RFP NO. DACA56-98-R-0013

US Army Corps
of Engineers
Tulsa District

144 Person Dormitory

Tinker Air Force Base
Midwest City, Oklahoma

Design/Build
Project Specifications
and Drawings

VOLUME 1 OF 2

JUNE 1998

THIS IS A TWO-PHASE REQUEST FOR PROPOSAL

INFORMATION

For information regarding site conditions and the equipment ownership and operating expense schedule contact Mr. Carl Sparks, Area Engineer, Central Oklahoma Area Office, Tinker AFB, US Army Corps of Engineers (Bldg. 412), P.O. Box 30399, Midwest City, OK 73104-3399, Telephone 405-739-2825. (Site visitations are regularly scheduled on Thursdays at 10:00 a.m. Telephone for confirmed appointment.)

For technical information regarding plans and specifications contact Tulsa District 0ffice, Corps of Engineers, Tulsa, Oklahoma, telephone 918-669-7044, Mr. Jimmy Inman.

For information regarding bidding procedures, bonds, additional sets of plans and specifications, and lists of plans holders contact Contracting Division, telephone 918-669-7275, Tulsa, Oklahoma.

Collect calls not accepted.

ckd

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

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

7. ISSUED BY	W44XGQ	8. ADDRESS OFFER TO
Department of the Army Corps of Engineers Tulsa District		The Contracting Officer Tulsa District, Corps of Engineers ATTN: Contracting Division PO Box 61 (1645 South 101st East Avenue) Tulsa, OK 74121-0061

9. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE NO. *(Include area code)* (NO COLLECT CALLS)
	See preceding page entitled "NOTICES"	

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):*

Two-Phase Design/Build

144 PERSON DORMITORY
TINKER AIR FORCE BASE, OKLAHOMA

Approximate Value: $5,000,000 TO $10,000,000

DIRECTIONS FOR SUBMITTING BIDS:

ENVELOPES CONTAINING BIDS, GUARANTEE, ETC., MUST BE SEALED, MARKED, AND ADDRESSED AS FOLLOWS:

MARK ENVELOPE "BID UNDER SOLICITATION NO. _____ TO BE OPENED AT 11:00 A.M. _____.

RECEIPT OF AMENDMENTS NOS. _____ ACKNOWLEDGED"

ADDRESS BIDS TO: SEE BLOCK 8 ABOVE

HAND-CARRIED BIDS: HAND-CARRIED BIDS PRIOR TO 10:30 A.M. MUST BE DEPOSITED IN THE "BID DEPOSITORY" IN ROOM 130, 1645 SOUTH 101st EAST AVENUE, TULSA, OK 74128.
HAND-CARRIED BIDS AFTER 10:30 A.M. MUST BE DEPOSITED IN THE "BID DEPOSITORY" IN ROOM 210 PRIOR TO THE TIME STATED FOR OPENING OF BIDS. (FAR 14.401)

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 - Special Contract Requirements)

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS *(If "YES", indicate within how mahy calendar days after award in item 12B)*	12B. CALENDAR DAYS
☒ Yes - Phase II only ☐ No	10

13 ADDITIONAL SOLICITATION REQUIREMENTS:

A. Proposals for in original and 11 copies to perform the work required are due at the place specified in Item 8 by 11:00 a.m. local time **13 Oct 1998.** ~~If this is a sealed bid solicitation, offers will be publicly opened at the time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time the offers are due.~~

B. An offer guarantee is required. **NOTE: Bid guarantee is required with any bid in excess of $25,000 for Phase II.**

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 the offeror)*

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*

CODE FACILITY CODE

15. TELEPHONE NO. *(Include Area Code)*

FAX NO.

16. REMITTANCE ADDRESS *(Include only if different than Item 14)*

CAGE Contractor Established No.
DUNS Contractor Established No.

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ 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 > Set forth in the attached Bidding Schedule

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

19. ACKNOWLEDGEMENT 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)* >

ITEM

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

27. PAYMENT WILL BE MADE BY

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 requirements identified on this form and any continuation sheets for the consideration stated 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 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 items listed. This award consummates the contract, which consist of (a) the Government solicitation and your offer, and (b) this contract award, No further contractual document is necessary.

3OA. 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

BIDDING SCHEDULE

Item No.	Description	Qty	Unit	Unit Price	Amount
	BASE BID				
1. Design Phase - Part 1	(First Submittal Design/Basic Services)				
	a. Design Costs	Sum	Job	xxx	$_____
	b. Non-Design Costs	Sum	Job	xxx	_____
2. Design Phase - Part 2	(Second Submittal)				
	a. Design Costs	Sum	Job	xxx	_____
	b. Non-Design Costs	Sum	Job	xxx	_____
	Sub-Total Design Phase, Parts 1&2				$_____
3. Build Phase	(Construction.) (Includes all construction except as listed.)	Sum	Job	xxx	_____
4.	**Sanitary Sewer Inspection**	682.75M	L.M.	_____	_____
5.	**Sewer Line Replacement**	801.63M	L.M.	_____	_____
6.	**Sewer Line Liner**	268.23M	L.M.	_____	_____
				TOTAL BASE BID ITEMS	**$_____**

OPTIONS

7. Option No. 1
84 Space Parking Lot
(Ref. Appendix A. Includes conc. curb and gutter, handicap spaces and ramps, and lighting.)

a. Design Phase - Part 1				
(1) Design Costs	Sum	Job	_____	$_____
(2) Non-Design Costs	Sum	Job	_____	_____
b. Design Phase - Part 2				
(1) Design Costs	Sum	Job	_____	_____
(2) Non-Design Costs	Sum	Job	_____	_____
c. Build Phase (Construction)	Sum	Job	_____	_____
	Total Option No. 1			$_____

8. Option No. 2
60 Space Parking Lot
(Ref. Appendix A. Includes conc. curb and gutter, handicap spaces and ramps and lighting.)

a. Design Phase - Part 1				
(1) Design Costs	Sum	Job	_____	$_____
(2) Non-Design Costs	Sum	Job	_____	_____
b. Design Phase - Part 2				
(1) Design Costs	Sum	Job	_____	_____
(2) Non-Design Costs	Sum	Job	_____	_____
c. Build Phase (Construction)	Sum	Job	_____	_____
	Total Option No. 2			$_____

9. **Option No. 3**
Covered Pavilion

a. Design Phase - Part 1				
(1) Design Costs	Sum	Job	_____	$_____
(2) Non-Design Costs	Sum	Job	_____	_____

b. Design Phase - Part 2

(1) Design Costs	Sum	Job	_____	_____
(2) Non-Design Costs	Sum	Job	_____	_____

c. Build Phase

(Construction)	Sum	Job	_____	_____

Total Option No. 3 $_____

10. Option No. 4

Hydraulic Freight Elevator (min. capacity 2041 Kg)

a. Design Phase - Part 1

(1) Design Costs	Sum	Job	_____	$_____
(2) Non-Design Costs	Sum	Job	_____	_____

b. Non-Design Costs

(1) Design Costs	Sum	Job	_____	_____
(2) Non-Design Costs	Sum	Job	_____	_____

c. Build Phase

(Construction)	Sum	Job	_____	_____

Total Option No. 4 $_____

11. Option No. 5

Built-in eating bar at Kitchenette for 2 people.
Includes wall and base storage cabinets and knee space.

a. Design Phase - Part 1

(1) Design Costs	Sum	Job	_____	$_____
(2) Non-Design Costs	Sum	Job	_____	_____

b. Non-Design Costs

(1) Design Costs	Sum	Job	_____	_____
(2) Non-Design Costs	Sum	Job	_____	_____

c. Build Phase

(Construction)	Sum	Job	_____	_____

Total Option No. 5 $_____

TOTAL BASE BID AND OPTIONS $_____

BIDDING SCHEDULE NOTES

1. Offerors shall bid on all items.

2. Only one contract for the entire schedule will be awarded under this solicitation.

3. DESIGN COSTS DEFINITION

   Design costs shall consist of preparation of designs, plans, drawings, and specifications.

4. NON-DESIGN COSTS DEFINITION

   Non-design costs shall include the following: initial site visits; field, topographic, property, boundary, utility; subsurface explorations and borings; feasibility, functional, and economic studies and other investigations; preparation or verification of as-built drawings; preparation of general and development criteria; services of consultants where not specifically applied to the preparation of working drawings or specifications; preparation of environmental impact assessments, statements, and supporting data, Title II services; renderings, or photographs of completed designs; reproduction of designs for review purposes; and travel and per diem allowances in connection with the above excludable services.

5. COST LIMITATION:

   The established design cost limitation for the Design Costs of Design Phase, Part 1 and Part 2 is 6 percent of the total cost for the Build Phase. Offerors whose cost proposal exceeds the design cost limitation for the design costs portion of the project may be rejected.

6. CONSTRUCTION COST TARGET:

   "Construction cost target" is defined as the expected total contract sum which includes all categories of cost, i.e., design and construction.

7. AWARD OF BID OPTIONS:

   Bid Options may, at the option of the Government, be added to the contract at any time within 90 days after the Letter of Authorization to Commence the Build Phase. All options, or any combination thereof, may be exercised by the Government.

SECTION 00050

PROJECT DESCRIPTION - SCOPE OF WORK

PART 1 - GENERAL

1.1 GENERAL

This project consists of a "two-phase" Design-Build competitive negotiation procurement process to obtain design and construction for a 144 Person Dormitory. The two phase procurement process includes the following:

Phase I: Selection of not more than three Design-Build Contractors, based on qualification only, who may submit design and price proposals under Phase II.

Phase II: Selection of one Design-Build Contractor based on a Preliminary design and a cost proposal.

Any offeror may submit a Management/Technical proposal for Phase I.

In Phase II, only the selected offerors shall submit proposals for the Preliminary Design and the construction cost proposal. Phase II will be evaluated in the categories of design, and contract price through the use of a weighted value scoring system. Offerors are furnished the evaluation criteria as part of this Request for Proposal (RFP).

All Phase II offerors shall submit a lump sum fixed price cost proposal as outlined in SECTION 00110 - PROPOSAL PREPARATION.

1.2 GENERAL SCOPE OF WORK

The work consists of the design and construction of a facility to provide living quarters for 144 single, unaccompanied enlisted personnel. The building will have all functional areas as required by the Facilities Design Guide For Enlisted Dormitories, Appendix B, and as many of the non-mandatory Items as is feasible from a cost standpoint (reference Section 01011 DESIGN CONCEPT DOCUMENTS, paragraph 1.6 for required and non-mandatory items).

In addition to the dormitory facility, the football field and track shall be reconstructed in the location shown on the “General Site Plan,” Appendix A, and the existing Softball Field and Toilets East of the construction site will be demolished. Work also includes optional bid items for parking lots for the dormitory and football/track field. The work includes off-site utility upgrades and on-site utilities required to support the facility and all future projects as shown on

"General Site Plan," Appendix A, including water, gas, sewer, and electric.

1.3 ORGANIZATION OF THIS RFP MANUAL

1.3.1 General

This manual is organized generally 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 thru 00150 - PROPOSAL REQUIREMENTS -

These sections include the administrative requirements for Phase I and II proposal preparation and are applicable to all activities and requirements prior to award of the final design and construction contract unless otherwise stated.

Section 00050 - PROJECT DESCRIPTION - SCOPE OF WORK provides a general description of the project for offeror information. This section is not a part of the contract.

Section 00100 - INSTRUCTION, CONDITIONS, AND NOTICES TO OFFERORS provides general information regarding submission of offers.

Section 00110 - PROPOSAL PREPARATION guides the offeror in preparing a proposal for both Phase I and Phase II. Included in this section are the description and format of information to be included in each proposal and how and where to submit the proposal.

Section 00120 - PROPOSAL EVALUATION AND CONTRACT AWARD outlines the evaluation criteria and the level of importance of the criteria for the Phase I and II proposals. The method of evaluation and the cost limitations for proposals are explained and the basis of the award is provided

Section 00150 - THE DESIGN/BUILD PROCESS describes the overall process and approximate 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 first and second submittals of the design phase.

1.3.3 CONTRACT REQUIREMENTS

The remainder of this manual includes the contractual requirements for the design/build Contractor selected after the Phase II process and award of a contract. All requirements of the manual, regardless of location, shall be followed in the decisions for preparation of the proposals. Additional selected section explanations are as follows:

Section 00600 - REPRESENTATIONS AND CERTIFICATIONS

Sections 00700 - CONTRACT CLAUSES and 00800 - SPECIAL CONTRACT REQUIREMENTS include standard contract clauses and supplemental specific clauses which represent the General Conditions of the contract.

Section 01010 - DESIGN/CONSTRUCTION DOCUMENT PREPARATION includes information and instructions on engineering design and construction documents that are to be provided by the DB Contractor. It includes a description of plans, specifications and supporting data and documents to be developed for the Preliminary, first and second submittal levels of design.

Section 01011 - DESIGN CONCEPT DOCUMENTS identifies documents issued with this RFP which establish the concept or basis for the project design and explains how these documents are to be used and the order of precedence placed on these documents.

Section 01013 - GENERAL DESIGN CRITERIA establishes technical design criteria for the project. This section may include essentially all of the technical criteria for the project or may be supplemented by additional performance or descriptive specifications in Divisions 2 thru 16 and drawings depending on the level of performance criteria to be issued.

The remaining portions of Division 1 (Sections 01040 thru 01700) are General Requirements which pertain to the administrative and procedural aspects of the project and temporary facilities and controls. Division 1 Sections may expand on Contract Clauses and will govern over all other sections of the contract. These sections must be included by the DB contractor in the Project Manual (Specifications) of the 100% construction documents.

Divisions 2 thru 16 include technical performance and/or descriptive specifications and expand on Section 01013. In the absence of these specifications, all technical criteria will be included in Section 01013.

1.3.4 APPENDICES

The Appendices include attachments and supplemental information which are referred to and incorporated by other parts of this RFP. Drawings, reports, and photographs are typical of the type of information included in the Appendices.

Except for the location of the Football Field and Track, the Site Plan layout shown on

Drawing No. 2, Appendix A, is an example only. The layout of the 144 person dormitory and 2 future 96 person dormitories is not intended to influence the orientation, shape, or parking/landscaping layout of the proposals except that the Using Agency prefers to develop the site from the West to the East unless there is a compelling reason to develop easternmost side of the site first.

PART 2 - PRODUCTS (NOT APPLICABLE)

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SECTION 00100

INSTRUCTIONS, CONDITIONS, AND NOTICES TO BIDDERS

PREPROPOSAL CONFERENCE

A preproposal conference and site visit for this project is scheduled for 18 June 1998, at 9:30 a.m., CST, at Tinker Air Force Base, Oklahoma. Passes to enter the base will be available at Building 590, Pass & ID at Eaker Gate (formerly referred to as the "Industrial Gate"), Tinker AFB. The preproposal conference will convene at 9:30 a.m., CST, in the Conference Room, Second Floor, Building 400 (Base Civil Engineers). Adequate parking is available.

The purpose of the conference will be to familiarize prospective offerors with the extent and nature of the project. The conference will begin with an introductory session in the conference room followed by a tour of the site. Oral questions pertaining to the scope of work or other contractual matters will not be entertained during the tour. Questions of this nature must be prepared in writing on sheets provided by the Government representatives or on your company letterhead which will be answered in a forthcoming amendment.

Following the preproposal conference, written responses to all questions received at the conference will be provided to each firm which has obtained a copy of the RFP and which has not submitted a "No-Bid" notice. These answers will be set forth in an amendment to the RFP and will constitute the official Government answer.

Prospective offerors are urged to attend the preproposal conference in order to observe all conditions that may affect the cost and schedule of performance of the contract. Failure to attend the preproposal conference or to observe conditions shall not be grounds for a claim after award of contract.

NOTE: Prospective offerors who plan to attend the conference MUST provide, by facsimile, a list of names and titles of representatives, not to exceed three (3) per offeror, who will attend the conference NO LATER THAN 1:00 P.M., 17 JUNE 1998. The list should be transmitted to SUSAN KILLGORE, fax number 918-669-7495.

FOREIGN NATIONALS WILL REQUIRE PRIOR CLEARANCE.

1 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at these addresses:

http://www.arnet.gov/far
http://farsite.hill.af.mil
http://www.dtic.mil/dfars

2 52.0-4018 ARITHMETIC DISCREPANCIES (EFARS 52.214-5000) (MAR 1995)

(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 bidders:

(1) Obviously misplaced decimal points will be corrected;

(2) Discrepancy between unit price 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 purpose of bid evaluation, the Government will proceed on the assumption that the bidder intends his bid 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.

3 52.0-4023 BIDDER'S QUALIFICATIONS (APR 1984) (FAR 9.1)

Before a bid is considered for award, the bidder may be requested by the Government to submit a statement regarding his previous experience in performing comparable work, his business and tehcnical organization, financial resources, and plant available to be used in performing the work.

4 52.0-4025 PERFORMANCE OF WORK BY CONTRACTOR

Unless he has submitted such description with his bid, the successful bidder must furnish the Contracting Officer within 14 calendar 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. (See Section 00800 clause entitled "Performance of Work by Contractor.")

5 52.0-4027 NOTICE

If the work called for by this Invitation is located on a military installation, bidders should check with post/base security to learn if potential employees will be allowed on base to seek employment.

6 52.0-4028 PLANT AVAILABLE (CESWT-CT-C)

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

7 52.0-4045 REQUIRED BID BOND AMOUNT

Each bidder shall submit with his bid a Bid Bond (Standard Form 24) with good and sufficient surety or sureties acceptable to the

Government, or other security as provided in FAR Clause 52.228-0001, Bid Guarantee, contained elsewhere in this solicitation, in the form of twenty (20) percent of the bid price or three million dollars ($3,000,000) whichever is lesser. The bid bond penalty may be expressed in terms of a percentage of the bid price or may be expressed in dollars and cents.

(End of Clause)

8 52.0-4338 52.215-1 ALT II INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITIONS (OCT 1997)

(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) AMENDMENT 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 the office specified in the solicitation, and (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 is 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, modificaiton 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) Proposal submitted in response to this solicitation shall be in English and 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.

(9) Offerors may submit proposals that depart from stated requirements. Such proposals shall clearly identify why the acceptance of the proposal would be advantageous to the Government. Any deviations from the terms and conditions of the solicitation, as well as the comparative advantage to the Government, shall be clearly identified and explicitly defined. The Government reserves the right to amend the solicitation to allow all offerors an opportunity to submit revised proposals based on the revised requirements.

(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.

9 52.204-6 DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER (APR 1998)

(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 which 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:

(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.

(c) 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.dnb.com/. If an offeror is unable to locate a local service center, it may send an e-mail to Dun and Bradstreet at globalinfo@mail.dnb.com.

(End of provision)

10 52.204-7001 COMMERCIAL AND GOVERNMENT ENTITY (CAGE) CODE REPORTING (DEC 1991)

(a) The Offeror is requested to enter its 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.

(End of provision)

11 52.211-2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE DOD INDEX OF SPECIFICATIONS AND STANDARDS (DODISS) (JUN 1997)

Single copies of specifications cited in this solicitation may be obtained by submitting a written request to the supply point listed below.

The request must contain the title of the specification, its number, date, applicable amendment(s), and the solicitation or contract number. A telephone order entry system is available with the use of a touch tone telephone. A Customer Number is required to use this system and may be obtained by written request to the address listed below or by telephone (215-697-2179). In case of urgency, telegraphic requests are acceptable. Voluntary standards, which are not available to Offerors and Contractors from Government sources, may be obtained from the organization responsible for their preparation, maintenance, or publication.

Standardization Document
Order Desk, Building 4, Section D
700 Robbins Avenue
Philadelphia, PA 19111-5094
Facsimile No.....215-697-2978

(End of provision)

12 52.211-14 NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (SEP 1990)

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

(End of provision)

13 52.214-4 FALSE STATEMENTS IN BIDS (APR 1984)

Bidders must provide full, accurate, and complete information as required by this solicitation and its attachments. The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

(End of provision)
(R 2-201(b)(xiii))
(R 1-2.201(a)(11))

14 52.215-15 TERMINATION OF DEFINED BENEFIT PENSION PLANS (OCT 1997)

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. If pension fund assets revert to the Contractor or are constructively received by it under a 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(j)(4). 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)

15 52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a firm fixed-price contract resulting from this solicitation.

(End of provision)

16 52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (APR 1984)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause 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 for each trade
10.2	6.9

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. 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, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Director, Office of Federal Contract Compliance Programs, 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's 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 any contract resulting from this solicitation, the "covered area" is Oklahoma/Oklahoma County/Oklahoma City.

(End of provision)
(R 7-2003.14(d) 1978 SEP)

17 52.225-13 I NOTICE OF BUY AMERICAN ACT REQUIREMENT--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS ACT AND NORTH AMERICAN FREE TRADE AGREEMENT (MAY 1997)--ALTERNATE I (MAY 1997)

(a) Offerors are required to comply with the requirements of Federal Acquisition Regulation (FAR) clause 52.225-15, Buy American

Act--Construction Materials Under Trade Agreements Act and North American Free Trade Agreement, of this solicitation. The terms defined in FAR clause 52.225-15 have the same meaning in this provision.

(b) An offeror requesting a determination regarding the inapplicability of the Buy American Act shall submit such request with its offer, including the information and applicable supporting data required by paragraphs (c) and (d) of FAR clause 52.225-15.

(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)(4)(i) of FAR clause 52.225-15.

(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)(3) of FAR clause 52.225-15, or subsequently excepted in accordance with paragraphs (b)(4)(ii) or (iii) of FAR clause 52.225-15, 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)(3) of FAR clause 52.225-15, offerors also may submit alternate offers based on use of equivalent domestic construction material.

(2) If alternate offers are submitted, a separate Standard Form 1442 shall be submitted for each alternate offer, and a separate price comparison table, prepared in accordance with paragraphs (c) and (d) of FAR clause 52.225-15, 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 52.225-15 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.

(End of provision)

18 52.228-1 BID GUARANTEE (SEP 1996)

(a) Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

(b) The bidder shall furnish a bid guarantee in the form of a firm commitment, e.g., bid bond supported by good and sufficient surety or sureties acceptable to the Government, postal money order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States. The Contracting Officer will return bid guarantees, other than bid

bonds, (1) to unsuccessful bidders as soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.

(c) The amount of the bid guarantee shall be 20 (twenty) percent of the bid price or $3,000,000.00 , whichever is less.

(d) If the successful bidder, upon acceptance of its bid by the Government within the period specified for acceptance, fails to execute all contractual documents or furnish executed bond(s) within 10 days after receipt of the forms by the bidder, the Contracting Officer may terminate the contract for default.

(e) In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

(End of provision)

19 52.228-14 IRREVOCABLE LETTER OF CREDIT (OCT 1997)

(a) "Irrevocable letter of credit" (ILC), as used in this clause, means a written commitment by a federally insured financial institution to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Government (the beneficiary) of a written demand therefor. Neither the financial institution nor the offeror/Contractor can revoke or condition the letter of credit.

(b) If the offeror intends to use an ILC in lieu of a bid bond, or to secure other types of bonds such as performance and payment bonds, the letter of credit and letter of confirmation formats in paragraphs (e) and (f) of this clause shall be used.

(c) The letter of credit shall be irrevocable, shall require presentation of no document other than a written demand and the ILC (including confirming letter, if any), shall be issued/confirmed by an acceptable federally insured financial institution as provided in paragraph (d) of this clause, and--

(1) If used as a bid guarantee, the ILC shall expire no earlier than 60 days after the close of the bid acceptance period;

(2) If used as an alternative to corporate or individual sureties as security for a performance or payment bond, the offeror/Contractor may submit an ILC with an initial expiration date estimated to cover the entire period for which financial security is required or may submit an ILC with an initial expiration date that is a minimum period of one year from the date of issuance. The ILC shall provide that, unless the issuer provides the beneficiary written notice of non-renewal at least 60 days in advance of the current expiration date, the ILC is automatically extended without amendment for one year from the expiration date, or any future expiration date, until the period of required coverage is completed and the Contracting Officer provides the financial institution with a written statement waiving the right to payment. The period of required coverage shall be:

(i) For contracts subject to the Miller Act, the later of--

(A) One year following the expected date of final payment;

(B) For performance bonds only, until completion of any warranty period; or

(C) For payment bonds only, until resolution of all claims filed against the payment bond during the one-year period following final payment.

(ii) For contracts not subject to the Miller Act, the later of--

(A) 90 days following final payment; or

(B) For performance bonds only, until completion of any warranty period.

(d) Only federally insured financial institutions rated investment grade or higher shall issue or confirm the ILC. The offeror/Contractor shall provide the Contracting Officer a credit rating that indicates the financial institution has the required rating(s) as of the date of issuance of the ILC. Unless the financial institution issuing the ILC had letter of credit business of at least $25 million in the past year, ILCs over $5 million must be confirmed by another acceptable financial institution that had letter of credit business of at least $25 million in the past year.

(e) The following format shall be used by the issuing financial institution to create an ILC:

(Issuing Financial Institution's Letterhead or Name and Address)

Issue Date_____

Irrevocable Letter of Credit No._____

Account party's name_____

Account party's address_____

For Solicitation No._____

(For reference only)

TO: (U.S. Government agency)

(U.S. Government agency's address)

1. We hereby establish this irrevocable and transferable Letter of Credit in your favor for one or more drawings up to United States $_____. This Letter of Credit is payable at (issuing financial institution's and, if any, confirming financial institution's) office at (issuing financial institution's address and, if any, confirming financial institution's address) and expires with our close of business on _____, or any automatically extended expiration date.

2. We hereby undertake to honor your or the transferee's sight draft(s) drawn on the issuing or, if any, the confirming financial institution, for all or any part of this credit if presented with this Letter of Credit and confirmation, if any, at the office specified in paragraph 1 of this Letter of Credit on or before the expiration date or any automatically extended expiration date.

3. (This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.) It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for one year from the expiration date hereof, or any future expiration date, unless at least 60 days prior to any expiration date, we notify you or the transferee by registered mail, or other receipted means of delivery, that we elect not to consider this Letter of Credit renewed for any such additional period. At the time we notify you, we also agree to notify the account party (and confirming financial institution, if any) by the same means of delivery.

4. This Letter of Credit is transferable. Transfers and assignments of proceeds are to be effected without charge to either the beneficiary or the transferee/assignee of proceeds. Such transfer or assignment shall be only at the written direction of the Government (the beneficiary) in a form satisfactory to the issuing financial institution and the confirming financial institution, if any.

5. This Letter of Credit is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ (state of confirming financial institution, if any, otherwise state of issuing financial institution).

6. If this credit expires during an interruption of business of this

financial institution as described in Article 17 of the UCP, the financial institution specifically agrees to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,
(Issuing financial institution)

(f) The following format shall be used by the financial institution to confirm an ILC:

(Confirming Financial Institution's Letterhead or Name and Address)

Date _____ 19_____

Our Letter of Credit Advice Number_____

Beneficiary:_____

(U.S. Government agency)

Issuing Financial Institution:_____

Issuing Financial Institution's LC No.:_____

Gentlemen:

1. We hereby confirm the above indicated Letter of Credit, the original of which is attached, issued by _____ (name of issuing financial institution) for drawings of up to United States dollars _____/U.S. $_____ and expiring with our close of business on _____ (the expiration date), or any automatically extended expiration date.

