereof, are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be submitted prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received and approved.

Operation and Maintenance Instructions; GA.

Six copies of operating instructions outlining the step-by-step procedures required for system operation including description of each subsystem in its operating mode. Instructions shall include

the manufacturer's name, service manual, parts list, and a brief description of equipment, components, and their basic operating features. Six copies of the maintenance instructions listing regular maintenance procedures, possible system failures, a troubleshooting guide for repairs, and simplified diagrams for the system as installed. A video describing operating and maintenance instructions may be included.

SD-08 Statements

Test Plans; GA.

Test plans shall define tests required to ensure that the system meets technical, operational, and performance specifications. The test plans shall define milestones for the tests, equipment, personnel, facilities, and supplies required. The test plans shall identify the capabilities and functions to be tested.

SD-09 Reports

Test Reports; FIO.

Test reports, in booklet form showing field tests performed to adjust each component and field tests performed to prove compliance with the specified performance criteria, upon completion and testing of the installed system.

SD-13 Certificates

Manufacturer's certificate indicating compliance with transmission and reliability requirements. Where equipment or materials are specified to conform to the standards or publications and requirements of CFR, ANSI, NFPA, EIA, or UL, certificates attesting that the items furnished under this section of the specification conform to the specified requirements.

PART 2 PRODUCTS

2.1 FO MODEMS

FO modems shall be selected to meet FO system requirements. The modems shall allow full duplex, asynchronous, point-to-point digital communication using an FO pair.

2.1.1 FO Modem Operating Wavelength

The operating wavelength shall be centered on 850 nanometers.

2.1.2 FO Modem Inputs and Outputs

FO modems shall accept inputs and provide outputs compatible with the EECS. Digital data rates through each link shall be as required by the EECS Manufacturer.

2.2 FO TRANSMITTER AND RECEIVER MODULES

FO transmitter/receiver pairs shall have signal-to-noise power ratio of 40 dB or better after photo detection at the receiver. Transmitter power output and receiver sensitivity shall not drift more than plus or minus 2 dB over their operational life.

2.2.1 Analog FO Transmitter and Receiver Modules

FO transmitter/receiver pairs used to pass analog video signals shall accept inputs and provide outputs that comply with EIA 170 and shall have a bandwidth of 6 MHz or greater.

2.2.2 Digital FO Transmitter and Receiver Modules

FO transmitter/receiver pairs used to pass digital signals shall accept inputs and provide outputs compatible with the EECS. Digital data rates through each link shall be as required by the EECS Manufacturer. FO transmitter and receiver modules shall be housed in field equipment enclosures where possible. FO transmitter and receiver modules shall be compatible with each other, the FO cable, and connectors.

2.2.3 FO Transmitter Module

The FO transmitter shall accept electronic signals and shall modulate a light source. The light source shall be coupled into an FO cable. The operating wavelength shall be centered on 850 nanometers.

2.2.4 FO Receiver Module

The FO receiver module shall receive light from the FO cable and shall convert this light into an electronic signal identical to the electronic signal applied to the FO transmitter module. The operating wavelength shall be the same as the transmitter.

2.3 FO DIGITAL REPEATERS

FO digital repeaters shall be used to extend the range of the FO data transmission system when necessary to meet the requirements of paragraph SYSTEM REQUIREMENTS. For simplex circuits, the repeater shall consist of an FO receiver connected to an FO transmitter. For Duplex circuits, the repeater shall consist of a pair of FO receivers that are connected to a pair of FO transmitters. The FO receivers shall receive the optical signal and drive the transmitters. The transmitters shall regenerate the optical signal at the transmission rate specified. The FO repeater

shall be mechanically and optically compatible with the remainder of the FO system.