2. Draft(s) drawn under the Letter of Credit and this Confirmation are payable at our office located at _____.

3. We hereby undertake to honor sight draft(s) drawn under and presented with the Letter of Credit and this Confirmation at our offices as specified herein.

4. (This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.) It is a condition of this confirmation that it be deemed automatically extended without amendment for one year from the expiration date hereof, or any automatically extended expiration date, unless:

(a) At least 60 days prior to any such expiration date, we shall notify the Contracting Officer, or the transferee and the issuing financial institution, by registered mail or other receipted means of delivery, that we elect not to consider this confirmation extended for any such additional period; or

(b) The issuing financial institution shall have exercised its right to notify you or the transferee, the account party, and ourselves, of its election not to extend the expiration date of the Letter of Credit.

5. This confirmation is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ (state of confirming financial institution).

6. If this confirmation expires during an interruption of business of this financial institution as described in Article 17 of the UCP, we specifically agree to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,
(Confirming financial institution)

(g) The following format shall be used by the Contracting Officer for a sight draft to draw on the Letter of Credit:

SIGHT DRAFT

_____

(City, State)

_____, 19_____

_____

(Name and address of financial institution)

Pay to the order of_____
(Beneficiary Agency)
the sum of United States $ _____
This draft is drawn under_____
Irrevocable Letter of Credit No._____
By: _____
(Beneficiary Agency)
(End of clause)

20 52.228-15 Performance and Payment Bonds--Construction (SEP 1996)

(a) Definitions. As used in this clause--
Contract price means the award price of the contract or, for requirements contracts, the price payable for the estimated quantity; or for indefinite-delivery type contracts, the price payable for the specified minimum quantity.
(b) Unless the resulting contract price is $100,000 or less, the successful offeror shall be required to furnish performance and payment bonds to the Contracting Officer as follows:
(1) Performance Bonds (Standard Form 25):
(i) The penal amount of performance bonds shall be 100 percent of the original contract price.
(ii) The Government may require additional performance bond protection when the contract price is increased. The increase in protection shall generally equal 100 percent of the increase in contract price.
(iii) The Government may secure additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.
(2) Payment Bonds (Standard Form 25-A):
(i) The penal amount of payment bonds shall equal--
(A) 50 percent of the contract price if the contract price is not more than $1 million;
(B) 40 percent of the contract price if the contract price is more than $1 million but not more than $5 million; or
(C) $2.5 million if the contract price is more than $5 million.
(ii) If the original contract price is $5 million or less, the Government may require additional protection if the contract price is increased. The penal amount of the total protection shall meet the requirement of subparagraph (b)(2)(i) of this clause.
(iii) The Government may secure additional protection by directing the Contractor to increase the penal sum of the existing bond or to obtain an additional bond.
(c) The Contractor shall furnish all executed bonds, including any necessary reinsurance agreements, to the Contracting Officer, within the time period specified in the Bid Guarantee provision of the solicitation, or otherwise specified by the Contracting Officer, but in any event, before starting work.
(d) The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570, individual sureties, or by other acceptable security such as postal money order, certified check, cashier's check, irrevocable letter of credit, or, in accordance with Treasury Department regulations, certain bonds or notes of the United States. Treasury Circular 570 is published in the Federal Register, or may be obtained from the U.S. Department of Treasury, Financial Management Service, Surety Bond

Branch, 401 14th Street, NW., 2nd Floor, West Wing, Washington, DC 20227.
(End of clause)

21 52.232-13 NOTICE OF PROGRESS PAYMENTS (APR 1984)

The need for customary progress payments conforming to the regulations in Subpart 32.5 of the Federal Acquisition Regulation (FAR) will not be considered as a handicap or adverse factor in the award of the contract. The Progress Payments clause included in this solicitation will be included in any resulting contract, modified or altered if necessary in accordance with subsection 52.232-16 and its Alternate I of the FAR. Even though the clause is included in the contract, the clause shall be inoperative during any time the contractor's accounting system and controls are determined by the Government to be inadequate for segregation and accumulation of contract costs.

(End of provision)
(R 7-2003.64 1974 APR)
(R 1-30.504-4(a))

22 52.232-18 AVAILABILITY OF FUNDS (APR 1984)

Funds are not presently available for this contract. The Government's obligation under this contract is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the Contracting Officer for this contract and until the Contractor receives notice of such availability, to be confirmed in writing by the Contracting Officer.

(End of clause)
(SS 7-104.91(a) 1962 SEP)

23 52.233-2 SERVICE OF PROTEST (AUG 1996)

(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

Chief, Contracting Division
Tulsa District
Corps of Engineers
Post Office Box 61
Tulsa, OK 74121-0061

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

(End of provision)

24 52.236-27 I SITE VISIT (CONSTRUCTION) (FEB 1995)--ALTERNATE I (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 has been scheduled for-- SEE CLAUSE ENTITLED "PREPROPOSAL CONFERENCE" LOCATED AT THE FRONT OF THIS SECTION 00100

(c) Participants will meet at-- SEE CLAUSE ENTITLED "PREPROPOSAL CONFERENCE" LOCATED AT THE FRONT OF THIS SECTION 00100

(End of provision)

25 52.236-28 PREPARATION OF PROPOSALS--CONSTRUCTION (OCT 1997)

(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 proposal form.

(b) The proposal form may require offerors to submit proposed 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.

(End of provision)

26 52.236-7006 COST LIMITATION (JAN 1997)

(a) Certain items in this solicitation are subject to statutory cost limitations. The limitations are stated in the Schedule.

(b) An offer which does not state separate prices for the items identified in the Schedule as subject to a cost limitation may be considered nonresponsive.

(c) Prices stated in offers for items subject to cost limitations shall include an appropriate apportionment of all costs, direct and indirect, overhead, and profit.

(d) Offers may be rejected which--

(1) Are materially unbalanced for the purpose of bringing items within cost limitations; or

(2) Exceed the cost limitations, unless the limitations have been waived by the Government prior to award.

(End of provision)

27 52.252-5 AUTHORIZED DEVIATIONS IN PROVISIONS (APR 1984)

(a) The use in this solicitation of any Federal Acquisition Regulation (48 CFR Chapter 1) provision with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the provision.

(b) The use in this solicitation of any Federal Acquisition Regulation (48 CFR Chapter 1) provision with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of provision)

(NM)

28 DFARS 252.204-7004 REQUIRED CENTRAL CONTRACTOR REGISTRATION (MAR 98)

(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 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 offeror 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 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 the 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)

28.1 52.217-5 EVALUATION OF OPTIONS (JUL 1990)

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).

(End of provision)

END OF SECTION 00100

SECTION 00110

PROPOSAL PREPARATION

PART 1 - GENERAL

1.1 WHERE AND WHEN TO SUBMIT PROPOSAL

Proposals are due as indicated on the Solicitation, Offer and Award form (Standard Form 1442) found in Section 00010, SOLICITATION, OFFER, AND AWARD.

1.2 INQUIRIES ABOUT THIS REQUEST FOR PROPOSALS (RFP)

Inquiries about this RFP shall be directed to the individuals listed on the inside of the Cover Sheet, Volume I.

1.3 PROPOSAL PREPARATION

Instructions for the preparation and organization of each proposal are included herein. The proposal shall be submitted as summarized below and as required by the specifications.

a. Phase I - Management/Technical Proposal

(1) Offeror Experience, Capacity and Past Performance.
(2) Project Organization and Personnel.
(3) Management Control Systems, Implementation and Past Success

b. Phase II

(1) Volume I - Preliminary Design Proposal

(a) Drawings
(b) Preliminary Project Description
(c) Project Schedule

(2) Volume II - Cost/Price Proposal

(a) Standard Form 1442
(b) Bidding Schedule
(c) Representation & Certifications

Proposal submittal shall include the original and 11 copies of the Management/Technical proposal and Preliminary Design proposal, and one copy of the Cost/Price proposal. The Cost/Price proposal shall be sealed in a single package separate from the Preliminary Design proposal and clearly marked as indicated on Standard Form 1442. In addition to the 11 sets of the proposal required with the Preliminary Design proposal, Phase II, submit 1 full-sized copy of each drawing utilized in the proposal.

1.4 MANAGEMENT/TECHNICAL PROPOSAL PREPARATION (PHASE I)

1.4.1 Content.

The Management/Technical proposal shall include the information as described below and shall be presented in the sequence listed.

a. Offeror Experience, Capacity and Past Performance.

(1) Experience: Demonstrate the experience of the team to successfully complete this facility using a design/build process. This section may be in any format but must, however, as a minimum, provide the following:

(a) A list of dormitory, apartment or other similar facility projects, currently underway or completed in the last 10 years that best demonstrates your experience. List no more than 10 projects total. The list of projects shall include the following information:

Project Name and Location.
Nature of Firm's Responsibility (design, construction or both).
Project Owner's Name and Address and Project Manager's (Point of Contact) Name and Phone Number.
Project Completion Date (actual or estimated).
Overall Size of Facility (in square feet or square meters).
Construction Cost (excluding design costs).
Duration of Construction (excluding design time).
Identify any of these projects delivered by Design-Build method.
Problems encountered and corrective actions taken.

(b) For each listed project, provide a brief statement (not to exceed 150 words in length) as to how the project illustrates your performance capabilities. Information may be presented in the format of Block 8 of Standard Form 255 and should be limited to one page per project.

(2) Resource Commitment: Demonstrate personnel and resources to be utilized for this project as well as additional resources available if necessary. Response to this section shall include the following:

(a) A list of key professional job titles and the number of personnel in each category for each key firm on the design/build team to include a resource manning chart and an estimate of how many personnel will be working primarily on this project from month to month. Do NOT provide biographical information in this Section.

(b) A list of any other corporate resources, subsidiaries, manufacturing facilities, etc. which may be used to the benefit of this project to include batch plant and heavy equipment.

(c) A description of the team's computer-aided (CADD) design capabilities.

(3) Customer Satisfaction:

Points of contact provided in the list of projects noted above WILL be contacted by the Source Selection Board and their comments will affect the scoring of proposals. It is important to verify that the points of contact listed are still available at the phone number and address provided and that they are individuals who have sufficient knowledge of the project and your performance to be able to offer meaningful comments.

(4) Upper Management Involvement:

Discuss the role(s) that upper management will play in this project and the process by which management issues encountered at the working level may be expeditiously elevated to upper management for resolution. Limit discussion to one page or less.

(5) Financial Capacity.

Demonstrate financial capability for providing design/build services for this project. This information may be in any format, but as a minimum, provide the following:

Current Balance Sheet and Profit/Loss Statement.
Summary of litigation, lawsuits or outstanding judgements.
Bonding Capacity (A letter of current bonding capacity from a bonding company).

b. Project Organization and Personnel:

(1) Approach:

(a) Provide an organizational chart which describes how the team will be structured, i.e., how many firms are involved and the responsibility of each firm for this project.

(b) Discuss how the design and construction process will be managed. Demonstrate your understanding of the design/build process including your ability to effectively coordinate architectural and engineering professionals, trade subcontractors and construction personnel in a team effort. Indicate the level of detail you propose to employ for proper documentation of drawings and specifications.

(c) Discuss your construction management philosophy (as it relates to the design/build process) and the benefits it will bring to the Government, particularly in the areas of time and cost control.

(d) Limit discussion to three pages.

(2) Personnel: Provide professional resume data on the following individuals who will be key personnel on the project team. Key personnel identified in this Section should be senior working-level people who will be involved in design and construction on a day-to-day basis., as opposed to departmental level supervisors or executives. By identifying these

personnel, the offeror is making a commitment that, barring unforeseen circumstances, they are the personnel who will be assigned to the project. All key personnel shall have a minimum of 5 years professional experience.

Project Manager (Design & Const)	Fire Protection Engineer
Project Architect	Senior Specifier
Senior Structural Engineer	Construction Superintendent
Senior Mechanical Engineer	Construction Foreman (if different from above)
Senior Electrical Engineer	Quality Control Representative

Information to be provided includes:

Name and Title.
Project Assignment.
Name of Firm with which Associated.
Years Experience: With This Firm, With Other Firms.
Education: Degree(s)/Year/Specialization.
Active Registration: Year First Registered.
Other Experience and Qualifications Relevant to the Proposed Project.

Information may be presented in the format of Block 7 of Standard Form 255 and should be limited to one-half page per person.

(3) Team Organization and Responsibilities:

(a) Describe interactions with the Corps of Engineers and the project owner and the roles that different team members will play when dealing with design or construction changes, resolving potential delays, reviewing and approving submittals, attending progress meetings and facilitating contract completion and closeout.

(b) Limit discussion to two pages.

c. Management Control Systems, Implementation, and Past Success.

(1) Quality Control.

Demonstrate ability to control quality throughout the design development and construction documentation of the project. Present a plan to control quality throughout the construction process including testing, inspection, and safety.

(2) Controlling Time.

(a) Demonstrate team's ability to control the time during the design and construction phases of the project. Present the plan to control design time and construction time.

(b) Demonstrate ability to minimize time overruns due to changes, unforeseen

circumstances and delays. Present the plan for maintaining the design and construction schedules. Describe the time control systems to be utilized and how time control savings proposal will be presented.

(3) Limiting Cost Growth.

(a) Describe team's ability to maintain a project budget during both design and construction.

(b) Describe the cost control systems and procedures that will be utilized.

(c) Describe the procedures and the format with which cost savings proposals will be presented.

(d) Describe a plan to minimize cost overruns caused by owner initiated changes, unnecessary specification requirements, unforeseen circumstances, and delays.

(e) Describe a plan to recognize and maximize user requirements while minimizing or maintaining costs.

(4) Past Success.

Verify management control with examples of past successes.

1.4.2 Format

a. Management/Technical proposal shall be submitted in a loose leaf binder. It shall be typed, the pages shall be numbered, the sections shall be tabbed, and shall conform to the format given below. The Management/Technical proposal length shall be limited to 50 single-sided or 25 double-sided pages, printed on 8-1/2" x 11" sheets. Do not use condensed print.

b. A cover sheet identifying the offeror and the project shall be provided. The Second sheet shall be a Table of Contents.

1.5 PRELIMINARY DESIGN PROPOSAL PREPARATION (PHASE II, VOLUME I)

1.5.1 General.

The Preliminary proposal shall represent the intent to fulfill the design and construction requirements as set forth in Section 01013 of the Specifications. This proposal shall consist of a narrative and graphic brochure-type presentation with enough information for the reviewer to understand the functional and technical approach the designer will follow to complete the project. The Preliminary Design shall consist of essentially the Schematic Design level as outlined in the CSI Manual of Practice Chapter FF/010. This may include preliminary sketches, small-scale schematic plans, elevations, sections, diagrams, renderings, and other graphic and written documents that illustrate the general scope, scale, and relationship of

project components, and describe in general the type of construction and equipment proposed. As a minimum, the narrative shall include the civil, site engineering and architectural requirements; construction materials and finishes; structural and foundation system; communications systems; power and electrical systems; and plumbing and HVAC systems. Items or details which cannot adequately be described in narrative form shall be graphically shown on fold-out drawings, sketches, tabulations, and/or photographs bound in the brochure. An estimate of construction time and phasing shall be included in the brochure. In addition, Preliminary Project Descriptions and an index of the anticipated guide specifications to be utilized for the design shall be included. The substance and detailed information to be included in the Preliminary design is specified in Section 01010 - DESIGN DOCUMENT PREPARATION. The offeror shall indicate in writing in the Phase II, Preliminary Design Proposal, any person or persons, other than the person signing the form 1442, who is authorized to negotiate on behalf of the Offeror.

1.5.2 Purpose.

The purpose of the Preliminary design is as follows:

a. To provide sufficient design information for the Using Agency to determine the acceptability of the proposed design as meeting their functional requirements set forth herein for operational use and economical maintenance during the anticipated life of the facility.

b. To provide data for a determination of the engineering sufficiency and soundness of the basic approach to the design for each technical discipline. Also, it will serve as a documentary check that the designer has been provided or has developed the essential engineering criteria necessary for all facets of final computations and detailed development of a thoroughly engineered, coordinated, economical, and functional design.

c. To provide the designer, after review of the brochure, with an approved set of architectural and technical conditions with which he may proceed with confidence to develop the complete facility, by the application of sound architectural and engineering principles and details.

1.5.3 Content.

a. Facility Functionality. Convey information that shows the use and logic of the following building systems, components, and site features. Specific narratives shall be developed that focus on the following areas:

(1). Location and orientation of building(s), both the 144 person dormitory and 2 future 96 person dormitories to optimize the available land for vertical construction and utilization of prevailing climatic conditions.

(2). Utilization of energy conservation methods, components, building systems, and siting.

(3). Use of durable materials and building components which offer life cycle savings through reduced maintenance and replacement costs.

(4). Efficiency of HVAC system and flexibility of controls.

(5). Effective use of landscaped and green areas to provide an aesthetically pleasing environment.

(6) All other building systems not specifically listed in (1) through (5) above.

b. Soundness and Quality of Design. Indicate through design analysis narratives or in the preliminary project descriptions the evidence of quality of materials. Indicate the industry or Government criteria, standards, and publications on which the design is based. Provide sufficient detail of site and architectural features to justify the rationale for the selection of the proposed floor plan.

c. Service Related Aspects of Facility Maintenance. Describe building systems and components that ensure high reliability and low maintenance costs. Systems and components that require maintenance shall demonstrate ease of access for maintenance.

d. Conformance to Codes and Accessibility Requirements. Describe all codes by which the design will be governed. Specific narratives shall be developed to describe conformance to fire and safety codes and environmental compliance regulations.

e. Energy Savings. Show calculations and data supporting special features that enhance energy conservation and reduce life cycle costs.

f. Format and Presentation of Drawing, Preliminary Project Description, Design Analysis and Supporting Documentation. Present all design documents in a professional manner based on a conventional format such as CSI or other nationally recognized formats. Clearly show compliance with the minimum requirements set forth in the RFP. Provide all detail only in sufficient quantity and volume to adequately convey the requested information. Avoid advertising material and glossy publications which are only promotional in nature.

1.5.4 Format

The format for the Preliminary design shall be as follows:

Volume 1 - Preliminary Project Descriptions
Volume 2 - Design Analysis
Volume 3 - Drawings
Volume 4 - Other Supporting Documents

1.5.5 Project Schedule

A bar chart (or network) schedule shall be submitted with the Preliminary Design proposal reflecting both the design phase activities and the construction phase activities from Notice to Proceed through final completion. The schedule shall reflect construction methods used for this specific project and indicate start/finish dates of events and float time. Project Schedule

shall conform to Section 01310, CONTRACTOR PREPARED NETWORK ANALYSIS SYSTEM (NAS) and the Clause titled "Schedules for Construction Contracts" in Section 00700, CONTRACT CLAUSES. As a minimum, the schedule shall include the following milestones:

Project Start (NTP)
Design Phase Submittals
Start of Construction
Clearing and Grubbing
Foundation Piers
Plumbing (Below Grade)
Grade Beams & Concrete Slabs
Steel Erection
Electrical Rough-In
Roofing & Insulation
Exterior Closures
Plumbing Above Grade
Interior Walls
HVAC
Electrical
Interior Construction
Interior Finishes
Site Improvements & Landscaping
Inspection & Acceptance

1.5.6 Color Rendering

Include in the Preliminary Design Phase II Proposal submittal a color rendering of the proposed building design. The rendering may be computer generated and shall be a minimum of 11”x17”.

1.6 COST/PRICE PROPOSAL PREPARATION (PHASE II, VOLUME II)

Prices shall be firm. Bids will not be considered which provide for subsequent increase in price. The Cost/Price proposal shall consist of the following:

1.6.1 Solicitation Offer and Award

Standard Form 1442 shall be filled out and signed by a principal of the firm authorized to bind the design/build team.

1.6.2 Bidding Schedule

a. Offerors shall complete the Bidding Schedule by filling out the pricing data blanks. An executable Bid Schedule is included in Section 00010 herein.

b. Overhead and profit shall be applied proportionally to each category and will not be required to be shown separately.

c. The Contractor shall include allowance in the Cost Proposal and shall schedule any contingency for weather delays for severe weather in accordance with weather requirements included in Section 00800, SPECIAL CONTRACT REQUIREMENTS.

1.6.3 Cost Breakout

A separate breakout shall be included for the Build Phase (Construction) costs, Bid Item No. 3. The breakout shall include the lump sum cost for each of CSI Divisions 1, 2, 3, 5, 7, 8, 15, 16, and Other (for all other cost not included in the stated divisions) as allocated in accordance with the Corps of Engineers MCACES costing system. MCACES is available on the Construction Criteria Base as described in Section 01012, Paragraph "SPECIFICATIONS".

1.7 REPRESENTATION AND CERTIFICATIONS

Representations and Certifications are local, state, and federal representative statements and certifications made by the Offeror concerning a variety of issues. Complete each item in Section 00600, REPRESENTATIONS AND CERTIFICATIONS and submit one original with the Phase II proposal.

1.8 CLARIFICATIONS AND FINAL PROPOSAL REVISION:

1.8.1 General

Any conflicting criteria which cannot be resolved by the Order of Precedence specified in Section 01011, DESIGN CONCEPT DOCUMENTS shall be brought to the attention of the government by the Offeror as part of the written clarification requirement of the proposal. In the absence of such request for clarification, the Offeror shall perform to the most beneficial criteria as determined by the Government.

1.8.2 Clarifications Prior to Proposal Due Date

In the event that clarifications are required prior to submitting the Phase I or II proposal, contact the individuals listed on the reverse of the Cover Sheet, Volume I. All RFP holders will be advised of significant clarifications affecting the scope of the project.

1.8.3 Clarifications Submitted with Proposals

Clarifications remaining at the time and date that proposals are due, written clarifications may be included in the proposal for consideration by the Government. Clarifications submitted with proposals shall clearly identify the understanding of the RFP documents and how this understanding is reflected in the cost proposal. Extensive qualifications, exclusions and exceptions in the form of clarifications may be considered by the Government to be non-responsive and may be grounds for rejection of the proposal.

1.8.4 Final Proposal Revision:

a. The Government may select the Offerors for Phase II or award a contract on the basis of the initial offers received without further discussions or negotiations. Offers should contain the Offeror's best terms from a cost and management standpoint.

b. The Government may contact those firms whose Phase II proposals are within the competitive range and conduct discussions/negotiations concerning their proposal. Following resolution of the discussions/negotiations, offerors in the competitive range shall be given the opportunity to submit their Final Proposal Revision.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

--End of Section--

SECTION 00120

PROPOSAL EVALUATION AND CONTRACT AWARD

PART 1 - GENERAL

1.1 PROPOSAL EVALUATION:

Phase I and Phase II proposals will be evaluated by a Source Evaluation Board (SEB). The SEB will be made up of Corps of Engineers and Air Force personnel. Board members will not be available for contact or discussion prior to submission of proposals.

1.2 EVALUATION CRITERIA:

1.2.1 Phase I Criteria:

The Management/Technical Proposal categories below correspond to the outline specified in Section 00110 - PROPOSAL PREPARATION. They are listed in descending order of importance with Category 1 the most important and Category 3 the least important. Sub-criteria within each category are listed in their descending order of importance. Past performance will be evaluated by contacting references for indications of customer satisfaction. In addition, similar facilities will be given greater consideration than dissimilar ones. Those Offeror's with no relevant performance history will not be evaluated in this category.

Management/Technical Proposal Evaluation Criteria:

1) Category 1: Offeror Experience and Past Performance

Experience
Resource Commitment
Customer Satisfaction
Management Commitment
Financial Capacity

2) Category 2: Project Organization and Personnel

Approach
Personnel
Team Organization & Responsibilities
Subcontractors

3) Category 3: Management Control Systems, Implementation, and Past Success

Quality Assurance
Controlling Time

Limiting Cost Growth
Past Success

1.2.2 Phase II Criteria:

The Phase II categories below correspond to the outline specified in Section 00110 - PROPOSAL PREPARATION. They are listed in descending order of importance with Category 1 the most important and Category 3 the least important. Unless noted otherwise, sub-criteria within each category are listed in their descending order of importance.

Preliminary Design Proposal Evaluation Criteria:

1) Category 1: Comfort, Convenience, and Amenities:

a. Proposed Heating, Ventilating, and Air Conditioning (HVAC) system (including occupant controls.)

b. Occupant Privacy (including acoustical privacy.)

c. Ease of access to rooms and parking.

d. Convenience of storage and laundry facilities.

e. Location and arrangement of other amenities.

f. Proposed site features (landscaping and site furnishings.)

2) Category 2: Soundness and quality of design (sub-items are equal):

a. Compatibility of materials with Base Comprehensive Plan (Appendix D.)

b. Durability of Materials

3) Category 3: Service related aspects of facility maintenance (sub-items are essentially equal):

a. Ease of Maintenance Access (Mechanical & Electrical Service Equipment)

b. Ease of Service Areas (Custodial Services)

4) Category 4: Conformance to codes and accessibility requirements (sub-items are equal):

a. Environmental Quality & Compliance

b. Fire Safety and Life Safety Provisions

5) Category 5: Energy Savings

Show calculations and data supporting special features that enhance energy conservation and reduce life cycle costs.

6) Category 6: Format and presentation of drawing, preliminary project description, design analysis and supporting documentation

7) Category 7: The project schedule will be evaluated and utilized in the determination of Offeror's understanding of the work. Evaluation factors will be schedule realism and durations.

Present all design documents in a professional manner based on a conventional format such as CSI or other nationally recognized formats. Clearly show compliance with the minimum requirements set forth in the RFP. Provide all detail only in sufficient quantity and volume to adequately convey the requested information. Avoid advertising material and glossy publications which are only promotional in nature.

The cost/price proposal will be evaluated separately and has less weight than the Preliminary Design proposal. All evaluation factors combined are significantly more important than the cost/price proposal.

1.3 METHOD OF PROPOSAL EVALUATION:

Proposals will be reviewed to determine if they contains the required minimum procurement and technical data. Incomplete proposals may be eliminated. All forms and certifications shall be filled in and all requested data must be provided.

After the compliance review, the SEB will begin evaluation and scoring the categories set forth herein. The cost proposal information submitted in Phase II will be evaluated (not scored) as to reasonableness and realistic cost.

The competitive range will be determined. The competitive range will consist of all proposals which are considered to have a reasonable chance of being selected for award.

After the determination of the competitive range, written and/or oral discussions may be conducted with all Offerors within the competitive range. Upon completion of written and/or oral discussions, Final Proposal Revision will be requested.

The estimated construction cost target for this project is $8,183,000.

The Government may reject any or all proposals and waive minor informalities or

minor irregularities in proposals.

1.4 SELECTION & AWARD:

A maximum of three Offerors that scored the highest on the Phase I evaluation criteria will be selected and given the opportunity to offer Phase II proposals. Award of a Design-Build contract will be made to one of the three Offerors which, in the judgement of the Contracting Officer, provides the best value to the Government. The Government reserves the right to make award to other than the lowest cost Offeror, price and other factors considered.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 00150

THE DESIGN/BUILD PROCESS

PART 1 - GENERAL

1. DESIGN/BUILD (DB) PROCESS:

The facility shall be designed and built by a single DB contractor. The DB contractor may be a single firm or a team of firms that includes registered Architects and Engineers either employed by or subcontracted to the DB contractor. The DB contractor is the Architect/Engineer-of-Record, whether the DB contractor uses registered architects and engineers employed by its firm or subcontracts with independent architectural and engineering firm(s). The DB contractor is solely liable for design errors and/or omissions and must be insured as the designer against design errors and omissions.

Section 01011 - DESIGN CONCEPT DOCUMENTS identifies project documents furnished herewith to be used as the basis for the project design and construction documents. The successful Offeror will be required to complete the design and construction documentation, and construct the project in compliance with these completed requirements.

2. OUTLINE DESCRIPTION OF THE DB PHASE:

No work can begin on any phase of the process until a authorization Letter to Commence for that phase is issued.

2.1 PROPOSAL PHASE:

The Proposal Phase includes the period from the time from the issuance of the Request for Proposals (RFP) through the selection process and the final award of the DB contract.

The proposals to be submitted includes a Management/Technical Proposal, a Preliminary Design Proposal, and a Cost/Price Proposal. The contents and organization of the proposal is described in SECTION 00110 - PROPOSAL PREPARATION. The Government will evaluate and award the DB contract to a single Offeror based upon the criteria which are outlined in SECTION 00120 - PROPOSAL EVALUATION AND CONTRACT AWARD.

2.2 DESIGN PHASE:

The successful DB contractor shall develop and submit for review and two submittals, first and second. The DB contractor is encouraged to develop and submit multiple cost saving proposals for innovative design alternatives.

2.2.1 The Design Phase will consist of two parts as follows:

a. Part 1 will be the basic services required to develop the first submittal which

represents: 100% complete drawings and specifications for site preparation work, utility construction, paving, foundation, and structural diaphram of all work and approximately 60% complete drawings and specifications of all other required construction documents. Part I also includes incorporating the revisions identified in the First submittal review.

After approval of the Part 1 drawings and specification submittal, the Government may issue a Letter of Authorization to commence with the Build Phase for all site and off-site utilities, clearing, grubbing, rough grading the site, demolition work, parking lot base course, foundation, and structural framing.

A Pre-design meeting will be conducted to distribute as-built drawings to the DB contractor, finalize and clarify technical information, and clarify other necessary information.

b. Part 2 shall include all design services required to complete the second design submittal (100%). Part 2 design shall not begin until a approval of the Part 1 submittal is issued.

3. BUILD PHASE:

The Build Phase will be initiated by an authorization letter. Construction shall commence upon receipt of the authorization of the Build Phase and shall be completed within the time stated in Section 00800 - SPECIAL CONTRACT REQUIREMENTS.

The authorization letter will be provided separately by the Contracting Officer for each phase of the work. The Government may give the DB Contractor authorization for the Build Phase for portions of the work following review and approval of the First Design Submittal.

Weekly coordination meetings will be held at which, as a minimum, the DB Contractor's Project Manager, a representative of the Designer, the site Superintendent, and the Contractor's Quality Control Manager shall be present.

4. PROJECT SCHEDULE:

Design Phase, Part 1 - Basic Services Pre-design Meeting	7 days from Award of Contract
CESA and Utility studies due	30 days after Award of Contract
Study Review meeting at Tinker AFB	7 days after submission of study
First Design Submittal Due	60 days from Award of Contract
Submittal Review Conference at Tinker AFB, OK	21 days after 60 percent submittal

Authorization to Commence Design Phase Part 2	Upon approval of first submittal
Build Phase authorization to commence site preparation, utilities, and foundation const.	Upon approval of second submittal For applicable work
Design Phase, Part 2 Second (100%) Design Submittal Due	60 days from Authorization for Design Phase, Part 2
Submittal Review Conference at Tulsa District Office	21 days after 100 percent submittal
Incorporate Changes to Submittals Re-Submit for Review and Approval	21 days after review conference
Build Phase Authorization for Remainder of Work	Upon approval of Second submittal
Construction Completion	**

All days are in calendar days

** See Section 00800 - SPECIAL CONTRACT REQUIREMENTS

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION

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SECTION 00600

REPRESENTATIONS & CERTIFICATIONS

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

(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) above; 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) above _____

_____

(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 named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

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

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

(End of provision)

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

(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 of 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 52.204-3 TAXPAYER IDENTIFICATION (JUN 1997)

(a) Definitions.

"Common parent," as used in this solicitation 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.

"Corporate status," as used in this solicitation provision, means a designation as to whether the offeror is a corporate entity, an unincorporated entity (e.g., sole proprietorship or partnership), or a corporation providing medical and health care services.

"Taxpayer Identification Number (TIN)," as used in this solicitation provision, means the number required by the IRS to be used by the offeror in reporting income tax and other returns.

(b) All offerors are required to submit the information required in paragraphs (c) through (e) of this solicitation provision in order to comply with reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M and

implementing regulations issued by the Internal Revenue Service (IRS). If the resulting contract is subject to the reporting requirements described in FAR 4.903, 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) 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 U.S. and does not have an office or place of business or a fiscal paying agent in the U.S.;

/_/ Offeror is an agency or instrumentality of a foreign government;

/_/ Offeror is an agency or instrumentality of a Federal, state, or local government;

/_/ Other. State basis. _____

(d) Corporate Status.

/_/ Corporation providing medical and health care services, or engaged in the billing and collecting of payments for such services;

/_/ Other corporate entity;

/_/ Not a corporate entity;

/_/ Sole proprietorship

/_/ Partnership

/_/ Hospital or extended care facility described in 26 CFR 501(c)(3) that is exempt from taxation under 26 CFR 501(a).

(e) 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 52.204-5 WOMEN-OWNED BUSINESS (OCT 1995)

(a) Representation. The offeror represents that it [ ] is, [ ] is not a women-owned business concern.

(b) 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.

(End of provision)

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

(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 52.209-7001 DISCLOSURE OF OWNERSHIP OR CONTROL BY THE GOVERNMENT OF A TERRORIST COUNTRY (SEP 1994)

(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 52.209-7002 DISCLOSURE OF OWNERSHIP OR CONTROL BY A FOREIGN GOVERNMENT (SEP 1994)

(a) Definitions.

As used in this provision--

(1) Effectively owned or controlled means that a foreign government or

any entity controlled by a foreign government has the power, either directly or indirectly, whether exercised or exercisable, to control the election, appointment, or tenure of the Offeror's officers or a majority of the Offeror's board of directors by any means, e.g., ownership, contract, or operation of law (or equivalent power for unincorporated organizations).

(2) Entity controlled by a foreign government--

(i) Means--

(A) Any domestic or foreign organization or corporation that is effectively owned or controlled by a foreign government; or

(B) Any individual acting on behalf of a foreign government.

(ii) Does not include an organization or corporation that is owned, but is not controlled, either directly or indirectly, by a foreign government if the ownership of that organization or corporation by that foreign government was effective before October 23, 1992.

(3) Foreign government includes the state and the government of any country (other than the United States and its possessions and trust territories) as well as any political subdivision, agency, or instrumentality thereof.

(4) "Proscribed information" means--

(i) Top Secret information;

(ii) Communications Security (COMSEC) information, except classified keys used to operate secure telephone units (STU IIIs);

(iii) Restricted Data as defined in the U.S. Atomic Energy Act of 1954, as amended;

(iv) Special Access Program (SAP) information; or

(v) Sensitive Compartmented Information (SCI).

(b) Prohibition on award.

No contract under a national security program may be awarded to an entity controlled by a foreign government if that entity requires access to proscribed information to perform the contract, unless the Secretary of Defense or a designee has waived application of 10 U.S.C. 2536(a).

(c) Disclosure.

The Offeror shall disclose any interest a foreign government has in the Offeror when that interest constitutes control by a foreign government as defined in this provision. If the Offeror is a subsidiary, it shall also disclose any reportable interest a foreign government has in any entity that owns or controls the subsidiary, including reportable interest concerning the Offeror's immediate parent, intermediate parents, and the ultimate parent. Use separate paper as needed, and provide the information in the following format:

Offeror's Point of Contact for Questions about Disclosure (Name and Phone Number with Country Code, City Code and Area Code, as applicable)

Name and Address of Offeror

Name and Address of Entity Controlled by a Foreign Government	Description of Interest, Ownership Percentage, and Identification of Foreign Government

(End of provision)

8 52.215-4 TYPE OF BUSINESS ORGANIZATION (OCT 1997)

The offeror or respondent, by checking the applicable box, represents that--

(a) It operates as [ ] an individual, [ ] a partnership, [ ] a nonprofit organization, [ ] a joint venture, or [ ] a corporation incorporated under the laws of the State of _____.

(b) If the offeror or respondent is a foreign entity, it operates as [ ] an individual, [ ] a partnership, [ ] a nonprofit organization, [ ] a joint venture, or [ ] a corporation, registered for business in _____.

(Country)

(End of provision)

9 52.215-6 PLACE OF PERFORMANCE (OCT 1997)

(a) The offeror or respondent, in the performance of any contract resulting from this solicitation, [ ] intends, [ ] does not intend (check applicable block) to use one or more plants or facilities located at a different address from the address of the offeror or respondent as indicated in this proposal or response to request for information.

(b) If the offeror or respondent checks "intends" in paragraph (a) of this provision, it shall insert in the following spaces the required information:

Place of performance (street address, city, state, county, zip code)	Name and address of owner and operator of the plant or facility if other than offeror or respondent
_____	_____
_____	_____

(End of provision)

10 52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (FEB 1998)

(a)(1) The standard industrial classification (SIC) code for this acquisition is 1522

(2) The small business size standard is $17 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 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 small disadvantaged business concern.

(3) (Complete only if 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.

(c) Definitions. "Joint venture," for purposes of a small disadvantaged business (SDB) set-aside or price evaluation preference (as prescribed at 13 CFR 124.321), is a concern that is owned and controlled by one or more socially and economically disadvantaged individuals entering into a joint venture agreement with one or more business concerns and is considered to be affiliated for size purposes with such other concern(s). The combined annual receipts or employees of the concerns entering into the joint venture must meet the applicable size standard corresponding to the SIC code designated for the contract. The majority of the venture's earnings must accrue directly to the socially and economically disadvantaged individuals in the SDB concern(s) in the joint venture. The percentage of the ownership involvement in a joint venture by disadvantaged individuals must be at least 51 percent.

"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.

"Small disadvantaged business concern," as used in this provision, means a small business concern that (1) is at least 51 percent unconditionally owned by one or more individuals who are both socially and economically disadvantaged, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one or more socially and economically disadvantaged individuals, and (2) has its management and daily business controlled by one or more such individuals. This term also means a small business concern that is at least 51 percent unconditionally owned by an economically disadvantaged Indian tribe or Native Hawaiian Organization, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one or more of these entities, which has its management and daily business controlled by members of an economically disadvantaged Indian tribe or Native Hawaiian Organization, and which meets the requirements of 13 CFR Part 124.

"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 or small disadvantaged 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)

11 52.219-19 SMALL BUSINESS CONCERN REPRESENTATION FOR THE SMALL BUSINESS COMPETITIVENESS DEMONSTRATION PROGRAM (JAN 1997)

(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). (Check one of the following.)

No. of Employees	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)

12 52.219-7000 SMALL DISADVANTAGED BUSINESS CONCERN REPRESENTATION (DoD CONTRACTS) (JUN 1997)

(a) Definition. "Small disadvantaged business concern," as used in this provision, means a small business concern, owned and controlled by individuals who are both socially and economically disadvantaged, as defined by the Small Business Administration at 13 CFR Part 124, the majority of earnings of which directly accrue to such individuals. This term also means a small business concern owned and controlled by an economically disadvantaged Indian tribe or Native Hawaiian organization

which meets the requirements of 13 CFR 124.112 or 13 CFR 124.113, respectively. In general, 13 CFR Part 124 describes a small disadvantaged business concern as a small business concern--

(1) Which is at least 51 percent unconditionally owned by one or more socially and economically disadvantaged individuals; or

(2) In the case of any publicly owned business, at least 51 percent of the voting stock is unconditionally owned by one or more socially and economically disadvantaged individuals; and

(3) Whose management and daily business operations are controlled by one or more such individuals.

(b) Representations. Check the category in which your ownership falls--

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

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

_____ Black American (U.S. citizen)

_____ Hispanic American (U.S. citizen with origins from South America, Central America, Mexico, Cuba, the Dominican Republic, Puerto Rico, Spain, or Portugal)

_____ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians, including Indian tribes or Native Hawaiian organizations)

_____ Individual/concern, other than one of the preceding, currently certified for participation in the Minority Small Business and Capital Ownership Development Program under Section 8(a) of the Small Business Act

_____ Other

(c) Complete the following--

(1) The offeror is_____ is not _____a small disadvantaged business concern.

(2) The Small Business Administration (SBA) has _____ has not _____ made a determination concerning the offeror's status as a small disadvantaged business concern. If the SBA has made a determination, the date of the determination was _____ and the offeror--

_____ Was found by SBA to be socially and economically disadvantaged and no circumstances have changed to vary that determination.

_____ Was found by SBA not to be socially and economically disadvantaged but circumstances which caused the determination have changed.

(d) Penalties and Remedies. Anyone who misrepresents the status of a concern as a small disadvantaged business for the purpose of securing a contract or subcontract shall--

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

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

(3) Be ineligible for participation in programs conducted under authority of the Small Business Act.

(End of provision)

13 52.222-21 CERTIFICATION OF NONSEGREGATED FACILITIES (APR 1984)

(a) "Segregated facilities," as used in this provision, 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, or national origin because of habit, local custom, or otherwise.

(b) By the submission of this offer, the offeror certifies 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 offeror agrees that a breach of this certification is a violation of the Equal Opportunity clause in the contract.

(c) The offeror further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will--

(1) Obtain identical certifications from proposed subcontractors before the award of subcontracts under which the subcontractor will be subject to the Equal Opportunity clause;

(2) Retain the certifications in the files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATIONS OF NONSEGREGATED FACILITIES.

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract under which the subcontractor will be subject to the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

(End of provision)

(R 7-2003.14(b)(1)(A) 1970 AUG)

(R 1-12.803-10(d))

14 52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (APR 1984)

The offeror represents that--

(a) It /_/ has, /_/ has not, participated in a previous contract or subcontract subject either to the Equal Opportunity clause of this solicitation, the clause originally contained in Section 310 of Executive Order No. 10925, or the clause contained in Section 201 of Executive Order No. 11114;

(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)
(R 7-2003.14(b)(1)(B) 1973 APR)

15 52.223-1 CLEAN AIR AND WATER CERTIFICATION (APR 1984)

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)
(AV 7-2003.71 1977 JUN)
(AV 1-1.2302-1)

16 52.223-3 HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA (JAN 1997)

(a) "Hazardous material," as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract).

(b) The Offeror must list any hazardous material, as defined in paragraph (a) of this clause, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

Material	Identification No.

(If none, insert None)

(c) This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous.

(d) The apparently successful Offeror agrees to submit, for each item as required prior to award, a Material Safety Data Sheet, meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in paragraph (b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful Offeror is the actual manufacturer of these items. Failure to submit the Material Safety

Data Sheet prior to award may result in the apparently successful Offeror being considered nonresponsible and ineligible for award.

(e) If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete or inaccurate the data submitted under paragraph (d) of this clause, the Contractor shall promptly notify the Contracting Officer and resubmit the data.

(f) Neither the requirements of this clause nor any act or failure to act by the Government shall relieve the Contractor of any responsibility or liability for the safety of Government, Contractor, or subcontractor personnel or property.

(g) Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material.

(h) The Government's rights in data furnished under this contract with respect to hazardous material are as follows:

(1) To use, duplicate and disclose any data to which this clause is applicable. The purposes of this right are to--

(i) Apprise personnel of the hazards to which they may be exposed in using, handling, packaging, transporting, or disposing of hazardous materials;

(ii) Obtain medical treatment for those affected by the material; and

(iii) Have others use, duplicate, and disclose the data for the Government for these purposes.

(2) To use, duplicate, and disclose data furnished under this clause, in accordance with subparagraph (h)(1) of this clause, in precedence over any other clause of this contract providing for rights in data.

(3) The Government is not precluded from using similar or data acquired from other sources.

(End of clause)

17 52.223-13 CERTIFICATION OF TOXIC CHEMICAL RELEASE REPORTING (OCT 1996)

(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 facility 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 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)

18 52.225-7031 SECONDARY ARAB BOYCOTT OF ISRAEL (JUN 1992)

(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 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 by Arab countries, which 50 U.S.C. App. Sec 2407(a) prohibits a United States person from taking.

(End of clause)

19 52.247-7022 REPRESENTATION OF EXTENT OF TRANSPORTATION BY SEA (AUG 1992)

(a) The Offeror shall indicate by checking the appropriate blank in paragraph (b) of this provision whether transportation of supplies by sea is anticipated under the resultant contract. The term "supplies" is

defined in the Transportation of Supplies by Sea clause of this solicitation.

(b) Representation. The Offeror represents that it--

_____ Does anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

_____ Does not anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

(c) Any contract resulting from this solicitation will include the Transportation of Supplies by Sea clause. If the Offeror represents that it will not use ocean transportation, the resulting contract will also include the Defense FAR Supplement clause at 252.247-7024, Notification of Transportation of Supplies by Sea.

(End of provision)

END OF SECTION 00600

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SECTION 00700

CONTRACT CLAUSES

1 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at these addresses:

http://www.arnet.gov/far
http://farsite.hill.af.mil
http://www.dtic.mil/dfars

2 52.0-4513 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (EFARS 52.231-5000) (MAR 1995)

(a) This clause does not apply to terminations. See 52.249-5000, Basis for Settlement of Proposals, and FAR Part 49.
(b) 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 for the applicable provisions of EP 1110-1-8, "Construction Equipment Ownership and Operating Expense Schedule." Region VI. 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 the work was performed shall apply.
(c) Equipment rental costs are allowable, subject to the provision 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.
(d) 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.

3 52.201-7000 CONTRACTING OFFICER'S REPRESENTATIVE (DEC 1991)

(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)

4 52.202-1 DEFINITIONS (OCT 1995)

(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) Commercial item means--

(1) Any item, other than real property, that is of a type customarily used for nongovernmental purposes and that--

(i) Has been sold, leased, or licensed to the general public; or

(ii) Has been offered for sale, lease, or license to the general public;

(2) Any item that evolved from an item described in paragraph (c)(1) of this clause through advances in technology or performance and that is not yet available in the commercial marketplace, but will be available in the commercial marketplace in time to satisfy the delivery requirements under a Government solicitation;

(3) Any item that would satisfy a criterion expressed in paragraphs (c)(1) or (c)(2) of this clause, but for--

(i) Modifications of a type customarily available in the commercial marketplace; or

(ii) Minor modifications of a type not customarily available in the commercial marketplace made to meet Federal Government requirements. "Minor" modifications means modifications that do not significantly alter the nongovernmental function or essential physical characteristics of an item or component, or change the purpose of a process. Factors to be considered in determining whether a modification is minor include the value and size of the modification and the comparative value and size of the final product. Dollar values and percentages may be used as guideposts, but are not conclusive evidence that a modification is minor;

(4) Any combination of items meeting the requirements of paragraphs

(c)(1), (2), (3), or (5) of this clause that are of a type customarily combined and sold in combination to the general public;

(5) Installation services, maintenance services, repair services, training services, and other services if such services are procured for support of an item referred to in paragraphs (c)(1), (2), (3), or (4) of this clause, and if the source of such services--

(i) Offers such services to the general public and the Federal Government contemporaneously and under similar terms and conditions; and

(ii) Offers to use the same work force for providing the Federal Government with such services as the source uses for providing such services to the general public;

(6) Services of a type offered and sold competitively in substantial quantities in the commercial marketplace based on established catalog or market prices for specific tasks performed under standard commercial terms and conditions. This does not include services that are sold based on hourly rates without an established catalog or market price for a specific service performed;

(7) Any item, combination of items, or service referred to in subparagraphs (c)(1) through (c)(6), notwithstanding the fact that the item, combination of items, or service is transferred between or among separate divisions, subsidiaries, or affiliates of a Contractor; or

(8) A nondevelopmental item, if the procuring agency determines the item was developed exclusively at private expense and sold in substantial quantities, on a competitive basis, to multiple State and local Governments.

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

(e) 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 (e)(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 (e)(1) or (e)(2) solely because the item is not yet in use.

(f) "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.

(g) 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)

5 52.203-3 GRATUITIES (APR 1984)

(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) above, 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)

(R 7-104.16 1952 MAR)

6 52.203-5 COVENANT AGAINST CONTINGENT FEES (APR 1984)

(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 annul 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 on any basis other than the merits of the matter.

(End of clause)

(R 7-103.20 1958 JAN)

(R 1-1.503)

(R 1-7.102-18)

7 52.203-6 RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT (JUL 1995)

(a) Except as provided in (b) below, the Contractor shall not enter into any agreement with an actual or prospective subcontractor, nor otherwise act in any manner, which has or may have the effect of restricting sales by such subcontractors directly to the Government of any item or process (including computer software) made or furnished by the subcontractor under this contract or under any follow-on production contract.

(b) The prohibition in (a) above does not preclude the Contractor from asserting rights that are otherwise authorized by law or regulation.

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

(End of clause)

8 52.203-7 ANTI-KICKBACK PROCEDURES (JUL 1995)

(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 over 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)

9 52.203-8 CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(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 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 subsection 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)

10 52.203-9 reserved

(Reference)

11 52.203-10 PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(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.

(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) The 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)

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

(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 Congress, or an 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 or 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 his 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 or 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 attempt 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)

13 52.203-7001 SPECIAL PROHIBITION ON EMPLOYMENT (JUN 1997)

(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) 10 U.S.C. 2408 provides that 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:

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

(2) Serving on the board of directors of any DoD Contractor or first-tier subcontractor; or

(3) Serving as a consultant to any DoD Contractor or first-tier subcontractor.

(c) Unless waived, the prohibition in paragraph (b) applies for five 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.

(e) 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 prohibitions 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 identity and relationship of the parties, in all first-tier subcontracts exceeding the simplified acquisition threshold in Part 2 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 Benefits Office, U.S. Department of Justice, telephone (202) 616-3507.

(End of clause)

14 52.203-7002 DISPLAY OF DOD HOTLINE POSTER (DEC 1991)

(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)

15 52.204-4 PRINTING/COPYING DOUBLE-SIDED ON RECYCLED PAPER (JUN 1996)

(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 standard is 50 percent recovered material content of certain industrial by-products.

(End of clause)

16 52.204-7003 CONTROL OF GOVERNMENT PERSONNEL WORK PRODUCT (APR 1992)

The Contractor's procedures for protecting against unauthorized disclosure of information shall not require Department of Defense employees or members of the Armed Forces to relinquish control of their work products, whether classified or not, to the Contractor.

(End of clause)

17 52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (JUL 1995)

(a) The Government suspends or debars Contractors to protect the Government's interest. 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 reason(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 interests when dealing with such subcontractor in view of the specific basis for the party's debarment, suspension, or proposed debarment.

(End of clause)

18 52.211-15 DEFENSE PRIORITY AND ALLOCATION REQUIREMENTS (SEP 1990)

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)

19 52.211-18 VARIATION IN ESTIMATED QUANTITY (APR 1984)

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 judgement of the Contracting Officer, is justified.

(End of clause)

20 52.215-2 AUDIT AND RECORDS--NEGOTIATION (AUG 1996)

(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 records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement; and

(2) Records relating to appeals under the Disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available 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 (a), 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 (e) 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 52.215-8 ORDER OF PRECEDENCE--UNIFORM CONTRACT FORMAT (OCT 1997)

Any inconsistency in this solicitation or contract shall be resolved by giving precedence in the following order:

(a) The Schedule (excluding the specifications).

(b) Representations and other instructions.

(c) Contract clauses.

(d) Other documents, exhibits, and attachments.

(e) The specifications.

(End of clause)

22 52.215-10 PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA (OCT 1997)

(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 were 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 had 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 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 that were incomplete, inaccurate, or noncurrent.

(End of clause)

23 52.215-11 PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA MODIFICATIONS (OCT 1997)

(a) This clause shall become operative only for any modification to this contract involving a pricing adjustment expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4, except that this clause does not apply to any modification if an exception under FAR 15.403-1 applies.

(b) If any price, including profit or fee, negotiated in connection with any modification under this clause, 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. 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 "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 were 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 had been submitted before the "as of" date specified on its Certificate of Current Cost or Pricing Data.

(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 that were incomplete, inaccurate, or noncurrent.

(End of clause)

24 52.215-12 SUBCONTRACTOR COST OR PRICING DATA (OCT 1997)

(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 FAR 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)

25 52.215-13 SUBCONTRACTOR COST OR PRICING DATA--MODIFICATIONS (OCT 1997)

(a) The requirements of paragraphs (b) and (c) of this clause shall--

(1) Become operative only for any modification to this contract involving a pricing adjustment expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4; 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, 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.

(c) The Contractor shall require the subcontractor to certify in substantially the form prescribed in 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 exceeds 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.

(End of clause)

26 52.215-18 REVERSION OR ADJUSTMENT OF PLANS FOR POSTRETIREMENT BENEFITS (PRB) OTHER THAN PENSIONS (OCT 1997)

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 that meet the applicability requirements of FAR 15.408(j).

(End of clause)

27 52.215-19 NOTIFICATION OF OWNERSHIP CHANGES (OCT 1997)

(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, that 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 that meet the applicability requirement of FAR 15.408(k).

(End of clause)

28 52.215-21 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA--MODIFICATIONS (OCT 1997)

(a) Exceptions from cost or pricing data.

(1) In lieu of submitting cost or pricing data for modifications under this contract, for price adjustments expected to exceed the threshold set forth at FAR 15.403-4 on the date of the agreement on price or the date of the award, whichever is later, the Contractor may submit a written request for exception by submitting the information described in the following subparagraphs. The Contracting Officer may require additional supporting information, but only to the extent necessary to determine whether an exception should be granted, and whether the price is fair and reasonable--

(i) Identification of the law or regulation establishing the price offered. If the price is controlled under law by periodic rulings, reviews, or similar actions of a governmental body, attach a copy of the controlling document, unless it was previously submitted to the contracting office.

(ii) Information on modifications of contracts or subcontracts for commercial items.

(A) If--

(1) The original contract or subcontract was granted an exception from cost or pricing data requirements because the price agreed upon was based on adequate price competition or prices set by law or regulation, or was a contract or subcontract for the acquisition of a commercial item; and

(2) The modification (to the contract or subcontract) is not exempted based on one of these exceptions, then the Contractor may provide information to establish that the modification would not change the contract or subcontract from a contract or subcontract for the acquisition of a commercial item to a contract or subcontract for the acquisition of an item other than a commercial item.