2.4 FO ANALOG REPEATERS

FO analog repeaters shall be used to extend the range of the FO data transmission system when necessary to meet the requirements of the paragraph SYSTEM REQUIREMENTS. For simplex circuits, the repeater shall consist of an FO receiver connected to an FO transmitter. For duplex circuits, the repeater shall consist of a pair of FO receivers that are connected to a pair of FO transmitters. The FO receivers shall receive the optical signal and drive the transmitters. The transmitters shall regenerate the optical signal in compliance with EIA 170. The FO repeater shall be mechanically and optically compatible with the remainder of the FO system.

2.5 FO SWITCHES

FO switches shall be single pole, double throw. Switching speed shall be less than 15 milliseconds. Insertion loss shall be less than 1.5 dB. Crosstalk attenuation between FO outputs shall be 40 dB or greater. FO switches shall be latching or nonlatching as shown.

2.6 FO ACTIVE STAR UNIT

FO active star units shall provide full-duplex communications in a multi-point configuration. Each unit shall have one input port module and up to four output port modules. FO active star units shall be mechanically and optically compatible with the remainder of the FO system. The star unit shall allow a mixed configuration of port module operating wavelengths and singlemode or multimode FO cables. Each port module shall have a separate FO cable input and output. Port modules shall be connected using an electronic data bus. Port module FO transmitters shall regenerate the optical signal at the transmission rate specified. Port modules shall be rack-mounted in a 483 millimeters (19 inch) rack complying with EIA 310-D. The total propagation delay through the star unit shall be less than 100 nanoseconds.

2.7 FIBER OPTIC DROP REPEATERS (FODR)

FODRs shall combine the features specified for Fiber Optical Digital Repeaters and Local Area Network (LAN) transceivers. FODRs shall regenerate the optical signal at the transmission rate specified. The FODRs shall be mechanically and optically compatible with the remainder of the Fiber Optic system. FODRs shall restore the optical signals amplitude, timing and waveform. The FODR shall provide an electrical interface to the transmission media. The electrical interface shall be identical to all other network interfaces as specified.

2.8 FO EIA 485 DATA TRANSMISSION CONVERTER

Data transmission converters shall be used to connect equipment using EIA 485 data transmission

when necessary and as shown. Converters shall operate full duplex and support two wire circuits at speeds up to 2 megabytes per second and have a built in 120 Ohm terminating resistor. Converters shall be mechanically, electrically, and optically compatible with the system.

2.9 ENCLOSURES

Enclosures shall conform to the requirements of NEMA 250 for the types specified. Finish color shall be the manufacturer's standard, unless otherwise indicated. Damaged surfaces shall be repaired and refinished using original type finish.

2.9. 1 Interior

Enclosures installed indoors shall meet the requirements of Type 12 or as shown.

2.9.2 Exterior

Enclosures installed outdoors shall meet the requirements of Type 4X metallic.

2.10 TAMPER AND PHYSICAL PROTECTION PROVISIONS

Enclosures and fittings of every description having hinged doors or removable covers, and which contain any part of the FQ circuits or power supplies, shall be provided with cover-operated, corrosion-resistant tamper switches, arranged to initiate an alarm signal when the door or cover is moved. Tamper switches shall be mechanically mounted to maximize the defeat time when enclosure covers are opened or removed. The enclosure and the tamper switch shall function together to not allow direct line of sight to any internal components and tampering with the switch or the circuits before the switch activates. Tamper switches shall be inaccessible until the switch is activated; have mounting hardware concealed so that the location of the switch cannot be observed from the exterior of the enclosure; be connected to circuits which are under electrical supervision at all times, irrespective of the protection mode in which the circuit is operating; shall be spring-loaded and held in the closed position by the door cover; and shall be wired so that they break the circuit when the door or cover is disturbed. Tamper switches on the doors which must be opened to make routine maintenance adjustments to the system and to service the power supplies shall be push/pull-set, automatic reset type. Covers of pull and junction boxes provided to facilitate installation of the system need not be provided with tamper switches if they contain no splices or connections, but shall be protected by security screws to hold the covers in place. Zinc labels shall be affixed to such boxes indicating they contain no connections. These labels shall not indicate that the box is part of a security system. Any damage to the enclosure or its cover's surface protection shall be cleaned and repaired using the same type of surface protection as the original enclosure.