(B) For a commercial item exception, the Contractor shall provide, at a minimum, information on prices at which the same item or similar items have previously been sold that is adequate for evaluating the reasonableness of the price of the modification. Such information may include--

(1) For catalog items, a copy of or identification of the catalog and its date, or the appropriate pages for the offered items, or a statement that the catalog is on file in the buying office to which the proposal is being submitted. Provide a copy or describe current discount policies and price lists (published or unpublished), e.g., wholesale, original equipment manufacturer, or reseller. Also explain the basis of each offered price and its relationship to the established catalog price, including how the proposed price relates to the price of recent sales in quantities similar to the proposed quantities.

(2) For market-priced items, the source and date or period of the market quotation or other basis for market price, the base amount, and applicable discounts. In addition, describe the nature of the market.

(3) For items included on an active Federal Supply Service Multiple Award Schedule contract, proof that an exception has been granted for the schedule item.

(2) The Contractor grants the Contracting Officer or an authorized representative the right to examine, at any time before award, books, records, documents, or other directly pertinent records to verify any request for an exception under this clause, and the reasonableness of price. For items priced using catalog or market prices, or law or regulation, access does not extend to cost or profit information or other data relevant solely to the Contractor's determination of the prices to be offered in the catalog or marketplace.

(b) Requirements for cost or pricing data. If the Contractor is not granted an exception from the requirement to submit cost or pricing data, the following applies:

(1) The Contractor shall submit cost or pricing data and supporting attachments in accordance with Table 15-2 of FAR 15.408.

(2) As soon as practicable after agreement on price, but before award (except for unpriced actions), the Contractor shall submit a Certificate

of Current Cost or Pricing Data, as prescribed by FAR 15.406-2.

(End of clause)

29 52.215-7002 COST ESTIMATING SYSTEM REQUIREMENTS (JUL 1997)

(a) Definition.

"Estimating system" means the Contractor's policies, procedures, and practices for generating estimates of costs and other data included in proposals submitted to customers in the expectation of receiving contract awards. Estimating system includes the Contractor's--

(1) Organizational structure;

(2) Established lines of authority, duties, and responsibilities;

(3) Internal controls and managerial reviews;

(4) Flow of work, coordination, and communication; and

(5) Estimating methods, techniques, accumulation of historical costs, and other analyses used to generate cost estimates.

(b) General. (1) The Contractor shall establish, maintain, and comply with an estimating system that is consistently applied and produces reliable, verifiable, supportable, and documented cost estimates that are an acceptable basis for negotiation of fair and reasonable prices.

(2) The system should be--

(i) Consistent and integrated with the Contractor's related management systems; and

(ii) Subject to applicable financial control systems.

(c) Applicability. Paragraphs (d) and (e) of this clause apply if the Contractor is a large business and either--

(1) In its fiscal year preceding award of this contract, received Department of Defense (DoD) prime contracts or subcontracts, totaling $50 million or more for which cost or pricing data were required; or

(2) In its fiscal year preceding award of this contract--

(i) Received DoD prime contracts or subcontracts totaling $10 million or more (but less than $50 million) for which cost or pricing data were required; and

(ii) Was notified in writing by the Contracting Officer that paragraphs (d) and (e) of this clause apply.

(d) System requirements. (1) The Contractor shall disclose its estimating system to the Administrative Contracting Officer (ACO) in writing. If the Contractor wishes the Government to protect the information as privileged or confidential, the Contractor must mark the documents with the appropriate legends before submission.

(2) An estimating system disclosure is adequate when the Contractor has provided the ACO with documentation which--

(i) Accurately describes those policies, procedures, and practices that the Contractor currently uses in preparing cost proposals; and

(ii) Provides sufficient detail for the Government to reasonably make an informed judgment regarding the adequacy of the Contractor's estimating practices.

(3) The Contractor shall--

(i) Comply with its disclosed estimating system; and

(ii) Disclose significant changes to the cost estimating system to the ACO on a timely basis.

(e) Estimating system deficiencies. (1) The Contractor shall respond to a written report from the Government which identifies deficiencies in the Contractor's estimating system as follows:

(i) If the Contractor agrees with the report findings and recommendations, the Contractor shall--

(A) Within 30 days, state its agreement in writing; and

(B) Within 60 days, correct the deficiencies or submit a corrective action plan showing proposed milestones and actions leading to elimination of the deficiencies.

(ii) If the Contractor disagrees with the report, the Contractor shall, within 30 days, state its rationale for disagreeing.

(2) The ACO will evaluate the Contractor's response and notify the Contractor of the determination concerning remaining deficiencies and/or the adequacy of any proposed or completed corrective action.

(End of clause)

30 52.219-8 UTILIZATION OF SMALL, SMALL DISADVANTAGED AND WOMEN-OWNED SMALL BUSINESS CONCERNS (JUN 1997)

(a) It is the policy of the United States that 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, 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) As used in this contract, the term "small business concern" shall mean a small business as defined pursuant to section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto. The term "small business concern owned and controlled by socially and economically disadvantaged individuals" shall mean a small business concern (1) which is at least 51 percent unconditionally owned by one or more socially and economically disadvantaged individuals; or, in the case of any publicly owned business, at least 51 per centum of the stock of which is unconditionally owned by one or more socially and economically disadvantaged individuals; and (2) whose management and daily business operations are controlled by one or more of such individuals. This term also means a small business concern that is at least 51 percent unconditionally owned by an economically disadvantaged Indian tribe or

Native Hawaiian Organization, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one of these entities which has its management and daily business controlled by members of an economically disadvantaged Indian tribe or Native Hawaiian Organization, and which meets the requirements of 13 CFR 124. The Contractor shall presume that socially and economically disadvantaged individuals include Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Subcontinent Asian Americans, and other minorities, or any other individual found to be disadvantaged by the Administration pursuant to section 8(a) of the Small Business Act. The Contractor shall presume that socially and economically disadvantaged entities also include Indian Tribes and Native Hawaiian Organizations.

(d) The term "small business concern owned and controlled by women" shall mean 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; and

(e) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as a 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)

31 52.219-9 SMALL, SMALL DISADVANTAGED AND WOMEN-OWNED SMALL BUSINESS SUBCONTRACTING PLAN (AUG 1996)

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

(b) "Commercial product," as used in this clause, means a product in regular production that is sold in substantial quantities to the general public and/or industry at established catalog or market prices. It also means a product which, in the opinion of the Contracting Officer, differs only insignificantly from the Contractor's commercial product.

"Subcontract," as used in this clause, 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 concerns, with small disadvantaged business concerns 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 concerns, small disadvantaged business concerns, 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 concerns, small disadvantaged business concerns 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;

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

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

(iv) 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) small disadvantaged business concerns and (iii) 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 Automated Source System (PASS) of the Small Business Administration, 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, small disadvantaged and women-owned small business concerns trade associations). A firm may rely on the information contained in PASS as an accurate representation of a concern's size and ownership characteristics for purposes of maintaining a small business source list. A firm may rely on PASS as its small business source list. Use of the PASS as its source list 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) small disadvantaged business concerns, and (iii) 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, small disadvantaged and women-owned small business concerns have an equitable opportunity to compete for subcontracts.

(9) Assurances that the offeror will include the clause in this contract entitled "Utilization of Small, Small Disadvantaged and Women-Owned 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 plan similar to the plan agreed to by the offeror.

(10) Assurances that the offeror will (i) cooperate in any studies or surveys as may be required, (ii) submit periodic reports in order to allow the Government to 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, and (iv) ensure that its subcontractors agree to submit Standard Forms 294 and 295.

(11) A recitation of the types of records the offeror will maintain to demonstrate procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of its efforts to locate small, small disadvantaged 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., PASS), guides, and other data that identify small, small disadvantaged and women-owned small business concerns.

(ii) Organizations contacted in an attempt to locate sources that are small, small disadvantaged 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 small disadvantaged business concerns were solicited and if not, why not, (C) whether women-owned small business concerns were solicited and if not, why not, and (D) 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, 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 company or division-wide annual 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, small disadvantaged 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, small disadvantaged 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, small disadvantaged and women-owned small business concerns in all "make-or-buy" decisions.

(3) Counsel and discuss subcontracting opportunities with representatives of small, small disadvantaged and women-owned small business firms.

(4) Provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small, small disadvantaged 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 subcontracting plan on a plant or division-wide basis which 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 Contracting Officer to satisfy the requirements of this contract are set forth in the individual subcontracting plan.

(g)(1) If a commercial product is offered, the subcontracting plan required by this clause may relate to the offeror's production generally, for both commercial and noncommercial products, rather than solely to the Government contract. In these cases, the offeror shall, with the concurrence of the Contracting Officer, submit one company-wide or division-wide annual plan.

(2) The annual plan shall be reviewed for approval by the agency awarding the offeror its first prime contract requiring a subcontracting plan during the fiscal year, or by an agency satisfactory to the Contracting Officer.

(3) The approved plan shall remain in effect during the offeror's fiscal year for all of the offeror's commercial products.

(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, Small Disadvantaged and Women-Owned Small Business Concerns," or (2) an approved plan required by this clause, shall be a material breach of the contract.

(End of clause)

32 52.219-16 LIQUIDATED DAMAGES--SUBCONTRACTING PLAN (OCT 1995)

(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, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan," or willful or intentional action to frustrate the plan.

(b) 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, Small Disadvantaged and Women-Owned 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. Failure to respond to the notice may be taken as an admission that no valid explanation exists. If, after consideration of all the 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 product plans; i.e., company-wide or division-wide subcontracting plans approved under paragraph (g) of the clause in this contract entitled "Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan," the Contracting Officer of the agency that originally approved the plan will exercise 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 52.219-7003 SMALL, SMALL DISADVANTAGED AND WOMEN-OWNED SMALL BUSINESS SUBCONTRACTING PLAN (DoD CONTRACTS) (APR 1996)

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 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 requirements 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-Protege Program established under Section 831 of Pub. L. 101-510, as amended, may count toward its small disadvantaged business goal, subcontracts awarded--

(1) Protege firms which are qualified organizations employing the severely handicapped; and

(2) Former protege 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 52.222-3 CONVICT LABOR (AUG 1996)

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; and

(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)

35 52.222-4 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT--OVERTIME COMPENSATION (JUL 1995)

(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 mechanic 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)

36 52.222-6 DAVIS-BACON ACT (FEB 1995)

(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 approve 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.

(iv) With respect to helpers, such a classification prevails in the area in which the work is performed.

(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)

37 52.222-7 WITHHOLDING OF FUNDS (FEB 1988)

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)

38 52.222-8 PAYROLLS AND BASIC RECORDS (FEB 1988)

(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 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)

39 52.222-9 APPRENTICES AND TRAINEES (FEB 1988)

(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 rate) 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)

40 52.222-10 COMPLIANCE WITH COPELAND ACT REQUIREMENTS (FEB 1988)

The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

(End of clause)

41 52.222-11 SUBCONTRACTS (LABOR STANDARDS) (FEB 1988)

(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 deliver 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 deliver to the Contracting Officer an updated completed SF 1413 for such additional subcontract.

(End of clause)

42 52.222-12 CONTRACT TERMINATION--DEBARMENT (FEB 1988)

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)

43 52.222-13 COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REGULATIONS (FEB 1988)

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)

44 52.222-14 DISPUTES CONCERNING LABOR STANDARDS (FEB 1988)

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 of their representatives.

(End of clause)

45 52.222-15 CERTIFICATION OF ELIGIBILITY (FEB 1988)

(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)

46 52.222-26 EQUAL OPPORTUNITY (APR 1984)

(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) below. Upon request, the Contractor shall provide information necessary to determine the applicability of this clause.

(b) During performing 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.

(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 advertisements 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. Standard Form 100 (EEO-1), or any successor form, is the prescribed form to be filed within 30 days following the award, unless filed within 12 months preceding the date of award.

(8) The Contractor shall permit access to its books, records, and accounts by the contracting agency or the Office of Federal Contract Compliance Programs (OFCCP) for the purposes of investigation to ascertain the Contractor's compliance with the applicable rules, regulations, and orders.

(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, 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 subparagraph (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 subcontractor or vendor.

(11) The Contractor shall take such action with respect to any subcontract or purchase order as the contracting agency 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)
(R 7-103.18 1978 SEP)
(R 1-12.803-2)
(R 7-607.13 1978 SEP)

47 52.222-27 AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION (APR 1984)

(a) Definitions.

"Covered area," as used in this clause, means the geographical area described in the solicitation for this contract.

"Director," as used in this clause, means Director, Office of Federal Contract Compliance Programs (OFCCP), United States Department of Labor, or any person to whom the Director delegates authority.

"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);

(3) Black (all persons having origins in any of the black African racial groups not of Hispanic origin); and

(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 Director 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) above.

(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 onsite

supervisory personnel before initiating construction work at a job site. A written record shall be made and 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 toilet and necessary changing facilities shall be provided to assure privacy between the 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 action obligations contained in subparagraphs (g)(1) through (16). The efforts of a contractor association, joint contractor-union, contractor-community, or similar group of which the contractor is a member and participant may be asserted as fulfilling one or more of its obligations under subparagraphs (g)(1) through (16), 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) Makes 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) above, 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 Director 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)

(R 7-603.60 1978 SEP)

48 52.222-35 AFFIRMATIVE ACTION FOR DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA (APR 1998)

(a) Definitions. 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 consideration will be given to persons outside the Contractor's organization (including any 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 employer 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 that 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)

49 52.222-36 AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS (APR 1984)

(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 handicap. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap 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 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 handicapped individuals 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 Director, Office of Federal Contract Compliance Programs, Department of Labor (Director), 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 Section 503 of the Act and is committed to take affirmative action to employ, and advance in employment, qualified physically and mentally handicapped individuals.

(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 $2,500 unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Director to enforce the terms, including action for noncompliance.

(End of clause)
(R 7-103.28 1976 MAY)
(R FPR Temp. Reg. 38)

50 52.222-37 EMPLOYMENT REPORTS ON DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA (APR 1998)

(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 workforce 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 March 31 of each year beginning March 31, 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 date 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 1st 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)

(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 all 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)

(R 7-103.29 1975 OCT)

(R 1-1.2302)

52 52.223-5 POLLUTION PREVENTION AND RIGHT-TO-KNOW INFORMATION (APR 1998)

(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)

53 52.223-6 DRUG-FREE WORKPLACE (JAN 1997)

(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)

54 52.223-14 TOXIC CHEMICAL RELEASE REPORTING (OCT 1996)

(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 Inventory 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 filed with EPA);

(4) The facility does not fall within 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 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)

55 52.223-7004 DRUG-FREE WORK FORCE (SEP 1988)

(a) Definitions.

(1) "Employee in a sensitive position," as used in this clause, means an employee who has been granted access to classified information; or employees in other positions that the Contractor determines involve national security, health or safety, or functions other than the foregoing requiring a high degree of trust and confidence.

(2) "Illegal drugs," as used in this clause, means controlled substances included in Schedules I and II, as defined by section 802(6) of Title 21 of the United States Code, the possession of which is unlawful under Chapter 13 of that Title. The term "illegal drugs" does not mean the use of a controlled substance pursuant to a valid prescription or other uses authorized by law.

(b) The Contractor agrees to institute and maintain a program for achieving the objective of a drug-free work force. While this clause defines criteria for such a program, contractors are encouraged to implement alternative approaches comparable to the criteria in paragraph (c) that are designed to achieve the objectives of this clause.

(c) Contractor programs shall include the following, or appropriate alternatives:

(1) Employee assistance programs emphasizing high level direction, education, counseling, rehabilitation, and coordination with available community resources;

(2) Supervisory training to assist in identifying and addressing illegal drug use by Contractor employees;

(3) Provision for self-referrals as well as supervisory referrals to treatment with maximum respect for individual confidentiality consistent with safety and security issues;

(4) Provision for identifying illegal drug users, including testing on a controlled and carefully monitored basis. Employee drug testing programs shall be established taking account of the following:

(i) The Contractor shall establish a program that provides for testing for the use of illegal drugs by employees in sensitive positions. The extent of and criteria for such testing shall be determined by the Contractor based on considerations that include the nature of the work being performed under the contract, the employee's duties, the efficient use of Contractor resources, and the risks to health, safety, or national security that could result from the failure of an employee adequately to discharge his or her position.

(ii) In addition, the Contractor may establish a program for employee drug testing--

(A) When there is a reasonable suspicion that an employee uses illegal drugs; or

(B) When an employee has been involved in an accident or unsafe practice;

(C) As part of or as a follow-up to counseling or rehabilitation

for illegal drug use;

(D) As part of a voluntary employee drug testing program.

(iii) The Contractor may establish a program to test applicants for employment for illegal drug use.

(iv) For the purpose of administering this clause, testing for illegal drugs may be limited to those substances for which testing is prescribed by section 2.1 of Subpart B of the "Mandatory Guidelines for Federal Workplace Drug Testing Programs" (53 FR 11980 (April 11 1988)), issued by the Department of Health and Human Services.

(d) Contractors shall adopt appropriate personnel procedures to deal with employees who are found to be using drugs illegally. Contractors shall not allow any employee to remain on duty or perform in a sensitive position who is found to use illegal drugs until such time as the Contractor, in accordance with procedures established by the Contractor, determines that the employee may perform in such a position.

(e) The provisions of this clause pertaining to drug testing programs shall not apply to the extent they are inconsistent with state or local law, or with an existing collective bargaining agreement; provided that with respect to the latter, the Contractor agrees that those issues that are in conflict will be a subject of negotiation at the next collective bargaining session.

(End of clause)

56 52.225-11 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (OCT 1996)

(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 under regulations of the Office of Foreign Assets Control, Department of the Treasury. Those countries include Cuba, Iran, Iraq, Libya, and North Korea.

(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)

57 52.225-15 BUY AMERICAN ACT--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS ACT AND NORTH AMERICAN FREE TRADE AGREEMENT (JUN 1997)

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

"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.

"Designated country construction material" means a construction material that (a) is wholly the growth, product, or manufacture of a designated country (as defined at FAR 25.401), or (b) 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 (l) 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.

"North American Free Trade Agreement (NAFTA) country" means Canada or Mexico.

"NAFTA country construction material" means a construction material that (a) is wholly the growth, product, or manufacture of a NAFTA country, or (b) 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:

%%Insert list of applicable accepted materials or indicate "none"

None

(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 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 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)(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 contact 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)

58 52.225-7012 PREFERENCE FOR CERTAIN DOMESTIC COMMODITIES (SEP 1997)

(a) The Contractor agrees to deliver under this contract only such of the following articles that have been grown, reprocessed, reused, or produced in the United States, its possessions, or Puerto Rico--

(1) Food;

(2) Clothing;

(3) Tents, tarpaulins, or covers;

(4) Cotton and other natural fiber products;

(5) Woven silk or woven silk blends;

(6) Spun silk yarn for cartridge cloth;

(7) Synthetic fabric, and coated synthetic fabric, including all textile fibers and yarns that are for use in such fabrics;

(8) Canvas products;

(9) Wool (whether in the form of fiber or yarn or contained in fabrics, materials, or manufactured articles); or

(10) Any item of individual equipment (Federal Supply Class 8465) manufactured from or containing such fibers, yarns, fabrics, or materials.

(b) This clause does not apply--

(1) To supplies listed in FAR 25.108(d)(1), or other supplies for which the Government has determined that a satisfactory quality and sufficient quantity cannot be acquired as and when needed at U.S. market prices;

(2) To foods which have been manufactured or processed in the United States, its possessions, or Puerto Rico;

(3) To chemical warfare protective clothing produced in the countries listed in subsection 225.872-1 of the Defense FAR Supplement; or

(4) To purchase of fibers and yarns that are for use in synthetic fabric or coated synthetic fabric (but not the purchase of the synthetic or coated synthetic fabric itself), if such fabric is to be used as a component of an end item that is not a textile product. Examples of textile products, made in whole or in part of fabric, include--

(i) Draperies, floor coverings, furnishings, and bedding (Federal Supply Group 72, Household and Commercial Furnishings and Appliances);

(ii) Items made in whole or in part of fabric in Federal Supply Group 83, Textile/leather/furs/apparel/findings/tents/flags, or Federal Supply Group 84, Clothing, Individual Equipment and Insignia;

(iii) Upholstered seats (whether for household, office, or other use); and

(iv) Parachutes (Federal Supply Class 1670).

(End of clause)

59 52.225-7026 REPORTING OF CONTRACT PERFORMANCE OUTSIDE THE UNITED STATES (NOV 1995)

(a) Reporting criteria.

Reporting under this clause is required for--

(1) Offers exceeding $10 million, if the Offeror is aware at the time the offer is submitted that it or its first-tier subcontractor intends to perform any part of the contract that exceeds $500,000 outside the United States and Canada, if that part could be performed inside the United States or Canada;

(2) Contracts exceeding $10 million, when any part that exceeds

$500,000 could be performed inside the United States or Canada, but will be performed outside the United States and Canada. If the information was submitted with the offer, it need not be resubmitted unless it changes; and

(3) Contracts exceeding $500,000, when any part that exceeds $25,000 will be performed outside the United States, unless a foreign place of performance is--

(i) The principal place of performance; and

(ii) Indicated by the Offeror's entry in the Place of Performance provision of the solicitation.

(b) Submission of reports.

(1) The Offeror shall submit reports required by paragraph (a)(1) of this clause with its offer.

(2) The Contractor shall submit reports required by paragraph (a)(2) of this clause to the Contracting Officer as soon as the information is known, with a copy to the addressee in paragraph (b)(3) of this clause. With respect to performance by a first-tier subcontractor, this information shall be reported, to the maximum extent practicable, at least 30 days before award of the subcontract.

(3) The Contractor shall submit reports required by paragraph (a)(3) of this clause within 10 days of the end of each Government quarter to--

Deputy Director of Defense Procurement (Foreign Contracting)
OUSD(A&T)DP(FC)
Washington, DC 20301-3060

(4) The Offeror/Contractor shall submit reports on DD Form 2139, Report of Contract Performance Outside the United States. Computer-generated reports are acceptable, provided the report contains all information required by DD Form 2139. Copies of DD Form 2139 may be obtained from the Contracting Officer.

(c) Flowdown requirements.

(1) The Contractor shall include a clause substantially the same as this one in all first-tier subcontracts exceeding $100,000, except subcontracts for commercial items, construction, ores, natural gases, utilities, petroleum products and crudes, timber (logs), or subsistence.

(2) The Contractor shall provide the prime contract number to subcontractors for reporting purposes.

(d) Information required.

Information to be reported on the part of this contract performed outside the United States (or outside the United States and Canada for reports required by paragraphs (a)(1) and (a)(2) of this clause) includes that for--

(i) Subcontracts;

(ii) Purchases; and

(iii) Intracompany transfers when transfers originate in a foreign location.

(End of clause)

60 52.226-1 UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES (SEP 1996)

(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 52.219-9, Small, Small Disadvantaged and Women-Owned 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

(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 Indian 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. 1542(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 self-certification 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 self-certification 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 working 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. Contracting Officers shall seek funding in accordance with agency procedures. The Contracting Officer's decision is final and not subject to the Disputes clause of this contract.

(End of clause)

61 52.227-1 AUTHORIZATION AND CONSENT (JUL 1995)

(a) The Government authorizes and consents to all use and manufacture, in performing this 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)

62 52.227-2 NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT (AUG 1996)

(a) The Contractor shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.

(b) In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed under this contract, the Contractor shall furnish to the Government, when requested by the Contracting Officer, all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the Contractor has agreed to indemnify the Government.

(c) The Contractor agrees to include, and require inclusion of, this clause in all subcontracts at any tier for supplies or services (including construction and architect-engineer subcontracts and those for material, supplies, models, samples, or design or testing services) expected to exceed the simplified acquisition threshold at FAR 2.101.

(End of clause)

63 52.227-4 PATENT INDEMNITY--CONSTRUCTION CONTRACTS (APR 1984)

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)

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64 52.227-7022 GOVERNMENT RIGHTS (UNLIMITED) (MAR 1979)

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.

(End of clause)

65 52.227-7033 RIGHTS IN SHOP DRAWINGS (APR 1966)

(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)

66 52.228-2 ADDITIONAL BOND SECURITY (OCT 1997)

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)

67 52.228-5 INSURANCE--WORK ON A GOVERNMENT INSTALLATION (JAN 1997)

(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 prescribe, 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)

68 52.228-11 PLEDGES OF ASSETS (FEB 1992)

(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 owners; 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 promulgaged by the Appraisal Foundation.

(End of clause)

69 52.228-12 PROSPECTIVE SUBCONTRACTOR REQUESTS FOR BONDS (OCT 1995)

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)

70 52.229-3 FEDERAL, STATE, AND LOCAL TAXES (JAN 1991)

(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 exceeds $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)

71 52.230-3 DISCLOSURE AND CONSISTENCY OF COST ACCOUNTING PRACTICES (APR 1998)

(a) The Contractor, in connection with this contract, shall--

(1) Comply with the requirements of 48 CFR 9904.401, Consistency in Estimating, Accumulating, and Reporting Costs; 48 CFR 9904.402, Consistency in Allocating Costs Incurred for the Same Purpose; 48 CFR 9904.405, Accounting for Unallowable Costs; and 48 CFR 9904.406, Cost Accounting Standard-Cost Accounting Period, in effect on the date of award of this contract as indicated in 48 CFR Part 9904.

(2) (CAS-covered Contracts Only) If it is a business unit of a company required to submit a Disclosure Statement, disclose in writing its cost accounting practices as required by 48 CFR 9903.202-1 through 9903.202-5. If the Contractor has notified the Contracting Officer that the Disclosure Statement contains trade secrets and commercial or financial information which is privileged and confidential, the Disclosure Statement shall be protected and shall not be released outside of the Government.

(3)(i) Follow consistently the Contractor's cost accounting practices. A change to such practices may be proposed, however, by either the Government or the Contractor, and the Contractor agrees to negotiate with the Contracting Officer the terms and conditions under which a change may be made. After the terms and conditions under which the change is to be made have been agreed to, the change must be applied prospectively to the contract, and the Disclosure Statement, if affected, must be amended accordingly.

(ii) The Contractor shall, when the parties agree to a change to a cost accounting practice and the Contracting Officer has made the finding required in 48 CFR 9903.201-6(b), that the change is desirable and not detrimental to the interests of the Government, negotiate an equitable adjustment as provided in the Changes clause of this contract. In the absence of the required finding, no agreement may be made under this contract clause that will increase costs paid by the United States.

(4) Agree to an adjustment of the contract price or cost allowance, as appropriate, if the Contractor or a subcontractor fails to comply with the applicable CAS or to follow any cost accounting practice, and such failure results in any increased costs paid by the United States. Such adjustment shall provide for recovery of the increased costs to the United States together with interest thereon computed at the annual rate of interest established under the Internal Revenue Code of 1986 (26 U.S.C. 6621), from the time the payment by the United States was made to the time the adjustment is effected.

(b) If the parties fail to agree whether the Contractor has complied with an applicable CAS, rule, or regulation as specified in 48 CFR, Parts 9903 and 9904 and as to any cost adjustment demanded by the United States, such failure to agree will constitute a dispute under the Contract Disputes Act (41 U.S.C. 601).

(c) The Contractor shall permit any authorized representatives of the Government to examine and make copies of any documents, papers, and records relating to compliance with the requirements of this clause.

(d) The Contractor shall include in all negotiated subcontracts, which the Contractor enters into, the substance of this clause, except paragraph (b), and shall require such inclusion in all other subcontracts of any tier, except that--

(1) If the subcontract is awarded to a business unit which pursuant to 48 CFR 9903.201-2 is subject to other types of CAS coverage, the substance of the applicable clause set forth in subsection 30.201-4 of the Federal Acquisition Regulation shall be inserted.

(2) This requirement shall apply only to negotiated subcontracts in excess of $500,000.

(3) The requirement shall not apply to negotiated subcontracts

otherwise exempt from the requirement to include a CAS clause as specified in 48 CFR 9903.201-1.

(End of clause)

72 52.230-6 ADMINISTRATION OF COST ACCOUNTING STANDARDS (APR 1996)

For the purpose of administering the Cost Accounting Standards (CAS) requirements under this contract, the Contractor shall take the steps outlined in paragraphs (a) through (g) of this clause:

(a) Submit to the Contracting Officer a description of any cost accounting practice change, the total potential impact of the change on contracts containing a CAS clause, and a general dollar magnitude of the change which identifies the potential shift of costs between CAS-covered contracts by contract type (i.e., firm-fixed-price, incentive, cost-plus-fixed fee, etc.) and other contractor business activity. As related to CAS-covered contracts, the analysis should identify the potential impact on funds of the various Agencies/Departments (i.e., Department of Energy, National Aeronautics and Space Administration, Army, Navy, Air Force, other Department of Defense, other Government) as follows:

(1) For any change in cost accounting practices required in accordance with subparagraph (a)(3) and subdivision (a)(4)(i) of the clause at FAR 52.230-2, Cost Accounting Standards or subparagraph (a)(3) and subdivisions (a)(4)(i) or (a)(4)(iv) of the clause at FAR 52.230-5, Cost Accounting Standards-Educational Institution within 60 days (or such other date as may be mutually agreed to) after award of a contract requiring this change.

(2) For any change in cost accounting practices proposed in accordance with subdivision (a)(4)(ii) or (iii) of the clauses at FAR 52.230-2, Cost Accounting Standards, and FAR 52.230-5, Cost Accounting Standards-Educational Institution; or with subparagraph (a)(3) of the clause at FAR 52.230-3, Disclosure and Consistency of Cost Accounting Practices, not less than 60 days (or such other date as may be mutually agreed to) before the effective date of the proposed change.

(3) For any failure to comply with an applicable CAS or to follow a disclosed practice (as contemplated by subparagraph (a)(5) at FAR 52.230-2, Cost Accounting Standards, and FAR 52.230-5, Cost Accounting Standards-Educational Institution; or by subparagraph (a)(4) at FAR 52.230-3, Disclosure and Consistency of Cost Accounting Practices):

(i) Within 60 days (or such other date as may be mutually agreed to) after the date of agreement with the initial finding of noncompliance, or

(ii) In the event of Contractor disagreement with the initial finding of noncompliance, within 60 days of the date the Contractor is notified by the Contracting Officer of the determination of noncompliance.

(b) After an ACO or cognizant Federal agency official, determination of materiality, submit a cost impact proposal in the form and manner specified by the Contracting Officer within 60 days (or such other date as may be mutually agreed to) after the date of determination of the adequacy and compliance of a change submitted pursuant to paragraph (a) of this clause. The cost impact proposal shall be in sufficient detail to permit

evaluation, determination, and negotiation of the cost impact upon each separate CAS-covered contract and subcontract.

(1) Cost impact proposals submitted for changes in cost accounting practices required in accordance with subparagraph (a)(3) and subdivision (a)(4)(i) of the clause at FAR 52.230-2, Cost Accounting Standards; or subparagraph (a)(3) and subdivisions (a)(4)(i) or (a)(4)(iv) of the clause at FAR 52.230-5, Cost Accounting Standards-Educational Institution; shall identify the applicable standard or cost principle and all contracts and subcontracts containing the clauses entitled Cost Accounting Standards or Cost Accounting Standards-Educational Institution, which have an award date before the effective date of that standard or cost principle.

(2) Cost impact proposals submitted for any change in cost accounting practices proposed in accordance with subdivisions (a)(4)(ii) or (iii) of the clauses at FAR 52.230-2, Cost Accounting Standards, and FAR 52.230-5, Cost Accounting Standards-Educational Institution; or with subparagraph (a)(3) of the clause at FAR 52.230-3, Disclosure and Consistency of Cost Accounting Practices; shall identify all contracts and subcontracts containing the clauses at FAR 52.230-2, Cost Accounting Standards, FAR 52.230-5, Cost Accounting Standards-Educational Institution, and FAR 52.230-3, Disclosure and Consistency of Cost Accounting Practices.

(3) Cost impact proposals submitted for failure to comply with an applicable CAS or to follow a disclosed practice as contemplated by subparagraph (a)(5) of the clauses at FAR 52.230-2, Cost Accounting Standards, and FAR 52.230-5, Cost Accounting Standards-Educational Institution; or by subparagraph (a)(4) of the clause at FAR 52.230-3, Disclosure and Consistency of Cost Accounting Practices, shall identify the cost impact on each separate CAS covered contract from the date of failure to comply until the noncompliance is corrected.

(c) If the submissions required by paragraphs (a) and (b) of this clause are not submitted within the specified time, or any extension granted by the Contracting Officer, an amount not to exceed 10 percent of each subsequent amount determined payable related to the Contractor's CAS-covered prime contracts, up to the estimated general dollar magnitude of the cost impact, may be withheld until such time as the required submission has been provided in the form and manner specified by the Contracting Officer.

(d) Agree to appropriate contract and subcontract amendments to reflect adjustments established in accordance with subparagraphs (a)(4) and (a)(5) of the clauses at FAR 52.230-2 and FAR 52.230-5; or with subparagraphs (a)(3) or (a)(4) of the Disclosure and Consistency of Cost Accounting Practices clause at FAR 52.230-3.

(e) For all subcontracts subject to the clauses at FAR 52.230-2, 52.230-3, or 52.230-5--

(1) So state in the body of the subcontract, in the letter of award, or in both (self-deleting clauses shall not be used); and

(2) Include the substance of this clause in all negotiated subcontracts. In addition, within 30 days after award of the subcontract, submit the following information to the Contractor's cognizant contract administration office for transmittal to the contract administrative office cognizant of the subcontractor's facility:

(i) Subcontractor's name and subcontract number.

(ii) Dollar amount and date of award.

(iii) Name of Contractor making the award.

(iv) Any changes the subcontractor has made or proposes to make to cost accounting practices that affect prime contracts or subcontracts containing the clauses at FAR 52.230-2, 52.230-3, or 52.230-5, unless these changes have already been reported. If award of the subcontract results in making one or more CAS effective for the first time, this fact shall also be reported.

(f) Notify the Contracting Officer in writing of any adjustments required to subcontracts under this contract and agree to an adjustment, based on them, to this contract price or estimated cost and fee. This notice is due within 30 days after proposed subcontract adjustments are received and shall include a proposal for adjusting the higher tier subcontract or the prime contract appropriately.

(g) For subcontracts containing the clauses at FAR 52.230-2 or 52.230-5, require the subcontractor to comply with all Standards in effect on the date of award or of final agreement on price, as shown on the subcontractor's signed Certificate of Current Cost or Pricing Data, whichever is earlier.

(End of clause)

73 52.231-7000 SUPPLEMENTAL COST PRINCIPLES (DEC 1991)

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 52.232-5 PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS (MAY 1997)

(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 total amount of 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;

(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 8th day after 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 amounts. 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 52.232-17 INTEREST (JUN 1996)

(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 52.232-23 ASSIGNMENT OF CLAIMS (JAN 1986)

(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 its 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.

(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 52.232-27 PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (JUN 1997)

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 the date of an electronic funds transfer. Definitions of pertinent terms are set forth in section 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 that 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. 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 the 30th day after the date of 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 proper 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 the 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 paragraphs (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 may 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 will 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 from such date 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 paragraph (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 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 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 also shall 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) 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 must be postmarked on or before the 40th day after payment was made, except that--

(1) If the postmark 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 interest penalty, 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 accrued in the absence of these limits, subject to the overall limits on the additional penalty specified in subdivision (a)(6)(iii)(A) of this 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 payments 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 that 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 that 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 is 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 obligation to pay an interest penalty.

(3) Subcontractor 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 the 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 a 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 paragraph (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 52.232-34 OPTIONAL INFORMATION FOR ELECTRONIC FUNDS TRANSFER PAYMENT (AUG 1996)

(a) Method of payment.

(1) Except as provided in paragraph (a)(2) of this clause, after the Contractor provides the information described in paragraph (d) of this clause, in accordance with paragraph (b) of this clause, payments by the Government under this contract, including invoice and contract financing payments, may be made by check or electronic funds transfer (EFT) at the option of the Government. If payment is made by EFT, the Government may, at its option, also forward the associated payment information by electronic transfer. As used in this clause, the term "EFT" refers to the funds transfer and may also include the information transfer.

(2) Notwithstanding the provision of this clause making the furnishing of EFT information optional, the Contractor shall furnish the EFT information described in paragraph (d) for any payment to be made after January 1, 1999.

(b) Contractor consent.

(1) If the Contractor is willing to be paid by EFT, the Contractor

shall provide the EFT information described in paragraph (d) of this clause. The Contractor agrees that, after providing EFT information in accordance with this clause, the Contractor cannot withdraw the Government's right to make payment by EFT for this contract.

(2) If the Contractor provides EFT information applicable to multiple contracts, the Contractor shall specifically state the applicability of this EFT information in terms acceptable to the payment office.

(c) Contractor's EFT information. Prior to submission of the first request for payment (whether for invoice or contract financing payment) under this contract, for which the Contractor desires EFT payment, the Contractor shall provide the information required to make contract payment by EFT, as described in paragraph (d) of this clause, directly to the Government payment office named in this contract. If more than one payment office is named for the contract, the Contractor shall provide a separate notice to each office. In the event that the EFT information changes, the Contractor shall be responsible for providing the changed information to the designated payment office(s).

(d) Required EFT information. The Government may make payment by EFT through either an Automated Clearing House (ACH) subject to the domestic banking laws of the United States or the Federal Reserve Wire Transfer System at the Government's option. The Contractor shall provide the following information for both methods in a form acceptable to the designated payment office. The Contractor may supply this data for this or multiple contracts (see paragraph (b) of this clause).

(1) The contract number to which this notice applies.

(2) The Contractor's name and remittance address, as stated in the contract, and account number at the Contractor's financial agent.

(3) The signature (manual or electronic, as appropriate), title, and telephone number of the Contractor official authorized to provide this information.

(4) For ACH payment only:

(i) Name, address, and 9-digit Routing Transit Number of the Contractor's financial agent.

(ii) Contractor's account number and the type of account (checking, saving, or lockbox).

(5) For Federal Reserve Wire Transfer System payments only:

(i) Name, address, telegraphic abbreviation, and the 9-digit Routing Transit Number for the Contractor's financial agent.

(ii) If the Contractor's financial agent is not directly on-line to the Federal Reserve Wire Transfer System and, therefore, not the receiver of the wire transfer payment, the Contractor shall also provide the name, address, and 9-digit Routing Transit Number of the correspondent financial institution receiving the wire transfer payment.

(e) Suspension of payment.

(1) Notwithstanding the provisions of any other clause of this contract, if, after receipt of the Contractor's EFT information in accordance with paragraph (b) of this clause, the EFT information is found to be incorrect, or, for payment after January 1, 1999, if EFT information has not been furnished, then until receipt by the designated payment office of the correct EFT information from the Contractor, (i) the Government is not required to make any further payment under this

contract; and (ii) any invoice or contract financing request shall be deemed not to be a valid invoice or contract financing request as defined in the Prompt Payment clause of this contract.

(2) If the EFT information changes after submission of correct EFT information, the Government shall begin using the changed EFT information no later than the 30th day after its receipt to the extent payment is made by EFT. However, the Contractor may request that no further payments be made until the changed EFT information is implemented by the payment office. If such suspension would result in a late payment under the Prompt Payment clause of this contract, the Contractor's request for suspension shall extend the due date for payment by the number of days of the suspension.

(f) Contractor EFT arrangements. The Contractor shall designate a single financial agent capable of receiving and processing the electronic funds transfer using the EFT methods described in paragraph (d) of this clause. The Contractor shall pay all fees and charges for receipt and processing of transfers.

(g) Liability for uncompleted or erroneous transfers.

(1) If an uncompleted or erroneous transfer occurs because the Government failed to use the Contractor-provided EFT information in the correct manner, 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 Contractor-provided EFT information was incorrect at the time 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 retains the right to either make payment by mail or suspend the payment in accordance with paragraph (e) of this clause.

(h) EFT and prompt payment.

(1) A payment shall be deemed to have been made in a timely manner in accordance with the Prompt Payment clause of this contract if, in the EFT payment transaction instruction given 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.

(2) When payment cannot be made by EFT because of incorrect EFT information provided by the Contractor, no interest penalty is due after the date of the uncompleted or erroneous payment transaction, provided that notice of the defective EFT information is issued to the Contractor within 7 days after the Government is notified of the defective EFT information.

(i) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the Assignment of Claims clause of this contract, the assignee shall provide the assignee EFT information required by paragraph (d) of this clause. In all respects, the requirements of this clause shall apply to the assignee as if it

were the Contractor. EFT information which 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 (e) of this clause.

(j) Payment office discretion. If, after submitting the EFT information, the Contractor does not wish to receive payment by EFT methods for one or more payments, the Contractor may submit a request to the designated payment office to refrain from using the EFT payment method. The decision to grant the request is solely that of the Government.

(k) Change of EFT information by financial agent. The Contractor agrees that the Contractor's financial agent may notify the Government of a change to the routing transit number, Contractor account number, or account type. The Government shall use the changed data in accordance with paragraph (e)(2) of this clause. The Contractor agrees that the information provided by the agent is deemed to be correct information as if it were provided by the Contractor. The Contractor agrees that the agent's notice of changed EFT data is deemed to be a request by the Contractor in accordance with paragraph (e)(2) that no further payments be made until the changed EFT information is implemented by the payment office.

(End of clause)

79 52.232-7006 REDUCTION OR SUSPENSION OF CONTRACT PAYMENTS UPON FINDING OF FRAUD (AUG 1992)

(a) 10 U.S.C. 2307(e) permits the head of the agency to reduce or suspend further payments to the Contractor upon a written determination by the agency head that substantial evidence exists that the Contractor's request for advance, partial, or progress payments is based on fraud. The provisions of 10 U.S.C. 2307(e) are in addition to any other rights or remedies provided the Government by law or under contract.

(b) Actions taken by the Government in accordance with 10 U.S.C. 2307(e) shall not constitute an excusable delay under the Default clause of this contract or otherwise relieve the Contractor of its obligations to perform under this contract.

(End of clause)

80 52.233-1 DISPUTES (OCT 1995)

(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 subparagraph (d)(2)(iii) of this clause when submitting any claim--

(A) Exceeding $100,000; or

(B) Regardless of the amount claimed, when using--

(1) Arbitration conducted pursuant to 5 U.S.C. 575-580; or

(2) Any other alternative means of dispute resolution (ADR) technique that the agency elects to handle in accordance with the Administrative Dispute Resolution Act (ADRA).

(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 duty 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 ADR. If the Contractor refuses an offer for alternative disputes resolution, the Contractor shall inform the Contracting Officer, in writing, of the Contractor's specific reasons for rejecting the request. When using arbitration conducted pursuant to 5 U.S.C. 575-580, or when using any other ADR technique that the agency elects to handle in accordance with the ADRA, any claim, regardless of amount, shall be accompanied by the certification described in subparagraph (d)(2)(iii) of this clause, and executed in accordance with subparagraph (d)(3) of this clause.

(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 certifications, as defined in (FAR) 48 CFR 33.201, interest shall be paid from the date that the Contracting Officer initially receives the claim. Simple interest on claims 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)

81 52.233-3 PROTEST AFTER AWARD (AUG 1996)

(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 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)

82 52.236-2 DIFFERING SITE CONDITIONS (APR 1984)

(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 (a) above 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)

83 52.236-3 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984)

(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 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 which 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)

84 52.236-5 MATERIAL AND WORKMANSHIP (APR 1984)

(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 full 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 charges prepaid. Machinery, equipment, material, and articles that do 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)

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85 52.236-6 SUPERINTENDENCE BY THE CONTRACTOR (APR 1984)

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 work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

(End of clause)

86 52.236-7 PERMITS AND RESPONSIBILITIES (NOV 1991)

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)

87 52.236-8 OTHER CONTRACTS (APR 1984)

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)

88 52.236-9 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS (APR 1984)

(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)

89 52.236-10 OPERATIONS AND STORAGE AREAS (APR 1984)

(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)

90 52.236-11 USE AND POSSESSION PRIOR TO COMPLETION (APR 1984)

(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)

91 52.236-12 CLEANING UP (APR 1984)

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)

92 52.236-13 I ACCIDENT PREVENTION (NOV 1991)--ALTERNATE I (NOV 1991)

(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)

93 52.236-15 SCHEDULES FOR CONSTRUCTION CONTRACTS (APR 1984)

(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 payments 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 deliver 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)

94 52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FEB 1997)

(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 the 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)

95 52.236-26 PRECONSTRUCTION CONFERENCE (FEB 1995)

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)

96 52.236-7000 MODIFICATION PROPOSALS--PRICE BREAKDOWN (DEC 1991)

(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 an 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)

97 52.236-7008 CONTRACT PRICES--BIDDING SCHEDULES (DEC 1991)

(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 listed in the Bidding Schedule all costs for work in the specifications, whether or not specifically listed in the Bidding Schedule.

(End of provision)

98 52.242-13 BANKRUPTCY (JUL 1995)

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)

99 52.242-14 SUSPENSION OF WORK (APR 1984)

(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)

100 52.242-7000 POSTAWARD CONFERENCE (DEC 1991)

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)

101 52.243-4 CHANGES (AUG 1987)

(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 of 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 the 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)

102 52.243-7001 PRICING OF CONTRACT MODIFICATIONS (DEC 1991)

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)

103 52.244-1 SUBCONTRACTS (FIXED-PRICE CONTRACTS) (OCT 1997)

(a) This clause does not apply to firm-fixed-price contracts and fixed-price contracts with economic price adjustment. However, it does apply to subcontracts resulting from unpriced modifications to such contracts.

(b) "Subcontract," as used in this clause, includes but is not limited to purchase orders, and changes and modifications to purchase orders. The Contractor shall notify the Contracting Officer reasonably in advance of entering into any subcontract if the Contractor does not have an approved purchasing system and if the subcontract--

(1) Is proposed to exceed $100,000; or

(2) Is one of a number of subcontracts with a single subcontractor, under this contract, for the same or related supplies or services, that in the aggregate are expected to exceed $100,000.

(c) The advance notification required by paragraph (b) above shall include--

(1) A description of the supplies or services to be subcontracted;

(2) Identification of the type of subcontract to be used;

(3) Identification of the proposed subcontractor and an explanation of why and how the proposed subcontractor was selected, including the competition obtained;

(4) The proposed subcontract price and the Contractor's cost or price analysis;

(5) The subcontractor's current, complete, and accurate cost or pricing data and Certificate of Current Cost or Pricing Data, if required by other contract provisions;

(6) The subcontractor's Disclosure Statement or Certificate relating to Cost Accounting Standards when such data are required by other provisions of this contract; and

(7) A negotiation memorandum reflecting--

(i) The principal elements of the subcontract price negotiations;

(ii) The most significant considerations controlling establishment of initial or revised prices;

(iii) The reason cost or pricing data were or were not required;

(iv) The extent, if any, to which the Contractor did not rely on the subcontractor's cost or pricing data in determining the price objective and in negotiating the final price;

(v) The extent, if any, to which it was recognized in the negotiation that the subcontractor's cost or pricing data were not accurate, complete, or current; the action taken by the Contractor and subcontractor; and the effect of any such defective data on the total price negotiated;

(vi) The reasons for any significant difference between the Contractor's price objective and the price negotiated; and

(vii) A complete explanation of the incentive fee or profit plan when incentives are used. The explanation shall identify each critical performance element, management decisions used to quantify each incentive element, reasons for the incentives, and a summary of all trade-off possibilities considered.

(d) The Contractor shall obtain the Contracting Officer's written consent before placing any subcontract for which advance notification is required under paragraph (b) above. However, the Contracting Officer may ratify in writing any such subcontract. Ratification shall constitute the consent of the Contracting Officer.

(e) Even if the Contractor's purchasing system has been approved, the Contractor shall obtain the Contracting Officer's written consent before placing subcontracts identified below: none

(f) Unless the consent or approval specifically provides otherwise, neither consent by the Contracting Officer to any subcontract nor approval of the Contractor's purchasing system shall constitute a determination (1) of the acceptability of any subcontract terms or conditions, (2) of the acceptability of any subcontract price or of any amount paid under any subcontract, or (3) to relieve the Contractor of any responsibility for performing this contract.

(g) No subcontract placed under this contract shall provide for payment on a cost-plus-a-percentage-of-cost basis, and any fee payable under cost-reimbursement subcontracts shall not exceed the fee limitations in subsection 15.404-4(c)(4)(i) of the Federal Acquisition Regulation (FAR).

(h) The Government reserves the right to review the Contractor's purchasing system as set forth in FAR Subpart 44.3.

(End of clause)

104 52.245-1 PROPERTY RECORDS (APR 1984)

The Government shall maintain the Government's official property records in connection with Government property under this contract. The Government Property clause is hereby modified by deleting the requirement for the Contractor to maintain such records.

(End of clause)

(AV 7-104.24(g) 1967 AUG)

105 52.245-2 GOVERNMENT PROPERTY (FIXED-PRICE CONTRACTS) (DEC 1989)

(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 this 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 within 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. Repair 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 suit 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, deliver 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)

106 52.245-7001 REPORTS OF GOVERNMENT PROPERTY (MAY 1994)

(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)

107 52.246-12 INSPECTION OF CONSTRUCTION (AUG 1996)

(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 completed 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)

108 52.247-7023 TRANSPORTATION OF SUPPLIES BY SEA (NOV 1995)

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

(1) "Components" means articles, materials, and supplies incorporated directly into end products at any level of manufacture, fabrication, or assembly by the Contractor or any subcontractor.

(2) "Department of Defense (DoD)" means the Army, Navy, Air Force, Marine Corps, and defense agencies.

(3) "Foreign flag vessel" means any vessel that is not a U.S.-flag vessel.

(4) "Ocean transportation" means any transportation aboard a ship, vessel, boat, barge, or ferry through international waters.

(5) "Subcontractor" means a supplier, materialman, distributor, or vendor at any level below the prime contractor whose contractual obligation to perform results from, or is conditioned upon, award of the prime contract and who is performing any part of the work or other requirement of the prime contract. However, effective May 1, 1996, the term does not include a supplier, materialman, distributor, or vendor of commercial items or commercial components.

(6) "Supplies" means all property, except land and interests in land, that is clearly identifiable for eventual use by or owned by the DoD at the time of transportation by sea.

(i) An item is clearly identifiable for eventual use by the DoD if, for example, the contract documentation contains a reference to a DoD contract number or a military destination.

(ii) Supplies includes (but is not limited to) public works; buildings and facilities; ships; floating equipment and vessels of every character, type, and description, with parts, subassemblies, accessories, and equipment; machine tools; material; equipment; stores of all kinds; end items; construction materials; and

components of the foregoing.

(7) "U.S.-flag vessel" means a vessel of the United States or belonging to the United States, including any vessel registered or having national status under the laws of the United States.

(b) The Contractor shall employ U.S.-flag vessels in the transportation by sea of any supplies to be furnished in the performance of this contract. The Contractor and its subcontractors may request that the Contracting Officer authorize shipment in foreign-flag vessels, or designate available U.S.-flag vessels, if the Contractor or a subcontractor believes that--

(1) U.S.-flag vessels are not available for timely shipment;

(2) The freight charges are inordinately excessive or unreasonable; or

(3) Freight charges are higher than charges to private persons for transportation of like goods.

(c) The Contractor must submit any request for use of other than U.S.-flag vessels in writing to the Contracting Officer at least 45 days prior to the sailing date necessary to meet its delivery schedules. The Contracting Officer will process requests submitted after such date(s) as expeditiously as possible, but the Contracting Officer's failure to grant approvals to meet the shipper's sailing date will not of itself constitute a compensable delay under this or any other clause of this contract. Requests shall contain at a minimum--

(1) Type, weight, and cube of cargo;

(2) Required shipping date;

(3) Special handling and discharge requirements;

(4) Loading and discharge points;

(5) Name of shipper and consignee;

(6) Prime contract number; and

(7) A documented description of efforts made to secure U.S.-flag vessels, including points of contact (with names and telephone numbers) with at least two U.S.-flag carriers contacted. Copies of telephone notes, telegraphic and facsimile message or letters will be sufficient for this purpose.

(d) The Contractor shall, within 30 days after each shipment covered by this clause, provide the Contracting Officer and the Division of National Cargo, Office of Market Development, Maritime Administration, U.S. Department of Transportation, Washington, DC 20590, one copy of the rated on board vessel operating carrier's ocean bill of lading, which shall contain the following information--

(1) Prime contract number;

(2) Name of vessel;

(3) Vessel flag of registry;

(4) Date of loading;

(5) Port of loading;

(6) Port of final discharge;

(7) Description of commodity;

(8) Gross weight in pounds and cubic feet if available;

(9) Total ocean freight in U.S. dollars; and

(10) Name of the steamship company.

(e) The Contractor agrees to provide with its final invoice under this contract a representation that to the best of its knowledge and belief--

(1) No ocean transportation was used in the performance of this contract;

(2) Ocean transportation was used and only U.S.-flag vessels were used for all ocean shipments under the contract;

(3) Ocean transportation was used, and the Contractor had the written consent of the Contracting Officer for all non-U.S.-flag ocean transportation; or

(4) Ocean transportation was used and some or all of the shipments were made on non-U.S.-flag vessels without the written consent of the Contracting Officer. The Contractor shall describe these shipments in the following format:

	Item Description	Contract Line Items	Quantity
Total.....			

(f) If the final invoice does not include the required representation, the Government will reject and return it to the Contractor as an improper invoice for the purposes of the Prompt Payment clause of this contract. In the event there has been unauthorized use of non-U.S.-flag vessels in the performance of this contract, the Contracting Officer is entitled to equitably adjust the contract, based on the unauthorized use.