2.11 SYSTEM REQUIREMENTS

2.1 1.1 Signal Transmission Format Code

FO equipment shall use the same transmission code format from the beginning of a circuit to the end of that circuit. Different transmission code formats may be used for different circuits as required to interconnect supported equipment.

2.11.2 Flux Budget/Gain Margin

FO links shall have a minimum gain margin of 6 dB. The flux budget is the difference between the transmitter output power and the receiver input power required for signal discrimination when both are expressed in dBm. The flux budget shall be equal to the sum of losses (such as insertion losses, connector and splice losses, and transmission losses) plus the gain margin. When a repeater or other signal regenerating device is inserted to extend the length of an FO circuit, both the circuit between the transmitter and the repeater-receiver, and the circuit between the repeater-transmitter and the receiver are considered independent FO links for gain margin calculations.

2.11.3 Receiver Dynamic Range

The dynamic range of receivers shall be large enough to accommodate both the worst-case, minimum receiver flux density and the maximum possible, receiver flux density. The receiver dynamic range shall be at least 15 dB. Where required, optical attenuators shall be used to force the FO link power to fall within the receiver dynamic range.

2.12 OPTICAL FIBERS

2.12.1 General

Optical fibers shall be coated with a suitable material to preserve the intrinsic strength of the glass. The outside diameter of the glass-cladded fiber shall be nominally 125 microns, and shall be concentric with the fiber core. Optical fibers shall meet EIA 455-46A, EIA 455-65, and EIA 455-177A.

2.12.2 62.5 Micron Multimode Fibers

Conductors shall be multimode, graded index, solid glass waveguides with a nominal core diameter of 62.5 microns. The fiber shall have transmission windows centered at 850 and 1330 nanometer wavelengths. The numerical aperture for each fiber shall be a minimum of 0.275. The attenuation at 850 nanometers shall be 4.0 dB/K~n or less. The attenuation at 1330 nanometers shall be 1.5 dB/Km or less. The minimum bandwidth shall be 160 MHz-Km at 850 nanometers and 400 MHz-Km at 1300 nanometers. FO cable shall be certified to meet EIA 45530B and EIA 455-58A.

2.13 CABLE CONSTRUCTION

2.13.1 General

The cable shall contain a minimum of t~vo fiber optic conductors for each full duplex circuit. The number of fibers in each cable shall be as required by the EECS Manufacturer with 50 percent spares. Each fiber shall be protected by a protective tube. Cables shall have a jacketed strength member, and an exterior jacket. Cable and fiber protective covering shall be free from holes, splits, blisters, and other imperfections. The covering shall be flame retardant, moisture resistant, non-nutrient to fungus, ultraviolet light resistant as specified and nontoxic. Mechanical stress present in cable shall not be transmitted to the optical fibers. Strength members shall be non-metallic and shall be an integral part of the cable construction. The combined strength of all the strength members shall be suff~cient to support the stress of installation and to protect the cable in service. The exterior cables shall have a minimum storage temperature range of minus minus 20 to plus 75 degrees C (40 to plus 167 degrees F). Interior cables shall have a minimum storage temperature of plus minus 10 to plus 75 degrees C (14 to plus 167 degrees F). All cables furnished shall meet the requirement of NFPA 70. Fire resistant characteristics of cables shall conform to Article 770, Sections 49, 50, and 51. A flooding compound shall be applied into the interior of the fiber tubes, into the interstitial spaces between the tubes, to the core covering, and between the core covering and jacket of all cable to be installed aerially, underground, and in locations susceptible to moisture. Flooded cables shall comply with EIA 455-81A and EIA 455-82B. Cables shall be from the same manufacturer, of the same cable type, and of the same size. Each fiber and protective coverings shall be continuous with no factory splices. Fiber optic cable assemblies, including jacketing and fibers, shall be certified by the manufacturer to have a minimum life of 30 years. Plenum cable shall meet UL 910, and riser cable shall meet UL 1666. FO cable shall be certified to meet the following: EIA 455-13, EIA 455-25A, EIA 455-41, EIA 455-47B, EIA 455-59, EIA 455-61, EIA 455-88, EIA 455-91, EIA 455-104A, and EIA 455-171.