(g) The Contractor shall include this clause, including this paragraph (g) in all subcontracts under this contract, which exceed the simplified acquisition threshold in Part 13 of the Federal Acquisition Regulation.

(End of clause)

109 52.247-7024 NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA (NOV 1995)

(a) The Contractor has indicated by the response to the solicitation provision, Representation of Extent of Transportation by Sea, that it did not anticipate transporting by sea any supplies. If, however, after the award of this contract, the Contractor learns that supplies, as defined in the Transportation of Supplies by Sea clause of this contract, will be transported by sea, the Contractor--

(1) Shall notify the Contracting Officer of that fact; and

(2) Hereby agrees to comply with all the terms and conditions of the Transportation of Supplies by Sea clause of this contract.

(b) The Contractor shall include this clause, including this paragraph (b), revised as necessary to reflect the relationship of the contracting parties, in all subcontracts hereunder, except (effective May 1, 1996) subcontracts for the acquisition of commercial items or components.

(End of clause)

110 52.248-3 I VALUE ENGINEERING--CONSTRUCTION (MAR 1989)--ALTERNATE I (APR 1984)

(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 prediction 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 decision. 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 and 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)

111 52.249-2 I TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SEP 1996)--ALTERNATE I (SEP 1996)

(a) The Government may terminate performance of work under this contract in whole or, from time to time, 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 of subcontracts; the

approval or ratification will be final for purposes of this clause.

(6) As directed by the Contracting Officer, transfer title and deliver 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 or remaining 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 Contracting Officer fail to agree on the whole amount to be paid the Contractor 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 no 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)

112 52.249-10 DEFAULT (FIXED-PRICE CONSTRUCTION) (APR 1984)

(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)

END OF SECTION 00700

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SECTION 00800

SPECIAL CONTRACT REQUIREMENTS

1 52.0-4001 CONTRACTING OFFICER

The Contracting Officer signing this contract is the primary Contracting Officer on this contract. However, any Contracting Officer assigned to the Tulsa District and acting within his authority may take formal action on this contract when a contract action needs to be taken and the primary Contracting Officer is away from the office.

2 52.0-4002 WAGE RATES

The following Wage Determination No.(s) are attached and made a part hereof: General Decision Nos. OK980034 with 5 Modifications dated 12/11/1998 and OK980029 and OK980044 with no Modifications dated 02/13/1998

3 52.0-4020 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (OCT 89) (ER 415-1-15)

1. This provision specifies the procedure for 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:

a. 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.

b. 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.

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
3	3	4	4	5	4	3	3	4	3	2	2

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 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)".

(End of Clause)

4 52.0-4021 INCLUSION OF LABOR PROVISIONS IN SUBCONTRACTS (19 JUN 84) (DAEN-CCL LTR)

To show compliance with CONTRACT CLAUSE entitled "Subcontracts," The Contractor should, within 7 days after award of any subcontract either by himself or a subcontractor or any tier, deliver to the Contracting Officer a completed Standard Form 1413. Nothing contained in this clause or any other provision of this contract shall create any contractual relation between any subcontractor and the Government.

(End of Clause)

5 52.0-4022 REQUIRED INSURANCE (APR 1984) (FAR 28.307-2)

Pursuant to the Contract Clause entitled "Insurance Work on a Government Installation", the Contractor shall procure and maintain during the entire period of his performance under this contract the following minimum insurance.

(a) Workmen's Compensation and Employers' Liability Insurance in compliance with applicable state statutes, with a minimum employers' liability coverage of $100,000.

(b) Comprehensive General Liability Insurance for bodily injury in the minimum limits of $500,000 per occurrence. No property damage liability insurance is required.

(c) Comprehensive Automobile Liability Insurance covering the operation of all automobiles used in connection with the performance of the contract in the minimum limits of $200,000 per person and $500,000 per occurrence for bodily injury and $25,000 per occurrence for property damage.

The Contractor agrees to insert the substance of this clause, including this paragraph, in all subcontracts hereunder.

(End of Clause)

6 52.0-4050 TURFING WORK

(1) The Contractor shall complete turfing work within the time

limits specified in Section: TURF with final completion not later than the first planting season following project completion stated in the clause entitled COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK.

(2) If the Contractor fails to complete the turfing work within the time specified, or any extension of time, the Contractor shall pay to the Government, as liquidated damages, the sum of $100.00 for each day of delay in completing turfing.

(End of Clause)

7 52.0-4056 PARTNERING AGREEMENT

Tulsa District is an avid supporter and believer in the benefits of Partnering on our projects. Partnering is a necessary and valuable method of establishing mutual goals and working relationships among project participants, drawing on the strengths of each. As a result, the Contracting Officer or his/her representative will contact the contractor's management after contract award to discuss partnering for this project. Partnering opportunities will be explored and degree of partnering will be discussed. Hopefully, a partnering relationship will be implemented. The Partnering relationship will not be legally binding, but will represent a commitment to work together toward common goals.

The Contractor should not include any anticipated costs for partnering in the bid or proposal. The Partnering relationship will be bilateral and participation will be voluntary. The contractor is urged to consider Partnering as a means of promoting cooperation to the advantage of the contractor and the Government.

8 52.0-4071 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984) FAR 52.0211-0010

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 352 calendar days. The time stated for completion shall include final cleanup of the premises.

9 52.0-4220 PAYMENT FOR MATERIALS DELIVERED OFF-SITE (EFARS 52.232-5000) (MAR 1995)

(a) Pursuant to FAR clause 52.232-5, Payments Under Fixed Priced Construction Contracts, materials delivered to the Contractor at locations other than the site of the work may be taken into consideration in making payment if included in payment estimates and if all the conditions of the General Provisions are fulfilled. Payment for items delivered to locations other than the work site will be limited to: (1) materials required by the technical provisions; or (2) materials that have been fabricated to the

point where they are identifiable to an item of work required under this contract.

(b) Such payment will be made only after receipt of paid or receipted invoices or invoices with canceled check showing title to the items in the prime contractor and including the value of material and labor incorporated into the item. In addition to petroleum products, payment for materials delivered off-site is limited to the following items: those items meeting the requirements of subparagraph (a) above.

10 52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (APR 1984)

(a) 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 $553.00 for each day of delay.

(b) 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.

(c) 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.

(End of clause)

11 52.211-13 TIME EXTENSIONS (APR 1984)

Notwithstanding any other provisions of this contract, it is mutually understood that the time extensions for changes in the work will depend upon the extent, if any, by which the changes cause delay in the completion of the various elements of construction. The change order granting the time extension may provide that the contract completion date will be extended only for those specific elements so delayed and that the remaining contract completion dates for all other portions of the work will not be altered and may further provide for an equitable readjustment of liquidated damages under the new completion schedule.

(End of clause)

12 52.236-1 PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least 25 (twenty-five) 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.

(End of clause)

(R 7-603.15 1965 JAN)

(R 1-18.104)

13 52.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (DEC 1991)

(a) The Government--

(1) Will provide the Contractor, without charge, 1 CD-Rom sets (five unless otherwise specified) of large-scale contract drawings and specifications except publications incorporated into the technical provisions by reference;

(2) Will furnish additional sets on request, for the cost of reproduction; and

(3) May, at its option, furnish the Contractor one set of reproducibles, or half-size drawings, in lieu of the drawings in paragraph (a)(1) of this clause.

(b) 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 this paragraph (b).

(c) Large scale drawings shall, in general, govern small scale drawings. Figures marked on drawings shall, in general, be followed in preference to scale measurements.

(d) 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.

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings:

Title File and Drawing No.
N/A

(End of clause)

14 YEAR 2000 COMPLIANCE (CEPR-P memorandum dtd 1 Jul 98)

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. The contractor shall:

a) 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 (if applicable) which may be affected by the Year 2000 compliant requirement.

b) Indicate whether each component is currently Year 2000 compliant or requires an upgrade for compliance prior to Government acceptance.

15 52.246-21 WARRANTY OF CONSTRUCTION (MAR 1994)

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (i) 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.

(b) 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.

(c) 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--

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defect of equipment, material, workmanship, or design furnished.

(d) 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.

(e) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(g) 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--

(1) Obtain all warranties that would be given in normal commercial practice;

(2) Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and

(3) Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

(h) In the event the Contractor's warranty under paragraph (b) of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

(i) 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.

(j) 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.

(End of clause)

(R 7-604.4 1976 JUL)

INVITATION NO. DACA56-98-R-0013
DESIGN/BUILD 144 PERSON DORMITORY
TINKER AIR FORCE BASE, OKLAHOMA COUNTY, OKLAHOMA

APPLICABILITY OF WAGE RATES

Wage Decision No. OK980034, Building Construction, with five modifications, dated 12/11/1998, is applicable to construction, alteration, or repair of buildings, installations within buildings, appurtenances to buildings, foundations for buildings, excavation and fill for buildings, landscaping incidental to building construction, and utilities within 5 feet of building.

Wage Decision No. OK980044, Sewer and Water Line Construction, dated 02/13/1998 is applicable to incidental utility work beyond 5 feet of the building.

Wage Decision No. OK980029, Highway Construction, dated 02/13/1998 is applicable to paving incidental to building construction and softball and track fields.

NOTE: The wage decision and schedule applicable to the work performed are to be noted on the payment records and payrolls.

GENERAL DECISION OK980034 12/11/98 OK34
Superseded General Decision No. OK970034

State: Oklahoma

Construction Type:
BUILDING

County(ies):
OKLAHOMA

BUILDING CONSTRUCTION PROJECTS, Excluding incidental utility work, (does not include residential construction consisting of single family homes and apartments up to and including 4 stories sewage and water treatment plants or the construction, alteratio and repair of any facility engaged in manufacturing)

Modification Number	Publication Date
0	02/13/1998
1	03/13/1998
2	03/27/1998
3	08/28/1998
4	11/20/1998
5	12/11/1998

DACA56-98-R-0013, TWO PHASE, DESIGN/BUILD, 144 PERSON DORMITORY, TINKER AIR FORCE BASE, OKLAHOMA COUNTY, OKLAHOMA

Changed by Amend 6

ASBE0094E 07/16/1997

	Rates	Fringes
ASBESTOS/INSULATOR WORKERS	18.59	5.54

SCOPE OF WORK:
Includes application of all insulation materials, protective coverings and finishings to all types of mechanical systems.

BROK0005A 06/01/1995

	Rates	Fringes
BRICKLAYERS	16.47	2.83

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* ELEC1141H 12/01/1998

	Rates	Fringes
ELECTRICIANS	19.04	14-1/4%+2.50

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* ELEV0063A 04/01/1998

	Rates	Fringes
ELEVATOR CONSTRUCTORS:		
Mechanic	18.815	6.405+a

FOOTNOTE:
a. Paid Holidays: New Year's Day; Memorial Day; July 4th; Labor Day; Thanksgiving Day; Friday after Thanksgiving Day; Christ mas Day., Vacation Pay Credit: Employer contributes 8% of the basic hourly rate for employees with 5 years or more of service or 6% of the basic hourly rate for employees with 6 months to 5 years of service.

ENGI0627W 06/01/1995

	Rates	Fringes
POWER EQUIPMENT OPERATORS:		
Bobcat	13.80	4.85
Cherry Picker	16.55	4.85
Cement Mixers:		
18 Cu. Ft. and Over	13.80	4.85
Less than 18 Cu. Ft.	13.30	4.85
All Crane Type Equipment with at least 300 ft. of boom and over (including jib)	17.80	4.85
All Crane Type Equipment with at least 200 ft. of boom and less than 300 ft. of boom (including jib)	17.30	4.85
All Crane Type Equipment with at least 100 ft. and less than 200 ft. of boom (including jib); All Tower Cranes; Crane Equipment (as rated by mfg.) 3 cu. yd. and over); Guy derrick; Whirley	16.80	4.85
Cranes with less than 100 ft. of boom with jib and Cranes (as rated by mfg.) less than 3 cu.; Overhead Monorail type crane	16.55	4.85
Oiler	12.80	4.85

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* IRON0048D 06/01/1998

	Rates	Fringes
IRONWORKERS, Reinforcing	16.30	6.87

PAIN0807F 05/01/1997

	Rates	Fringes
PAINTERS:		
Paperhanger	14.55	2.53
Roller	13.55	2.53
Spray	14.05	2.53

PLAS0809E 07/01/1994

	Rates	Fringes
CEMENT MASONS	14.68	.65

PLUM0344G 07/01/1998

	Rates	Fringes
PLUMBERS & PIPEFITTERS		
(Including HVAC Work)	19.50	5.90

ROOF0143A 06/01/1998

	Rates	Fringes
ROOFERS	14.50	3.20

SHEE0124G 07/01/1998

	Rates	Fringes
SHEET METAL WORKERS		
(Including HVAC Work)	19.76	5.07

SUOK1009A 09/07/1995

	Rates	Fringes
CARPENTERS (Excluding Drywall		
hanging & Acoustical Installation)	11.90	
DRYWALL FINISHER	12.83	2.53
DRYWALL HANGING (Including		
Acoustical Installation &		
Metal Stud/Lath in Connection		
with Drywall Hanging	11.29	.10
GLAZIER	12.17	
INSULATOR, batt	12.85	3.30
IRONWORKERS - STRUCTURAL (Excluding		
Metal Building Erection)	12.03	
LABORERS:		
Common	7.37	
Brick Tender	8.69	
Plaster Tender	9.30	1.31
LATHERS	15.06	2.15
METAL BUILDING ERECTOR	9.12	
PAINTER:		
Brush	12.50	2.53
PLASTERERS	15.69	
POWER EQUIPMENT OPERATORS:		
Asphalt Laydown Machine	9.00	
Backhoes	14.06	3.49
Bulldozers	14.40	2.58

Forklifts	12.15	3.53
Graders	12.60	2.57
Hole Diggers	14.40	2.00
Loaders	11.36	2.40
Rollers	11.72	2.05
SOFT FLOOR LAYER	15.10	1.52
SPRINKLER FITTERS	15.87	5.58
TILE SETTER	14.61	

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:

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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

GENERAL DECISION OK980029 02/13/98 OK29

Superseded General Decision No. OK970029

State: Oklahoma

Construction Type:
HIGHWAY

County(ies):

CANADIAN	LOGAN	OKLAHOMA
CLEVELAND	MCCLAIN	POTTAWATOMIE

HIGHWAY CONSTRUCTION PROJECTS (Consisting of construction, alteration and/or repair of streets, highways, runways, erosion control structures), (but does not include building structures on highway rest areas)

Modification Number	Publication Date
0	02/13/1998

DACA56-98-R-0013, TWO PHASE, DESIGN/BUILD, 144 PERSON DORMITORY, TINKER AIR FORCE BASE, OKLAHOMA COUNTY, OKLAHOMA

SUOK3003A 12/12/1991

	Rates	Fringes
HIGHWAY CONSTRUCTION PROJECTS:		
AIR TOOL OPERATOR	$6.50	
ASPHALT RAKER	6.75	
BLASTERS	8.75	
CARPENTER	8.50	
CONCRETE FINISHER PAVING	8.60	
CONCRETE FINISHER STRUCTURES	8.00	
CONCRETE RUBBER	6.50	
FORM BUILDER STRUCTURES	7.50	
FORM SETTER PAVING & CURB	7.50	
FORM SETTER STRUCTURES	7.50	
LABORER: COMMON	6.25	
MANHOLE INLET BUILDER	7.25	
MECHANIC	9.00	
PAINTER, STRUCTURES	7.00	
PILEDRIVER	7.50	
PIPELAYER	7.50	
REINF. STEEL SETTER PAVING	7.50	
REINF. STEEL SETTER STRUCTURE	7.50	
SERVICER	7.75	
STEELWORKER STRUCTURAL	7.50	
FLAG PERSON	6.25	
SIGN ERECTOR	8.00	
SPREADER BOX PERSON	7.00	
TRAFFIC CONTROL DEVICE MONITOR	7.00	
TRAFFIC SIGNAL INSTALLER	11.50	
VIBRATOR PERSON (HAND TYPE)	6.25	
POWER EQUIPMENT OPERATORS:		
ASPHALT DISTRIBUTOR	7.55	
ASPHALT HOT MIX PLANT	8.50	
ASPHALT PAVING MACHINE	8.55	
ASPHALT PAVING MACHINE SCREED	8.55	
BACKHOE-LOADER	8.30	
BOX BLADE LOADER	7.55	
BROOM/SWEEPER	7.00	
BULLDOZER (150 H.P. & LESS)	8.40	
BULLDOZER (OVER 150 H.P.)	8.75	
CONCRETE MIXING PLANT	8.50	
CONCRETE PAVING CURING/TEXTURE/ FLOAT	8.50	
CONCRETE PAVING FORM GRADER	8.20	
CONCRETE PAVING GRINDER	7.60	
CONCRETE PAVING JOINT SEALER	7.75	
CONCRETE PAVING FINISHING MACHINE	8.55	
CONCRETE SAW OPERATOR	7.40	
CONCRETE SCREED MACHINE	7.75	
CONCRETE PAVING SPREADER	8.50	
CURB MACHINE (SLIPFORM)	8.30	
REINFORCING STEEL MACHINE	7.40	
CRANE, CLAMSHELL, DERRICK, DRAGLINE, SHOVEL (1 1/2 C.Y. & LESS)	7.95	

CRANE, CLAMSHELL, DERRICK, DRAGLINE, SHOVEL (OVER 1 1/2 C.Y.)	8.50
CRUSHER & SCREENING PLANT	8.25
FRONT END LOADER (2 1/2 C.Y. & LESS)	7.75
FRONT END LOADER (OVER 2 1/2 C.Y.)	8.45
HYDRAULIC EXCAVATOR	8.65
MOTOR GRADER (FINE GRADE)	9.05
MOTOR GRADER (ROUGH)	8.00
PAVEMENT MARKING MACHINE	8.00
PLANER, MILLING MACHINE	8.25
PUGMILL MIXING PLANT	7.15
PUMPCRETE	7.15
ROLLER STEEL WHEEL (PLANT-MIX)	7.85
ROLLER STEEL WHEEL (OTHER)	7.45
ROLLER PNEUMATIC (SELF-PROPELLED)	7.45
SCRAPER (17 C.Y. & LESS)	8.30
SCRAPER (OVER 17 C.Y.)	8.55
SELF-PROPELLED HAMMER	7.20
SIDE-BOOM	7.65
TRACTOR; CRAWLER (150 H.P. & LESS)	7.15
TRACTOR; CRAWLER (OVER 150 H.P.)	7.50
TRACTOR; PNEUMATIC (80 H.P. OR LESS)	7.45
TRACTOR; (OVER 80 H.P.)	7.65
TRAVELING MIXER	7.25
TRENCHING MACHINE	8.25
WAGON DRILL, BORING MACHINE OR POST HOLE	6.60
FOUNDATION DRILL, TRUCK MOUNTED	11.85
TRUCK DRIVERS:	
SINGLE AXLE, 2 TONS AND UNDER	6.85
SINGLE AXLE, OVER 2 TONS	7.05
TANDEM AXLE AND SEMI TRAILER	7.30
LOWBOY, FLOAT	8.60

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)).

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Washington, D. C. 20210

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END OF GENERAL DECISION

GENERAL DECISION OK980044 02/13/98 OK44

Superseded General Decision No. OK970044

State: Oklahoma

Construction Type:
SEWER AND WATER LINE

County(ies):
OKLAHOMA

WATER AND SEWER LINE CONSTRUCTION PROJECTS (Including such work on building and residential projects)

Modification Number	Publication Date
0	02/13/1998

DACA56-98-R-0013, TWO PHASE, DESIGN/BUILD, 144 PERSON DORMITORY, TINKER AIR FORCE BASE, OKLAHOMA COUNTY, OKLAHOMA

SUOK2015A 02/22/1996

	Rates	Fringes
CARPENTER (Excluding Form Setting):		
Form Building	$ 9.83	
All other work	11.97	
CONCRETE FINISHER	8.79	
FORM SETTER	8.49	
IRONWORKER, REINFORCING	8.23	
LABORERS:		
Common & Landscape	7.19	
Pipelayer	8.94	
Wood/Chain Fence	6.73	$1.17
MANHOLE BUILDER	9.00	.66
POWER EQUIPMENT OPERATORS:		
Asphalt paving/Laydown machine	9.00	.14
Backhoe	10.12	
Backhoe/loader	8.50	
Bobcat	9.65	
Box Blade	11.00	.80
Bulldozer	9.52	
Concrete Saw	8.16	.14
Crane	10.35	
Excavator	12.12	
Front end loader	9.71	
Mechanic	15.62	
Roller	8.28	.14
Scraper	9.65	
Trackhoe	9.50	
TRUCK DRIVER:		
Dump	8.77	
Flatbed	8.02	
Lowboy	9.42	.18
Tandem	7.76	.14

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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END OF GENERAL DECISION

RFP NO. DACA56-98-R-0013

US Army Corps
of Engineers
Tulsa District

144 Person Dormitory

Tinker Air Force Base
Midwest City, Oklahoma

Design/Build
Project Specifications
and Drawings

VOLUME 2 OF 2

APRIL 1998

THIS IS A TWO-PHASE REQUEST FOR PROPOSAL

SECTION 01010

DESIGN AND CONSTRUCTION
DOCUMENT PREPARATION

PART 1 - GENERAL

1.1 PRELIMINARY DESIGN PROPOSAL PREPARATION (VOLUME II):

1.1.1 Drawings

All drawings shall be prepared using the international system of units (SI or "metric"). See Appendix F.

Drawings required for the Preliminary Design Proposal shall, as a minimum, include the following:

Civil
- Project location map.
- Site Plan (All utilities including Mechanical and Electrical).

Architectural
- Floor plan (each floor).
- Typical Suite Plan (one plan view drawing at 1:25 scale showing typical layout plus furnishings and fixtures).
- Building elevations (each side of building; call out materials and floor-to-floor heights).
- Building section (one transverse section).
- Typical wall section. (Include roof eave condition and typical foundation condition.)
- Roof plan. (Show line of ridges, hips, valleys, etc. Call out materials.)
- Perspective Sketch Rendering. (In lieu of a separate drawing, a rendered elevation view may be provided of one of the building elevations.)

Structural
- Preliminary Foundation and Roof Sections/Details (show as part of a typical wall section).

Mechanical
- HVAC equipment location/duct single-line plan/schedules of major items including location of fan-coil units in suites.
- Fire protection systems plan.

Electrical
- Power plan.
- Communications plan.
- Typical lighting plan for one dormitory room/suite.

Drawings submitted shall have Offeror's title block. Drawings shall be numbered using the C, A, S, M, E number prefixes.

1.1.2 Calculations

Architectural calculations and critical dimensions shall be provided demonstrating that net square meters comply with the Facilities Design Guide for Enlisted Dormitories 1+1 standard (Appendix B.)

Provide a complete preliminary Energy Budget Analysis (EBA) with the Phase II Proposal. The preliminary EBA will be compared with the maximum allowable "target" energy use budget figure. Ensure that all input assumptions, data, and input computer file printouts (with) explanatory labeling) as well as all available computer EBA software analysis outputs. Provide a complete Computerized Energy Systems Analysis (CESA) and a Life Cycle Cost Analysis (LCCA) as part of the Design Phase, Part I, First Submittal (ref. Section 01010, paragraph 1.2.)

Provide air movement calculations which will include block heating, ventilation, exhaust, and cooling loads for the building. Provide heating and cooling loads for each unique room in the building for sizing for fan coil unit equipment. Provide input information such as wall, roof, window, door, etc., R and U-values, internal room loads by device, etc. Ensure that adequate detail is provided for Government reviewer to follow all assumptions and to support all heating kW/sq meter, sq meter/KW, etc., to help validate calculations. Show input and output requirements for people ventilation on room and/or building basis and input and output requirements for room exhaust rates and building exhaust system and flow rates (Refer to AF ETL 97-13, Dormitory Ventilation and Exhaust System Design Criteria, attached hereto and hereby made a part of this RFP.)

1.1.3 Project Descriptions

Preliminary Project Descriptions shall be provided in sufficient detail to describe significant materials and type and quality of systems and equipment. The Preliminary Project Descriptions shall be generally as prescribed in the CSI Manual of Practice Chapter FF/180.

1.2 DESIGN PHASE – PART 1:

1.2.1 General

Submittals and any required re-submittals shall include drawings and specifications along with supporting data as needed to fully establish the proposed level of quality of systems and materials. Drawings to become final documents shall be developed using a CADD system compatible with Intergraph Microstation 95 CADD and produced as mylar transparencies as specified in this Section. All supporting specifications and calculations data shall be submitted as 8-1/2" x 11", vertically-bound material. Drawings and specifications shall be prepare using the SI or "metric" system of units (see Appendix F).

The **First** design submittal documents shall consist of a CESA and a 100% complete construction drawings and specifications for all site and off-site utilities, site clearing, rough grading and drainage, paving, foundation, and the structural diaphram system.

The First design submittal shall also consist of design drawings and specifications which reflect 60% completion of the remaining design disciplines. This generally corresponds to completion of the "Design Development Phase" as defined by the American Institute of Architects (AIA). Plans and specifications shall be prepared at this 60% level to achieve the requirements specified in paragraphs "Drawings" and "Specifications" hereinafter. The First design submittal documents must complete enough to support consideration for authorization to proceed with the Second design submittal.

This First submittal shall be submitted for review 60 days after the award of the DB contract (ref. Section 00150, Para, 4, "Project Schedule"). A 60% CESA and utility review meeting will be conducted at Tinker AFB 30 days after the contract award at which the DB Contractor Project Manager and representatives of the design firm's civil engineering section shall attend.

Incorporate all of the comments and revisions resulting from the review conference in this submittal.

The Government may issue an Authorization To Commence construction for all site work, utility construction, foundations, and structural diaphram with the approval of the First design submittal.

First Design Submittal (drawings, specifications and design analysis) shall be sent by overnight mail to distribution as listed in the Distribution Schedule included as Appendix H. All documents shall contain an index of contents and be accompanied with a transmittal letter.

1.2.2 Design Status Reports

A design status report in a format established by the Contracting Officer shall be prepared and submitted at the end of every month. As a minimum the report shall summarize activity and progress to date and list all outstanding issues and information needed to complete the design. Additional data as may be required by the Contracting Officer shall be included.

1.3 <u>DESIGN PHASE – PART 2</u>:

1.3.1 General

The **Second** design submittal documents shall consist of 100% complete construction drawings and specifications for all trades, systems, and components of the project. Included in this submittal is the incorporation of all comments and revisions resulting from the review conference.

A Design Analysis is required with the Second design submittal. The Design Analysis shall consist of a written narrative and design calculations as required to document and support the level of design for all disciplines at this point in the project.

The Second Design Submittal (drawings, specifications and design analysis) shall be sent by overnight mail to distribution as listed in the Distribution Schedule included as Appendix H. All documents shall contain an index of contents and be accompanied with a transmittal letter.

The Corps of Engineers and other agencies will review and comment on submittals. The DB Contractor shall respond in writing to review comments within 10 days of receipt. The DB Contractor, and appropriate design team representatives, shall attend a review meeting at Tinker AFB to review comments and responses. The DB Contractor shall prepare minutes of this meeting. Comments shall be incorporated into the design or otherwise be mutually resolved prior to proceeding.

The Corps of Engineers (COE) and other agencies will review and comment on the Second Design submittal with respect to compliance with RFP documents. The DB Contractor shall respond to these comments within 10 days after receipt of the comments. The DB Contractor will attend and document a review conference at COE Tulsa District Office All comments shall be incorporated into the design or otherwise mutually resolved prior to proceeding.

After review and approval of the Second Design Submittal by the Government and all review comments and revisions have been incorporated in the documents, no changes will be made to the documents without the consent of the Government.

1.3.2 Design Status Reports

The design status report shall continue to be prepared and submitted at the end of every month. Requirements shall remain the same as for DESIGN PHASE – PART 1.

1.4 FIELD INVESTIGATION:

While completing the Part I of the DESIGN PHASE, the DB Contractor shall conduct field investigations at the site as required to resolve design issues and to ensure that design submittals reflect existing conditions.

Since authorization to begin the Build Phase for portions of the work could be given after approval of the First Design Submittal, the DB Contractor shall have completed all field investigations necessary to allow for start of construction at that point.

Access to the site prior to Build Phase shall be coordinated through the Contracting Officer. The Contracting Officer, or his representative may accompany the DB Contractor on any site

visit. Alterations to the site will not be permitted during the Design Phase without prior written approval of the Contracting Officer.

1.5 DESIGN DISCREPANCIES:

In the event design discrepancies or omissions become apparent during construction, the DB Contractor, as Architect/Engineer-of-Record, shall be responsible for correction of the design and shall furnish the necessary drawings, specifications, and other support data as required to resolve the condition to the satisfaction of the Contracting Officer. The DB Contractor shall further perform all work necessary to execute the correct design.

1.6 DRAWINGS:

1.6.1 Drafting Standards

The Tulsa District Corps of Engineers drafting standards may be used and may be obtained from the Corps of Engineers Tulsa District Office upon request.

1.6.2 Design Drawings Format

Final design drawings shall be metric "A1" original plotted mylars produced from CADD fully compatible with Intergraph Microstation 95. A CD ROM containing all required documents shall be furnished in addition to mylar reproducible drawings. Provide required archiving programs to access the drawing files on the CD ROM.

Provide an external label on each CD ROM indicating company/organization name, point of contact phone number, creation date, volume label and number, full storage command used to archive files, full store command needed to restore files; provide a hard copy documentation handbook. This handbook will contain the specifics of the database, the file names, reference file names, plotting files, cell library names, level designation assignments, and all other pertinent information used in constructing and managing the drawings and database.

The Final Design Documents (Design Drawings and Project Manual/Specifications) shall include 100% complete and coordinated drawings and specifications. Drawings shall generally include, but not be limited to, the following in the order listed:

1.6.3 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, etc.

c. Grading and Drainage Plan

New and existing grading contours with spot elevations and contours, as necessary. Contours shall not be greater than 600mm.
Complete storm drainage systems with manholes, inlets, headwalls, etc.
Locations of additional soil borings.
Storage area for stockpiled topsoil.
Limits of construction and limits of grading.
Berms, swales, flumes, etc.
Temporary erosion control measures.
Area for DB 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, telephone, communications and electrical services.
Routing of compressed air lines

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
Oil-water separator installation details

f. Landscaping

Limits and layout of planting, seeding, sodding, ground cover and irrigation system.
Plant Lists
Planting and irrigation system details

1.6.4 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, Concrete and/or Masonry Details

e. Schedules

1.6.5 Architectural Drawings

a. Plans

Overall Floor Plans
Enlarged Floor Plans including toilet rooms (demonstrate that plans meet the 1+1 std.)
Ceiling Plans
Roof Plans
Fire Protection Plans (to include fire area separations and exits)

b. Elevations
Exterior Building
Interior Toilet Room, etc.

c. Sections and Details

Building including Weather Proofing
Walls including Expansion Joints
Windows and Doors
Roof Construction Details
Roof Penetrations

d. Schedules

Door and Windows/Hardware
Room Finish
Toilet Accessories
Sign

1.6.6 Mechanical Drawings

a. Plans

Overall floor plan - Layout of HVAC units and ductwork.
Enlarged floor plans - Mechanical rooms and any specialty area.
Mechanical roof plan.
Mechanical Fire Protection Plan.

b. Sections and Details

Mechanical room sections and details.

c. Schedules

Mechanical equipment schedules.

d. Schematics

HVAC piping

e. Controls Drawings

1.6.7 Plumbing Drawings

a. Plans

Overall floor plan - Layout of all plumbing and piping.
Enlarged floor plans - Mechanical rooms and specialty areas.

b. Schedules

Plumbing equipment schedules.

c. Schematics

Sewer Piping Schematics
Cold Water Piping Schematics

Hot Water Piping Schematics
Gas Piping Schematics

1.6.8 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.

b. Lighting Plans

Layout of all lighting fixtures with circuits.
Identification of emergency light fixtures.
Lighting panels and transformer(s).
Lighting Panel Schedule.
Light Fixture Schedule
Fixture Mounting Details.

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.
Schematic one-line diagram.

d. Additional Information
Voltage Drop Calculations.
Preliminary light and power load calculation.
Fault calculations.
Electrical Fire Protection Plan.

1.7 SPECIFICATIONS

The final specifications shall be prepared using CSI guide specifications. Tulsa District guide specifications for regional, unique, or special applications may be utilized for information only and will be provided upon request. Specifications shall be prepared using the SI or “metric” system of units (Appendix F.)

Specifications may be developed using any word processor or automated specifications

program but shall be provided to the Contracting Officer in Microsoft Word format. Final specifications shall be primarily prescriptive type specifications including descriptive, reference standard, or proprietary (closed or open) methods. Where proprietary specifications are provided, detailed descriptive material requirements shall not be included. Specifications shall include requirements for all necessary submittals and quality control testing to show compliance with RFP requirements and as adequate for record purposes. Specifications shall be prepared using principles and practices of the Construction Specifications Institute (CSI) as established in the CSI Manual of Practice (1992 Edition) and the 1995 Masterformat. Information regarding specifications development may be obtained from Tulsa District Office Tel (918) 669-7028 (Mr. Steve Walters).

The CD-ROM based Construction Criteria Base (CCB) may be obtained from the National Institute of Building Sciences (NIBS) - Tel (202) 289-7800. All Federal Agency guide specifications (including Corps of Engineers, NASA, Navy, VA, and GSA), CSI SpecText, and AIA Masterspec are available on CCB as well as most of the referenced publications contained herein. There is no charge for the CCB for firms under contract to the Federal Government. However, charges will be assessed for the SpecText and Masterspec access.

The construction criteria included on the CCB and other design data are also available on the Internet World Wide Web. Guide specifications, criteria, and links to known resources my be found at the Tulsa District Guide Specifications Web Site www.swt.usace.army.mil/specs/td_specs.htm. Passwords for the CCB may be obtained by calling CCB or the Tulsa District numbers above.

1.8 AS-BUILT DOCUMENTS:

The DB Contractor shall maintain accurate records of construction conditions that vary from the approved design documents. The DB Contractor shall clearly mark varying conditions in red on a record set of construction documents maintained at the project sitel. Upon completion of construction the design drawings shall be updated to reflect "as-built" conditions. These drawings shall be furnished to the Contracting Officer in both hard copy reproducible form and CD ROM in Intergraph Microstation 95 format within 30 days after completion of construction.

1.9 COLOR RENDERING:

Include in the Second Design Submittal (100%) a professional color rendition of the approved building design that depicts the relation of the proposed building with surrounding existing features and buildings. The rendering may be computer generated and shall be a minimum of 20"x30".

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION

FROM: AFCESA/CES
139 Barnes Drive, Suite 1
Tyndall AFB FL 32403-5319

SUBJECT: **Engineering Technical Letter (ETL) 97-13: Dormitory Ventilation and Exhaust System Design Criteria**

1. Purpose. This ETL establishes design criteria for Air Force dormitory ventilation and exhaust systems, and adopts HVAC criteria contained in the *Facility Design Guide for Enlisted Dormitories*. In cases of conflict, this ETL takes precedence. Follow existing guidance in areas not covered by this ETL.

2. Application: Requirements of this ETL are mandatory for design of new or renovated Air Force dormitories. Improper or partial application of the requirements of this ETL can result in the system failing to satisfy minimum criteria and exacerbation of mold and mildew problems.

2.1. Effective Date: Immediately.

2.2. Expiration: Five years from date of issue.

2.3. Ultimate Recipients:
- MAJCOM and Base Civil Engineers
- Air Force Design and Construction Agents

2.4. Exceptions:
- Dormitories beyond the Project Definition phase
- Dormitories to which ETL 93-2 applies

2.5. Waivers. Waivers to requirements of this ETL require MAJCOM approval.

3. Referenced Publications:

3.1. *Facility Design Guide for Enlisted Dormitories*, HQ AFCEE/DCD, June 1997.

3.2. ETL 93-2, *Dormitory Criteria for Humid Areas*.

3.3. AFM 88-29, *Engineering Weather Data*, 1 July 1978 (currently under revision).

3.4. ASHRAE 52.1-1992, *Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter.*

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3.5. ANSI/ASHRAE 55-1992, *Thermal Environmental Conditions for Human Occupancy* and addendum ANSI/ASHRAE 55a-1995.

3.6. ASHRAE 62-1989, *Ventilation for Acceptable Indoor Air Quality.*

3.7. CoE ER 1110-345-723, *Systems Commissioning Procedures.*

4. Definitions:

4.1. *Module:* Dormitory living unit consisting of two net living areas sharing a common kitchen and bathroom.

4.2. *Net Living Area:* The floor area of the living/bedroom space.

4.3. *Summer and Winter Comfort Zones:* Acceptable ranges of operative temperature and humidity for people in typical summer and winter clothing during primarily sedentary activity. (Reference paragraph 3.5)

5. Requirements:

5.1. Background. A recent survey sponsored by AF/ILEH identified problems of mold and mildew growth in many Air Force dormitories. This problem was prevalent in the bathroom area, where high humidity, wet surfaces, and lack of air circulation for extended periods provided favorable conditions. Continuous, treated ventilation -- independent of heating and cooling requirements -- and continuous bath exhaust will ensure occupant ventilation requirements are met, and prevent growth of mold and mildew.

5.2. Ventilation System Design. Provide a central ventilation system to supply 100 percent outside air to each module conforming with criteria in paragraph 5.3. Ventilation air must be evenly divided and supplied directly to each net living area. The system must operate continuously and independent of the module's heating and/or air conditioning system.

5.2.1. Capacity. Base ventilation system total capacity on the following design conditions (reference AFM 88-29):

- Summer -- 2.5% dry bulb (DB) temperature and the mean coincidental wet bulb (MCWB) temperature
- Winter -- 99 percent winter design conditions

5.2.2. Active Humidity Control. In locations where dehumidification is needed to satisfy ventilation requirements, equip the ventilation system with active controls to ensure requirements are continuously met.

5.2.3. Engineering Analysis. Include engineering analyses in the design documents

showing the ventilation system is capable of achieving and continuously maintaining ventilation air criteria over a full range of ambient conditions. The purpose is to evaluate system capacity and control to achieve and maintain steady state operation at various latent and sensible loads. Evaluate the system operation at the following psychometric points:
(1) the 2.5% DB and MCWB design condition
(2) the enthalpy determined by the conditions in (1) at 50% relative humidity
(3) the enthalpy determined by the conditions in (1) at 70% relative humidity
(4) 2.5% DB from (1) at 30% relative humidity

5.3. Ventilation Air Criteria:

5.3.1. Quantity. Supply ventilation air to each module to satisfy ASHRAE 62-1989 for the number of occupants, or as required to meet bathroom exhaust air requirement plus 15 percent for module pressurization, whichever is larger.

5.3.2. Conditioning. Continuously condition ventilation air supplied to each net living area to within the humidity and temperature ranges defined by the summer and winter comfort zones (see charts in ASHRAE 55), with the following modifications:
- Do not exceed 60 percent relative humidity.
- Do not humidify air to meet lower comfort limits.

Note: Conditioning of ventilation air is not required for dormitories not otherwise air conditioned.

5.3.3. Filtering. Filter air prior to the air handler or conditioning equipment. Use extended media filters rated at a minimum average dust spot efficiency of 30 percent per ASHRAE 52.

5.4. Ventilation Air Distribution:

5.4.1. Volume Control Dampers. Equip all main trunks, branches, and branch lines with accessible volume control dampers to ensure quiet and accurate air balancing.

5.4.2. Ceiling/High Wall Registers. Discharge ventilation air directly into the net living area through ceiling or high wall registers to ensure mixing and high ventilation effectiveness. Terminal velocity must not exceed 0.25 meters per second (50 feet per minute) in the occupied zone.

5.4.3. Flow Pattern. Establish a ventilation flow pattern through the entire module by transferring air from net living area, to kitchen, and then to the bathroom to be exhausted. The purpose is to promote air change within these spaces to control moisture and odors independent of the heating and/or air-conditioning system.

5.4.4. Transfer Ducts. Provide transfer duct(s):
- Between the kitchen area and the bathroom, if the kitchen and bathroom are not

directly connected. Position the kitchen register at a ceiling or high wall location, and the bathroom register near the floor. This will promote ventilation through the kitchen area and cross-flow through the bathroom.

- Between the net living area and kitchen area if a single heating or air conditioning unit serves the entire module. Size duct(s) for minimum pressure drop. This will reduce room overpressurization affecting ventilation air flow into the net living area.

Note: Undercutting doors is not recommended due to increased sound transmission and possible limitations on return air transfer.

5.4.5. Construction of Transfer Ducts. Construct transfer ducts to prevent line-of-sight between registers through the duct.

5.4.6. Interstitial Space. Do not use interstitial space above the ceiling as a plenum for transfer air.

5.5. Exhaust Air System. Provide a central exhaust system to serve the bathrooms, in accordance with the following:

- The system runs continuously and is interlocked with the ventilation air system.
- Exhaust quantity is based upon 2.54 L/s/m^2 (0.5 cfm/ft^2) of kitchen or bathroom area, whichever is larger.
- An exhaust grill is located just outside each shower stall or bathtub and specified to be constructed of corrosion-free material.
- The system has accessible volume control dampers at all main trunks, branches, and branch line connections to ensure quiet, accurate air balancing and facilitate cleaning.
- Exhaust air is filtered with extended media filters prior to the exhaust fan or energy recovery equipment.

To reduce equipment fouling, preserve effectiveness, and maintain efficiency, minimum Average Dust Spot Efficiency for filters must be (per ASHRAE 52):

- 30 percent for energy recovery equipment
- 20 percent for exhaust-fan-only applications

5.6. Energy Recovery Systems:

5.6.1. Reclaim waste energy from the bathroom exhaust, dehumidification, or air conditioning systems for conditioning the ventilation air, except when life cycle cost analysis shows reclaiming is not cost effective

5.6.2. Recommend configuring the duct layout to allow for future conversion where bathroom exhaust energy recovery systems are not cost effective for conditioning ventilation air.

5.7. Commissioning. The HVAC system(s) will be commissioned IAW with Corps of Engineers Engineering Regulation (ER) 1110-345-723.

6. Technical Assistance. Contact the installation or MAJCOM mechanical engineers for assistance. HQ AFCESA Technical Support Directorate can assist MAJCOMs and Design Agents in applying ETL requirements. AFCESA assistance with the HVAC system design process is most beneficial at the Project Definition stage.

7. Point of Contact: Mr. K. Quinn Hart, HQ AFCESA/CESM, DSN 523-6346, commercial (904) 283-6346 or INTERNET hartq@afcesa.af.mil.

William G. Schauz, Colonel, USAF	1 Atch
Director of Technical Support	Distribution List

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National Institute of Bldg Sciences
1201 L Street NW, Suite 400
Washington DC 20005

SECTION 01011

DESIGN CONCEPT DOCUMENTS

PART 1 - GENERAL

1.1 GENERAL:

This section identifies documents issued with this RFP which establish the concept or basis for the project design. These requirements are minimum standards and may be exceeded by the Offeror. Deviations from these concepts and standards 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 the 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:

Design criteria shall be as specified in Section 01013 - DESIGN REQUIREMENTS. Design criteria publications will be furnished by the Tulsa District only when they are required for design and are not available from commercial sources, the Internet, or from the Construction Criteria Base (CCB).

1.3 APPENDIX DOCUMENTS:

Appendix A - Drawings
Appendix B - Facility Design Guide for Enlisted Dormitories
Appendix C - Architectural Compatibility Plan
Appendix D - Excerpts from Tinker AFB Base Comprehensive Plan
Appendix E - List of Approved Plant Materials
Appendix F - Metric Design and Drafting Conventions
Appendix G - Soil Characteristics and Geotechnical Engineering Criteria
Appendix H - Submittal Delivery & Distribution Schedules

1.4 SPECIFICATIONS:

Specifications included herewith in Section 01013 shall be utilized as design criteria and minimum standards for the corresponding construction work. The successful offeror shall develop complete construction specifications using the criteria included in these specifications.

The Government will provide Division 1 specifications sections 00600, 00700, 00800, and sections 01440 thru 01700, to the successful offeror; and these sections shall be included in the final construction specifications without change. The DB Contractor shall furnish these specifications on electronic media for the production of construction specifications when requested . These specifications shall be submitted together with other required contractor

prepared project construction documents during the Second Design Submittal of the Design Phase, Part II.

1.5 ORDER OF PRECEDENCE:

In case of conflict, duplication, or overlap of design criteria specified in the documents referenced in this section, the following order of precedence shall be followed:

a. General design requirements
b. Facility Design Guide for Enlisted Dormitories (Appendix B)
c. Tinker Base Comprehensive Plan (Appendix D).

1.6 REQUIRED AND NON-MANDATORY AREAS AND ITEMS:

Required areas are defined on page 49 of the Facility Design Guide. Other areas which are designated as "Optional" in the Design Guide are hereinafter referred to as "non-mandatory items" to eliminate any confusion between these items and bid options set forth in Section 00010, BIDDING SCHEDULE. Non-mandatory items are non-essential features that are desirable and should be included when within cost constraints. All other criteria are minimum requirements and may be enhanced, improved, or substituted to better suit design requirement or to improve evaluation considerations. Required and non-mandatory items are as listed below. Design requirements for all features listed below are specified in Section 01013 - DESIGN CRITERIA.

1.6.1 Required Areas:

a. As defined on page 49 of the Facility Design Guide with the exception of mail and bulk storage and as modified by paragraph 1.6.2 below. Mail service will not be provided. Bulk storage shall be provided as an optional area.

b. Football/Track Field with scorers shack for two people and PA system. Exterior finishes are to match dorm building. Provide new goal post. Can be built in Accident Potential Zone (APZ). Turf areas inside the track shall be sodded.

1.6.2 Non-Mandatory (Desired) Items: (listed in desired priority)

Game Room
TV Room at ground floor
Microwave Vending/Break Room at ground floor
Study/Meeting Room
Bus Shelter for minimum of 10 people
Bike Rack Canopy for minimum 50 bikes
Sauna

1.7 ADDITIONAL DOCUMENTS/CRITERIA FURNISHED BY THE GOVERNMENT:

The following documents will available after Phase I and will be furnished to the Design/Build Contractor when requested by the Proposer or Contractor:

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 available on the Internet or in the Construction Criteria Base CD-Rom.

Commercial design criteria and specifications will not be furnished by the Government.

Conversion of electronic media to other formats shall be the responsibility of the DB Contractor.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 01013
GENERAL DESIGN REQUIREMENTS
PART 1 - GENERAL

1.1 SUMMARY:

This section provides general design criteria to be utilized for proposal and design purposes.

1.2 GENERAL REQUIREMENTS:

All design, unless otherwise specified, shall be based on nationally recognized industry standards, criteria, and practice. Government criteria and standards shall be used only where required herein or to fill voids in industry practice.

The facility shall be a dormitory for the housing of enlisted personnel. The facility shall contain spaces as listed in the subsequent Space Requirements below. The building plan shall include support areas for mechanical equipment, electrical equipment, fire protection equipment, and other similar types of spaces.

1.3 PROJECT DESCRIPTION:

This project includes the construction of a new 144 person dormitory facility to meet current Air Force standards. The facility will provide living quarters for 144 single permanently assigned enlisted E-1 through E-3 personnel.

The construction shall conform to all applicable 1 + 1 dormitory standard requirements and criteria indicated in the Department of the Air Force's Facility Design Guide for Enlisted Dormitories, dated June 1997 hereinafter referred to as the Facility Design Guide (Appendix B). The standard includes single occupancy living/sleeping rooms with shared bathrooms and kitchenettes. A copy of pertinent portions of the Tinker AFB Base Comprehensive plan is included in Appendix.

The facility shall be a 3-story building resembling the style of existing dormitory buildings 5902 and 5910. The dormitory shall have exterior balconies, sidewalks, and landscaping.

The existing site features include a Football/Track field, a restroom facility, and a softball field. These features shall be demolished and the Football/Track field shall be reconstructed as shown on the Site Plan drawing in Appendix A. Parking for the 144 Person Dormitory shall be priced as Option No. 1 - 84 parking spaces, and Option No. 2 - 60 parking spaces. (Reference Section 00010, BIDDING SCHEULDE, and Drawing No. 2, General Site Plan, Appendix A.) Provide an access drive and 30 parking spaces adjacent to the new Football/Track Field as part of the Base Bid.

1.4 SPECIAL REQUIREMENTS:

The designer shall include in the design analysis details for entries, screening of HVAC equipment, dumpsters, transformers, and other unbecoming dominant features.

Special consideration shall be given in the design analysis to any unusual or additional floor loads imposed on the structure.

Provide new utilities in accordance with requirements specified and as shown on the drawings (Appendix A) including gas, electrical, water and sewer.

1.5 SUBMITTALS:

Submittals shall be specified and provided as required to provide sufficient quality control and to provide the necessary record documents such as as-built drawings. Submittals included in the Guide Specifications shall be selected and edited and tailored to suit the project and the scope of work. Submittals of shop drawings, test reports, certificates, and samples shall not be required for noncritical items of relatively low value a compared to the cost of making the submittal; that is, a submittal will not be required when the cost will exceed the benefit to the project. The completed project specifications shall include a submittal register identifying those items requiring government approval and those items to be submitted for information only. All submittals provided to the government for either information or approval shall have been reviewed for conformance to specification requirements by the construction quality control representative.

1.6 CODES:

The following codes shall be implemented in design and shall be of most recent issue

Uniform Building Code
National Standard Plumbing Code
ASHRAE Standard 62

1.7 LIFE SAFETY/CODE REQUIREMENTS

A representative listing of applicable codes that shall be used in the design of this project is noted below:

NFPA 10 - Portable Fire Extinguishers
NFPA 13 - Sprinkler Systems Installation
NFPA 70 - National Electrical Code

NFPA 72 - National Fire Alarm Code
NFPA 90A - Installation of Air Conditioning and Ventilating Systems
NFPA 101 - Life Safety Code
NFPA 220 - Types of Building Construction
NFPA 780 - Lightning Protection Code
MIL-HDBK-1008C - Fire Protection For Facilities Engineering, Design and Construction*
AFOSH 48-8 - Controlling Exposure to Hazardous Materials
NFPA 33 - Spray Application Using Flammable or Combustible Materials
ADA/Uniform Federal Accessibility Standards

* Mil-Hdbk 1008C takes precedence over other codes where fire protection requirement conflict.

1.8 TESTING:

Testing shall be specified and provided to be kept to a minimum and consistent with assuring quality of critical construction and cost control.

1.9 ENVIRONMENTAL CONSIDERATIONS:

1.9.1 Noise Siting Compliance

A noise level reduction requirement of 25db shall be incorporated into the design and construction.

1.9.2 Air Quality

Project meets applicable federal, state and local air quality criteria. State air quality regulations apply to this project. A state permit may be required for the construction phase of this project requiring control of dust and particulate generated during construction activities. All surface coatings specified comply with Federal, State, and local regulations for volatile organic compound regulation.

1.9.3 Solid Waste

Project conforms to applicable federal, state and local solid waste disposal system criteria and no permits are required.

1.9.4 Sanitary Sewer:

a. Project requires a sanitary sewer main upgrade and connection to the Oklahoma City sanitary sewer system as shown in Appendix A. DB Contractor will perform a hydraulic analysis of that portion of the existing sanitary sewer system from existing Manhole #1 to existing

Manhole #14 on the Waste Water Map, Appendix A. DB Contractor analysis shall consider all current and future hydraulic inputs to determine if the existing sanitary sewer can service all proposed dormitory additions.

b. Based on the results of the hydraulic analysis the DB Contractor will specify the installation of a cured-in-place pipe liner (CIPP) in those sections of pipe shown to be capable of handling the increased hydraulic load. CIPP will have an initial flexural modules of not less than 610,250 Kgs/sqM and a long term flexural modules of not less than 610,250 Kgs/sqM. DB Contractor will design larger diameter replacement piping for those sections of sanitary sewer main that cannot handle the proposed increase in flow. Minimum acceptable replacement piping will be SDR 27 PVC. Minimum pipe size for new sanitary sewer main construction shall be not less than 304mm.

c. DB Contractor will design the building connection to the existing sanitary sewer as required by the relative elevations of the building stub-out and the existing sanitary sewer main. If a sewage lift station is required DB Contractor will design a duplex pump lift station with a multi-point level switch and duplex pump controller. Pump cycles will not be more than four (4) per hour and pump run time will not be less than five (5) minutes. Gravity sanitary sewer and force main connections to the existing system will be made at a new or existing manhole.

Due to grade elevations between this site and other dormitories on site, each Offeror should carefully consider the needs for adequate sewage discharge. The Government will not be responsible for any additional costs caused by any Offeror's failure to consider this in their proposal.

d. Existing manholes #1 through #14 will be replaced or patched with grout as required. All manholes will be sealed with Strong Seal MS-2A, Quadex, Reliner MSP, EMACO S88C or approved equal.

e. DB Contractor will design a connection to the existing Oklahoma City Sewer adjoining this area to the east. DB Contractor will also include a flow measuring station meeting the requirements of Oklahoma City for this type of construction.

f. All design data developed by DB Contractor will satisfy the requirements of Oklahoma Department of Environmental Quality (ODEQ) outlined in Chapter 655, Water Pollution Control Construction Standards. DB Contractor shall furnish permitting and connection data to the Government to send to ODEQ and to the City of Oklahoma City.

1.9.5 Natural Resources

This project has no adverse impact on protection of forest resources, agricultural outleases, protection of fish and wildlife habitats, preservation of outdoor recreation resources, or unique farmlands.

1.9.6 Floodplains

A Portion of the Football Field/Track is located in a floodplain.

1.9.7 Wetlands

Project is not sited in a wetland.

1.9.8 Asbestos Abatement

No asbestos is present on the site.