2.13.2 Exterior Cable

2.13.2.1 Duct Cable

The optical fibers shall be surrounded by a tube buffer, shall be contained in a channel or otherwise loosely packaged to provide clearance between the fibers and inside of the container, and shall be extruded from a material having a coeff~cient of friction suff~ciently low to allow the fiber free movement.

a. The cable outer jacket shall be medium density polyethylene material with orange pigment added for ease of identification.

b. Tensile strength: Cables shall withstand an installation tensile load of not less than 2700 Newtons (608 pounds) and not less than 600 Newtons (135 pounds) continuous tensile load.

c. Impact and Crush resistance: The cables shall withstand an impact of 3 Newton-meters (1.71bs/in) as a minimum, and shall have a crush resistance of 220 Newtons per square centimeter (317 pounds per square inch) as a minimum.

2.13.2.2 Direct Burial Cable

The optical fibers shall be surrounded by a tube buffer, shall be contained in a channel or otherwise loosely packaged to provide clearance between the fibers and inside of the container, and shall be extruded from a material having a coeff~cient of friction suff~ciently low to allow the fiber free movement.

a. The cable outer jacket shall be medium density polyethylene material containing at least 2.6 percent carbon black with only black pigment added for additional coloring.

b. Tensile strength: Cables shall withstand an installation tensile load of not less than 2700 Newtons (608 pounds) and not less than 600 Newtons (135 pounds) continuous tensile load.

c. Impact and Crush resistance: The cables shall withstand an impact of 3 Newton-meters (1 .71bs/in) as a minimum, and shall have a crush resistance of 220 Newtons per square centimeter (317 pounds per square inch) as a minimum.

d. Direct burial cable shall be protected with plastic coated steel armor. The plastic coated steel armor shall be applied longitudinally directly over an inner jacket and have an overlap of 5 millimeters (0.20 inch) minimum.

2.13.3 Interior Cable

a. Loose buffer tube cable construction shall be such that the optical fibers shall be surrounded by a tube buffer, shall be contained in a channel or otherwise loosely packaged to provide clearance between the fibers and the inside of the container to allow for thermal expansions without constraining the fiber. The protective container shall be extruded from a material having a coefficient of friction sufficiently low to allow the fiber free movement. The cable outer jacket shall be flame retardant polyvinyl chloride (PVC) or fluorocopolymer (FCP), which complies with NFPA 70 for OFNP applications.

(1) Tensile strength: Cables of 12 fibers or less shall withstand an installation tensile load of not less than 1,100 Newtons (250 pounds) and not less than 89 Newtons (20 pounds) continuous tensile load. Cables with more than 12 fibers shall withstand an installation load of not less than 89 Newtons (20 pounds) and a long term tensile load of not less than 53 Newtons (12 pounds).

(2) Impact and Crush resistance: The cables shall withstand an impact of 4.89

Newton-meters (1. 1 ft Ibs) as minimum, and shall have a crush resistance of 700 Newtons per square centimeter (400 lbs/in.) as a minimum.

c. Plenum Rated Cables: Cable to be installed inside plenums shall additionally meet the requirements of UL 910.

2.13.4 Pigtail Cables

Cable used for connections to equipment shall be flexible fiber pigtail cables having the same physical and operational characteristics as the parent cable. The cable jacket shall be flame retardant PVC or FCP, which complies with NFPA 70 for OFNP applications. Maximum dB loss for pigtail cable shall be 3.5 dB/km at 850 nanometers, and 1.0 dB/km at 1330 nanometers.

2.14 FO CONNECTORS

FO connectors shall be the straight tip, bayonet style, field installable, self-aligning and centering. FO connectors shall match the fiber core and cladding diameters. The connector coupler shall be stainless steel and the alignment ferrule shall be ceramic. FO equipment and cable shall use the same type connectors. Connector insertion loss shall be nominally 0.3 dB and less than 0.7 dB.

2.1 5 SPLICES

All splices, as required shall be the fusion type.

The splice closure shall provide strain relief for the cable and the fibers at the splice points.

2.16 CONDUIT, FITTINGS AND ENCLOSURES

Conduit shall be as specified in Section 16000 ELECTRICAL WORK and as shown.

PART 3 EXECUTION

3.1 INSTALLATION

System components and appurtenances shall be installed in accordance with the manufacturer's instructions and as shown. Interconnections, services, and adjustments required for a complete and operable data transmission system shall be provided.

3.1.1 Interior Work

Conduits, tubing and cable trays for interior FO cable interior shall be installed as specified in Section 16000 ELECTRICAL WORK and as shown. Cable installation and applications shall

meet the requirements of NFPA 70, Article 770, Sections 52 and 53. Cables not installed in conduits or wireways shall be properly secured and neat in appearance, and if installed in plenums or other spaces used for environmental air, shall comply with NFPA 70 requirements for this type of installation.

3.1.2 Splices

No splices will be permitted unless the length of cable being installed exceeds the maximum standard cable length available from a manufacturer or unless fiber optic pigtails are used to connect transmitters, receivers, or other system components for terminations to the fiber. Splices shall be made using the method recommended by the cable manufacturer. Splices-shall be housed in a splice enclosure and shall be encapsulated with an epoxy, ultraviolet light cured splice encapsulant or otherwise protected against infiltration of moisture or contaminants. FO splices shall be field tested at the time of splicing. Fusion splices shall have less than 0.2 dB loss.

Mechanical splices shall have less than 0.5 dB loss. There shall be no more than 1 splice per kilometer (0.62 mile) in any of the FO cables excluding terminations. Field splices shall be located in cable boxes. Sufficient cable shall be provided in each splicing location to properly rack and splice the cables, and to provide extra cable for additional splices. Cable ends shall be protected with end caps except during actual splicing. During the splicing operations, means shall be provided to protect the unspliced portions of the cable and its fibers from the intrusion of moisture and other foreign matter.

3.1.3 Connectors

Connectors shall be as specified in paragraph FO CONNECTORS. Fibers at each end of the cable shall have jumpers or pigtails installed of not less than 1 meter (3 feet) in length. Fibers at both ends of the cable shall have connectors installed on the jumpers. The mated pair loss, without rotational optimization, shall not exceed 1.5 dB. The pull strength between the connector and the attached fiber shall not be less than 22.7 kilograms (50 pounds).

3.1.4 Identification and Labeling

Identification tags or labels shall be provided for each cable. Markers, tags and labels shall use indelible ink or etching which will not fade in sunlight, or in buried or underground applications. Markers, tags, and labels shall not become brittle or deteriorate for a period of 20 years. Label all termination blocks and panels with cable number or pair identifier for cables in accordance with EIA 606 and as specified. The labeling format shall be identified and a complete record shall be provided to the Government with the final documentation. Each cable shall be identified with type of signal being carried and termination points.

3.1.5 Enclosure Sizing and Cable

Termination enclosures shall be sized to accommodate the FO equipment to be installed. Sizing shall include suff~cient space for service loops to be provided and to accommodate a neat, workmanlike layout of equipment and the bend radii of fibers and cables terminated inside the enclosure.

3.1.6 Enclosure Penetrations

Enclosure penetrations shall be from the bottom and shall be sealed with rubber silicone sealant to preclude the entry of water. Conduits rising from underground shall be internally sealed.

3.1.7 Conduit-Enclosure Connections

Conduit-enclosure connections shall be protected by tack welding or brazing the conduit to the enclosure. Tack welding or brazing shall be done in addition to standard conduit-enclosure connection methods as described in NFPA 70. Any damage to the enclosure or its cover's surface protection shall be cleaned and repaired using the same type of surface protection as the original enclosure.

3.2 TESTING

3.2. 1 General

The Contractor shall provide personnel, equipment, instrumentation, and supplies necessary to perform testing.

3.2.2 Contractor's Field Test

The Contractor shall verify the complete operation of the data transmission system in conjunction with field testing associated with systems supported by the fiber optic data transmission system as specified in Section 16000 prior to formal acceptance testing. Field tests shall include a flux density test. These tests shall be performed on each link and repeated from the opposite end of each link.

3.2.2.1 Optical Time Domain Reflectometer Tests

Optical time domain reflectometer tests shall be performed using the FO test procedures of EIA 455-59. An optical time domain reflectometer test shall be performed on all fibers of the FO cable on the reel prior to installation. The optical time domain reflectometer shall be calibrated to show anomalies of 0.2 dB as a minimum. Photographs of the traces shall be furnished to the Government. An optical time domain reflectometer test shall be performed on all fibers of the FO cable after it is installed. The optical time domain reflectometer shall be calibrated to show anomalies of 0.2 dB as a minimum. If the optical time domain reflectometer test results show

anomalies greater than 1 dB, the FO cable segment is unacceptable to the Government. The unsatisfactory segments of cable shall be replaced with a new segment of cable. The new segment of cable shall then be tested to demonstrate acceptability. Photographs of the traces shall be furnished to the Government for each link.

3.2.2.2 Power Attenuation Test

Power attenuation test shall be performed at the light wavelength of the transmitter to be used on the circuit being tested. The flux shall be measured at the FO receiver end and shall be compared to the flux injected at the transmitter end. There shall be a jumper added at each end of the circuit under test so that end connector loss shall be validated. Rotational optimization of the connectors will not be permitted. If the circuit loss exceeds the calculated circuit loss by more than 2 dB, the circuit is unsatisfactory and shall be examined to determine the problem. The Government shall be notified of the problem and what procedures the Contractor proposes to eliminate the problem. The Contractor shall prepare and submit a report documenting the results of the test.

3.2.2.3 Gain Margin Test

The Contractor shall test and verify that each circuit has a gain margin which exceeds the circuit loss by at least 6 dB.

3.2.2.4 Analog Video

Test Analog circuits shall be tested using a signal conforming to EIA 170. The monitor or automated test set shall be stable, and shall be as described in EIA 170. If the result is unsatisfactory, the circuit shall be examined to determine the problem. The Government shall be notified of the problem and of the procedures the Contractor proposes to eliminate the problem. The Contractor shall prepare and submit a report documenting the results of the test.

3.2.2.5 Performance Verification Test and Endurance Test

The FO data transmission system shall be tested as a part of the completed EECS during the Performance Verification Test and Endurance Test as specified in Section 16725.

3.3 TRAINING

3.3.1 General

The Contractor shall conduct a training course for designated personnel in the maintenance of the FO system. The training shall be oriented to the specific system being installed under this specification. The Contractor shall furnish training materials and supplies.

3.3.2 Maintenance Personnel Training

The system maintenance course shall be taught at the project site after completion of the endurance test for a period of 1 training day. A maximum of five personnel designated by the Government will attend the course. A training day shall be 8 hours of classroom or lab instruction, including two 15 minute breaks and excluding lunchtime during the daytime shift in effect at the facility. Training shall include:

a. Physical layout of the system and each piece of hardware.

b. Troubleshooting and diagnostics procedures.

c. Repair instructions.

d. Preventative maintenance procedures and schedules.

e. Calibration procedures. Upon completion of this course, the students shall be fully proficient in the maintenance of the system.

- End of Section -