1.9.9 Environmental Impact Analysis

An Environmental Impact Analysis has been performed by the United States Air Force which resulted in a Finding of No Significant Impact.

1.9.10 Energy Impact Statement

Lighting, appliances, equipment, and air conditioning will consume electricity. Heating and hot water will utilize natural gas. Lighting, appliances, and all equipment are most practically powered by electricity from external sources. The electric demand will not impact the local utility since the supplier maintains 18 percent reserve margin as required by the Southwest Power Pool. The thermal load will have no significant impact on the natural gas supplier with the abundance of gas in Oklahoma.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3- EXECUTION

3.1 SITE

3.1.1. Site General Characteristics

3.1.1.1 Topography: Site topography ranges from flat to gently sloping eastward. An intermittent stream/drainage ditch is located inside the eastern boundary of the site. The successful DB Contractor shall conduct a detailed topographic and utility location survey of the site as shown in Appendix A.

3.1.1.2 Soils: The results of limited geotechnical exploration and testing conducted at the site are provided in Appendix G. The boring logs included in Appendix G are generally representative of the type of materials which can be expected at the site, however, the actual depths, thicknesses and strength of the materials is expected to vary. The successful Offeror shall conduct a complete in-depth drilling and testing program as specified in Appendix G to develop the final foundation and pavement designs for this facility.

A general discussion of Tinker AFB geological conditions follows:

a. Tinker AFB, Oklahoma, lies within the southwest boundary of the Interior Lowlands Province and is characterized by flat to very gently rolling topography. Principle drainage is furnished by Crutcho Creed which crosses the west central part of the base. The base is underlain by bedrock (red beds) of Permian Age which include the Hennessey Group and the Garber Sandstone/Wellington Formation. The Permian deposits form long parallel belts of outcrops that extend without interruptions from Northwestern Nebraska across Kansas into south-central Oklahoma. The beds dip westward at a very low angle forming a structure that has been termed the Prairie Plain Homocline. The Permian beds underlying the Base consist of interbedded layers of clayey shale and weakly to well cemented sandstone and siltstone, all red to reddish brown in color. Overburdened soils consist of residual red to reddish-brown clay (CL to CH), sand, and silt.

b. The Base is located in seismic zone 2A.

c. The Base is located over a recharge area of the Garber-Wellington aquifer. The fine grained Garber Sandstone Formation is present at or near the ground surface over most of the Base, and the water table is generally encountered at depths ranging from 5 to 45 feet below the ground surface.

d. The Base falls almost entirely within the Renthin-Vernon-Bethany soil association. The soils are deep to shallow, nearly level to strongly sloping, well drained, loamy and clayey soils on prairie uplands. A small part of the Base along Crutcho Creek is within the Dale-Canadian-Port Association of deep, nearly level, well-drained loamy soils on benches along major streams (Soil Conservation Service 1969.)

3.1.1.3 Climate

a. The Base climate is classified in the warm sub-humid region by AFM 85-6 and AFM 126-2. This region provides for an adequate amount of rainfall for the survival of plantings; however, much of the rainfall is unavailable due to summer temperatures in the 90s, moisture loss due to evaporation from the ground, and evapotranspiration from plant surfaces. Tinker Air Force Base receives an average of 284 heating days (when temperature is above 0 degrees C) and 33 inches of rainfall with periodic occurrences of drought. Together, these conditions provide for an average growing season of approximately 224 days.

b. Seasonal weather conditions such as severe thunderstorms with intense rainfall, lightning, high winds, and hail also impact the local landscape. Spring is considered the wettest season, with 36 percent of the annual rainfall occurring in the months of March through June. As summer emerges, the temperature may reach or exceed 38 degrees C and the amount of rainfall begins to decrease. Temperatures moderate as fall approaches and rainfall again decreases by a proportional amount. The winter season is characterized by colder temperatures and drier conditions from January through March.

3.1.2 Site Utilities

New utilities and utility upgrades and replacements shall be provided to provide adequate service to the new 144 person dormitory, existing buildings as shown, and future dormitory buildings including 2 – 96 Person Dormitories and 4 future dormitories as shown on "General Site Plan", Appendix A. The DB Contractor shall conduct a thorough survey to locate and evaluate the existing condition and capacity of all utilities. Utilities, including sanitary sewer repair and upgrades, shall be re-sized to serve the new dormitory plus the existing Navy dormitories, and two future 96 person dormitories. Reference Sanitary Site Plan in Appendix A for sanitary sewer locations. Reference paragraph 3.1.4 for additional evaluation and design requirements. Sanitary sewer replacement and upgrades shall be in accordance with Oklahoma Department of Environmental Quality (ODEQ) requirements outlined in Chapter 655, Water Pollution Control Construction Standards.

3.1.3 Water Supply

Water source is from water wells located on Tinker AFB. Two 5,000,000 gallon reservoirs are located in Area A, approximately 1-1/2 miles from the buildings. System residual pressures will be provided from locations near the construction site. Designer is responsible for obtaining water flow and pressure from the Base Civil Engineer. Attached hereto and hereby made a part of this RFP is Water Flow Test Record, pages 1 and 2 of 2 dated 27 June 97.

3.1.4 Sanitary Sewer

Domestic sewage is piped to Oklahoma City for treatment. Suitable materials for sanitary sewer lines shall be cast iron or PVC. A TV sewer inspection shall be made on the existing sanitary sewer where shown. An analysis shall be made of the condition and the capacity of the applicable lines. A report shall be prepared which shall include the analysis, calculations, TV videotape, and recommendations. Sewer lines shall be replaced as required with larger lines where existing sewer line capacity is inadequate for the project loads or where the condition is such that pipe must be replaced. All other sewer lines not replaced shall be lined with cured in-place liner (CIPP). In addition, new sewer line shall be installed where shown (reference Appendix A) connecting to the Oklahoma City sewer main and shall include a flow measuring station conforming to City requirements. Payment for sewer line replacement and lining will be based on unit pricing for work actually performed as indicated on the Bidding Schedule. Flow rates and capacities shown for existing sewer lines in Appendix A are for Offeror's information only.

3.1.5 Electric Service

Existing power source shall be upgraded as shown in Appendix A.

3.1.6 Gas

Gas supply lines shall be upgraded as shown in Appendix A. Gas lines shall be coated steel pipe with welded fittings and cathodic protection.

3.1.7 Water

Water supply lines shall be upgraded as shown in Appendix A. Water lines shall be sized to furnish adequate water supply to the 144 Person Dormitory, existing buildings, and all future dormitories as shown on the "General Site Plan", Appendix A.

3.1.8 Airfield Clearance

Structures and improvements shall comply with the base restrictions on structures within the APZ as shown on the drawings. The dormitory must be located outside (southwest) of the APZ.

3.1.9 Drainage

Existing drainage of the site is surface runoff to a drainage ditch located at the eastern edge of the site. There are no provisions for underground storm water drainage system in this area and none are planned. The DB Contractor shall take into account the requirement to retain storm water on site sufficient to not increase the existing net runoff velocity of storm water from the developed site (Ref. Appendix D, Base Comprehensive Plan, paragraph 4.8.)

3.1.10 Paving

Existing paving is required to be removed to accommodate new construction. Existing soil is to be excavated to allow for non-expansive soil having a plasticity index of less than 12 to be placed and compacted. Compact all fill, and areas to receive fill, to 92% maximum density according to Mil Std 621a, Method 100, CE-55 with a moisture content at, or as much as 2% above optimum.

3.1.11 Parking:

One parking space per occupant shall be provided for dormitory residents and shall be priced separately as bid options Nos. 1 and 2 (Reference 00010 BIDDING SCHEDULE.) Parking spaces and related drives for the 30 spaces adjacent to and serving the new Football/Track Fields shall be bid as part of the Base Bid. All parking including the base bid parking and the options shall be constructed with reinforced concrete curbs and gutters and shall be ADA compliant including handicap spaces and ramps. All parking lots shall be provided with lighting similar in style and height as the existing parking lot lighting at existing dormitory parking lots. All parking lots shall be provided with lighting levels of a minimum of 5 lumens/sq.m.

3.1.12 Recreation Facilities

Provide a regulation football field with a maximum 400 meter track around the perimeter of the football field in the location indicated on the site plan, Appendix A. The track shall contain 4

lanes and be surfaced similar to the existing track. The track infield and the football field shall be sodded and provided with positive drainage and an irrigation system similar to the existing Football/Track field.

Remove and relocate existing Football/Track lighting and scoreboard to the new Football/ Track Field location. Provide equivalent lighting at the new Football/Track Field as the existing lighting at the existing Football/Track Field. Lighting shall be switched and wired so that each lighting system will work independent of the other system. Provide new goal posts at the Football/Track field. Relocate existing Football/Track bleachers to the new Football/Track field and repair and repaint. Paint bleachers Del Paint Chocolate Chip 25A-1A.

Demolish the existing Softball Field and bleachers adjacent to the East of existing Restroom Building 5932. These facilities will not be replaced. Reusable items will become the property of the Government and shall be delivered by the Design Build Contractor to a location as designated by the Contracting Officer.

A covered pavilion for a minimum of 50 people shall be priced as a separate bid option (Ref. Section 00010 BID SCHEDULE). The pavilion shall include 2 gas grilles, lighting, receptacles for vending machines, stereos, etc., a sunken ice chest compartment, and a drinking fountain.

Extend the existing outfield fences at the two existing softball fields north of the Gym and east of the site designated as the site of two future 96 person dormitories to a height equivalent to 300 ft. as measured at the foul lines from home plate.

3.1.13 Landscaping

Preserve and protect existing landscaping and repair and/or restore disturbed areas to their original condition by either Bermuda seeding or hydro-mulch. Seed or hydro-mulch all areas within 50 ft. of the perimeter of the new Track and at all drainage structures or swales. Maintain all seeded and hydro-mulched areas until an adequate stand of grass is achieved. Sod all areas within 10 ft. of new buildings with Bermuda. Seed or hydro-mulch at new Football/ Track Field infield with Bermuda.

3.1.14 Fencing

Provide a wood fence high enough to cover exterior mechanical systems, transformer, gas regulators; provide a chain link fence on the east side of the relocated Football/Track field which shall tie into the existing remaining softball field and horse area.

3.2 ARCHITECTURAL

3.2.1 Architectural Style

The Base Architectural Compatibility Plan provides standards for the design of any facility on base. Since this project is located among existing dorms, it is important to note that the

compatibility standards have already been somewhat defined by the completion of previously renovated dorms.

Base architectural compatibility shall be maintained for exterior architectural features.

The design of this dormitory will set a standard for future new dormitories built in this area. Therefore, it is important that this design present the best possible exterior facade. The exterior finish color shall match that of Buildings 5902 and 5910 including windows, doors, exterior stair railings and scoring of the exterior insulation and finish system. “Compatibility” does not require an exact “match” of existing facilities or preclude the use of improved architectural detailing. Offerors shall specifically consider the USAF "New Vision 2000" standard in developing suite layouts.

3.2.2 Roofing

Four-ply built-up roof with a gravel surface. Provide a 20-year warranty. Discretionary use of standing seam metal roofing will be allowed in some areas to create visual interest or accents.

3.2.3 Exterior Doors

Insulated hollow core metal with metal frames. Egress doors from common spaces at the first floor shall be equipped with panic hardware..

3.2.4 Space Requirements

Space requirements shall be in accordance with the Facility Design Guide. Requirements provided herein are supplemental only to the Design Guide.

The design used on Dormitories 5910 and 5902 shall be reviewed and consideration given to the use of similar designs. The following listing shows the spaces to be included and supplemental requirements. Areas shown are in net square meters unless otherwise stated.

Private living/sleeping	Provide wide-angle peep-hole and security chains at entry door; master-keyed deadbolt lock, thumb latch from inside and key operable outside, door does not lock automatically when closed; soil walk-off area at entry door. Provide indirect lighting with dimmer switch similar to existing dorms (Peerless, EN1-010006-Q43-S039.)
Lavatory vanity areas	Provide framed 600 mm square (minimum) mirror above vanity. Provide water cutoff valves for bathroom vanity. Provide ceramic floor tile in vanity area.
Closets	Provide a separate closet for each sleeping area equipped with a hollow core wood door and wood frame, lockset, light switched from a wall switch outside the closet, minimum of one rod with shelf above.

Bathroom	Provide tub/shower combination with a chrome shower curtain rod and a shower curtain; exhaust shall be in accordance with USAF Engineering Technical Letter (ETL) 97-13. Provide heater with timer and water cutoff valves for toilets.
Kitchenette	Do not use pre-manufactured kitchen units. Provide pantry closet with at least two shelves. Provide space for 15 cubic ft. refrigerator in lieu of 11 cubic ft. specified in the Facility Design Guide. Provide 2 burner electric cooktops and a built-in convection oven/microwave. Provide a garbage disposal at each Kitchenette. Provide recirculating type vent hoods above range units. Maintain required distance from the top of the range unit to the bottom of the vent hood in accordance with applicable codes. As an optional bid item (ref. Section 00010, Bid Schedule), provide a built-in eating bar with wall storage cabinets above and base storage cabinets below. Design the coutertop to accommodate two people, and provide adequate knee space.
Laundry	Provide space, plumbing, and electrical rough-in for 12 washers and 16 dryers: (Government furnished and installed). Locate on ground floor; 2.3 sm per appliance. Provide clothes hanging rods. Provide horizontal mini-blinds at window openings.
Utility space	The utility space may be co-located with the laundry room
Janitor's closet	Provide a mop sink.
Circulation	Provide minimum 1500mm wide balconies; 2 of the balcony area counts towards the gross area of the facility.
Office 12.5 sm.	Provide recessed wall-mounted, lockable key storage box.
Visitor toilets	Provide one men and one women visitor toilets, 4.75 sm each; provide 1 wall-mounted water closet, lavatory, additional accessories shall include robe hook (mounted on door), mirror and shelf, liquid-type soap dispenser, and paper towel dispenser/disposer.
Game room	Provide lockable bulletin board with safety glass; provide Polymix wall coating finishes, or equal, including wainscot with chair rail; provide public phone alcove. The game room will be furnished with Government furnished pool tables and ping pong tables. Provide vertical blinds.
TV room 55 sm.	Provide dimmable flourescent lighting and window treatments to control glare. Provide electrical and cable TV

	outlets for each day room. TV's will be government furnished. Provide vertical blinds.
Supply storage room	23.2 sm.
Vending/break area	25 sm. Provide space and electrical/plumbing rough-in for two ice machines and four vending machines (Government furnished); a deep sink with gooseneck; counter with wall and base cabinet with room for three government furnished built-in microwave ovens (1.5 cu. ft., 1000 Watt).
Telephone Alcove	Provide chair rail and sisal wall covering on walls.

Grand Total = 4,750 gross square meters maximum.

Areas requiring fire extinguishers shall have recessed fire extinguisher cabinets.

Signage.

Sign Standards shall compliment or match the standard established for the existing dormitory complex. Interior signage shall conform to the Air Force Pamphlet 32-1097.

Finishes

Durability, maintainability and attractiveness of furnishings and finishes selected are of prime importance. Finishes selected for bedrooms should be light in color to give the appearance of spaciousness. Floor coverings must be durable and of commercial grade to withstand the amount of traffic prevalent especially in common-use areas. Fabrics selected shall be flame retardant.

Provide carpet and painted walls coating in bedrooms. Provide black-out drapes and horizontal mini-blinds in private rooms. Provide blinds in common areas, except as otherwise noted..

A Comprehensive Interior Design (CID) shall be developed for the entire facility. Color boards shall be prepared illustrating interior and exterior finish material. Color board submittals shall be as specified in Section 01300. The CID shall include a complete layout of furnishings, decorations, and accessories. Furnishings will be by the Government. The Color Schedule attached at the end of this section is intended to be a guide only. It represents materials, patterns, and colors which are currently used on other base projects and are preferred but not

mandatory. Materials, patterns, and colors of equal products from other manufacturers will be considered.

3.3 STRUCTURAL SYSTEM

3.3.1 General Design Requirements

Structural design requirements, including load assumptions, shall comply with TM5-809, Chapters 1 through 6 and 8 through 11, and MIL-HDBK-1191, including Appendix "A". Wind loads shall be based on pressures resulting from Exposure "C" conditions. Seismic loads shall be determined in accordance with TM5-809-10, "Seismic Design for Buildings".

3.3.2 Design Loads

The American Society of Civil Engineers Minimum Design Loads for Building and Other Structures (ASCE Standard 7) shall be used to determine all design loads, including dead, live, soil, hydrostatic, wind, snow, rain, seismic and ice loading.

3.3.3 Foundation System

Foundation system and superstructure shall be as designed by the Design Build Contractor and approved by the Government. Foundation system shall be adequately designed to support the loads imposed by the building and with due consideration given to soil and subgrade conditions (Ref. Appendix G for foundation engineering criteria). A formal Foundation and Paving Recommendations report must be presented to the Government and approved prior to authorization to proceed to the Build Phase.

3.3.4 Concrete and Reinforcing

All concrete shall be Class A and have a specified minimum compressive strength of 3000 psi at 28 days. Reinforcing steel shall conform to the requirements of ASTM A 615, or A 617 grade 60. Welded wire fabric shall be in accordance with ASTM A815. Concrete cover over steel reinforcing shall conform to the minimum values required by the latest edition of ACI 318. Reinforcing shall be placed 38mm from top of slabs unless otherwise noted.

3.3.5 Structural Steel

Design shall be in accordance with the latest edition of the AISC Manual of Steel Construction. All structural steel shall conform to ASTM A-36 unless otherwise noted. Structural steel tubing shall be ASTM A500 Gr.B. Painting of steel shall conform to Steel Structures Painting Council (SSPC) and paint shall be SSPC Paint 25 (without lead and chromate pigments).

3.3.6 Welding

All welding shall be done in accordance with the latest AWS D1.1 code.

3.3.7 Other Structural System

Requirements notes above do not preclude the use of other foundation systems or the use of a reinforced concrete structural system. Paint exposed metal soffits to match Exterior Insulate Finish system (EIFS). Unpainted exposed concrete soffits are acceptable.

3.4 MECHANICAL SYSTEMS

3.4.1 General Requirements

a. Provide a Computerized Energy System Analysis (CESA) which will include a complete energy budget analysis and applicable mechanical systems life cycle cost analyses. Requirements for Life Cycle and energy budget analyses are given in AF ETL 94-4. The CESA shall be submitted for approval as part of the first design submittal, Design Phase, Part I.

b. Adequate access for service and maintenance shall be provide for pumps, controls, waste cleanouts, piping isolation valves, fire dampers, balancing dampers, fan coil units and filters. Fire rated access doors shall be provided where necessary to comply with NFPA codes. All fire dampers and fire damper access doors shall be shown on the facility design drawings. HVAC and domestic water systems flow measurement devices shall be calibrated balancing valves with flow measurement taps. Provide flow measuring device and balancing valve at each pump outlet and each floor main piping branch.

c. Outside air temperature reset control shall be provided for space heating supply hot water. Reset shall vary the heating hot water supply temperature from minimum at 15.56 degrees C to maximum at the design outdoor dry bulb temperature. Reset shall be accomplished using a 3-way valve to mix constant temperature boiler water (min. of 82.2 degrees C) with heating return water to meet the required heating supply water temperature as set by the hot water reset electronic controller.

d. Chilled water and hot water shall be circulated using separate close-coupled centrifugal pumps. Pump motors shall operate at a maximum of 1750 RPM and shall be non-overloading with a minimum service factor of 1.15. Pump shaft seals shall be of the type required by Tinker AFB BCE as given to the Contractor by the COR. Hydronic water circulation may be either constant with 3-way valves at the room fan coil units (FCU) or variable speed or staged with multiple pump and 2-way valves at the fan coil unit coils. If 3-way valves are used, HVAC coils shall be bypassed by the FCU controls when the space is temperature satisfied. Pump minimum efficiencies shall be 60%. If stage pumping is utilized, pressure bypasses or a minimum number of 3-way valves shall be provided to eliminate pump dead heading.

e. Provide temperature measurement wells at main supply and return circulating water connections. Provide flow measuring device of differential pressure type with valved pressure taps.

f. All mechanical and electrical equipment, piping and ductwork shall be vibration isolated as required by AFM 88-37. Design requirements from AFM 88-37 shall be shown on the design documents in tabular and note format.

g. Provide U-values of 0.10 for new exterior wall construction and 0.03 for new roof construction.

h. The Energy Use Budget (EUB) “allowable” number for this type of construction in weather region 11 is 57 x 10 seventh power joules/sq. meter/year with simulation operating hours of 16 hours/day and 7 days/week. Calculated DEU and TEU data shall be presented as required in AF ETL 94-4, except that all numbers and units shall be metric units. Specific analysis requirements of the Tulsa District Design Requirements for all Disciplines shall be met for the CESA energy budget analysis and the life cycle cost analysis.

i. Fan and coil units shall be vertical type located in closets with necessary ductwork to serve all living areas. No increase in overall square meter area in module plans is allowed.

j. Also, no mechanical system installed in this contract shall cause an RC level in occupied spaces exceeding recommended levels for the apartments or other spaces as listed in 1991 ASHRAE Application Handbook, Chapter 42.

k. If vertical HVAC chilled or hot water, multi-floor-piping risers are to be provided, provide accessible drain/blow-down valves at bottom of each piping riser. For piping system using mainly horizontal distribution mains, provide accessible drain/blow-down valves at the bottom of main and sub-main risers and any branch risers serving multiple fan coil units on more than one floor. Provide accessible isolation HVAC valves to allow isolation of individual floors for maintenance, piping drain down, etc.

3.4.2 Plumbing

a. Plumbing shall meet requirements of the latest edition of the National Standard Plumbing Code illustrated unless indicated otherwise.

b. The Base water supply pressure is 380 KPa.

c. Building water supply shall be tapped for potable water, both hot and cold and for equipment make-up water. Provide water softener system for building water supply. Provide reduced pressure backflow prevention assembly with isolation chamber drain pans and drain lines at 1 to 3 feet above finished floor where required to prevent cross contamination of backflow into the potable water. Direct fired or fire tube domestic water heaters are acceptable. They must meet all design requirements for Army ETL 1110-3-489 entitled Domestic Water Heater For barracks (attached hereto and hereby made a part of this RFP.)
d. Provide sanitary service from main tie-in to new semiprivate lavatory/bath/toilet areas complete with venting, cleanouts, and access as required.

3.4.3 Heating/Cooling

a. Space heating requirements and domestic hot water shall be provided by gas fired water boiler(s) located in the new dorm mechanical room.

b. Provide necessary pumps, controls, valves and piping, strainers, expansion tanks and supports to provide a closed loop, changeover, hot water supply for space heating. Provide isolation gate and balancing valves at each floor accessible through identified access panels. Provide insulated distribution piping using return system design. Provide flow measuring device

at each floor main branch. Provide chemical feed mechanism to maintain loop water quality. Copper piping shall be a minimum Type L.

c. Provide individual room fan coil units with heating and cooling coils supplied with water by a 4-pipe hydronic HVAC system. Fan coil HVAC coils shall be controlled by either 2 or 3-way electric solenoid valves as also described herein. Valves for heating shall be suitable for constant operation at temperatures of at least 104 degrees C. The 4-pipe (hot and chilled water) systems shall have accessible isolation valves at each floor and at each FCU. Each fan coil unit shall have its own strainer, air vent, calibrated balancing valves, etc. Water chiller shall control water based upon return water temperature using electronic digital controls with complete diagnostic readout at the unit. System controls, reset schedules, operating set-points shall be shown on the HVAC controls drawings and all balancing data shall be shown on the hot and chilled water hydronic flow diagram drawings. Drawings shall reflect actual control system. Generalized or topical coverage of intended control system is not acceptable. Controls design documents shall meet the documentation requirements of AF ETL 83-1. HVAC plant equipment (chilled water system, hot water system and domestic hot water) shall be controlled by multi-loop digital control systems. Fan coil unit controls shall be by low-voltage, wall thermostats with separate heating and cooling sensing and control circuits. The FCU thermostats shall also have sub-bases with off-auto switching as well as switching (3-speed) of FCU fan speed. When the space is satisfied the coils shall be by passed and the fan coil unit shall continue to run to provide outside air ventilation. Mechanical drawings, types, numbers of, etc. as required by the SWD-AEIM shall be provided at each required document review submittal level.

Each fan coil unit shall have ducted outside air to maintain continuous outside air ventilation with quantities as set by ASHRAE Standard 62, latest edition.

Provide one 4-pipe, fan coil unit per bedroom areas (one per occupant).

Fan coil units shall be of the bottom-mounted, vertical closet type. They shall be concealed in a closet mechanical space within each living module and shall be fully ducted for return from the kitchen space and supply to occupied spaces. Each unit shall supply air to its associated living/ bedroom space; additionally, one of the units shall supply air to the common kitchen space and the other unit shall supply air to any other common areas, such as the lavatory area(s). Supply air shall be distributed in occupied spaces via registers or diffusers, either device with face adjustable balancing damper. Return air from the kitchen space shall be taken in through a filter-holding return air grille which is fully accessible for maintenance. Ducted installation of fan coil units shall not produce mechanical system noise exceeding the RC levels listed in 19991 ASHRAE Application Handbook, Chapter 42, for Apartments, that is RC 30-35 (N).

The fan coil units shall have removable front panels to provide complete access to the coils and motor blower sections. The units shall come complete with discharge and return air (if necessary) duct flanges. The units shall have the manufacturer's standard anti-corrosion (paint or galvanized) coating. All access panels shall have captive fasteners. Access panel fasteners shall be quick removal, such as ¼-turn type with standard slotted heads which do not require special tools.

Each unit shall contain a direct drive fan and motor, heating hot water coil, chilled water coil, 25 millimeter throw away filters. Units shall have fully insulated, corrosion-proof primary and auxiliary drain pans each with condensate drain piping connections. Coil piping material shall be either copper or brass with aluminum straight (non-spine) fins. Motors shall be three-speed permanent split capacitor with sleeve-type bearings. Fan shall be forward curved, centrifugal wheels. Provide minimum of two isolation valves, calibrated balancing valves with flow measurement taps and strainer with pipe blow-down to condensate drainage system for each fan-coil unit. Unit shall be piped for easy isolation and piping drain down and disassembly for maintenance.

Unit cooling and heating capacities shall be certified to be in compliance with ARI standard 440 and unites shall list to meet UL safety standards.

Control valves shall be provided as a package by the fan-coil unit manufacturer.

3.4.4 Utility Distribution:

a. Hot water for space heating shall be obtained by means of gas fired local water boiler(s). Provide separate control for domestic and space heating needs. Provide expansion tanks, valves, controls and backflow preventers as required. Provide closed loop water treatment for the heating hot water system. The water treatment system must be the same as used by the current service contract for the remainder of the base.

b. Chilled water shall be obtained from new air cooled chillers. All utility connections except sanitary waste shall have properly sized and identified isolation valves at point of connection to existing lines of supply. Provide adequate clearances and access for fan coil units. Provide closed loop water treatment for the chilled water system. The water treatment system must be an ANCOOL 3720 closed loop chemical treatment system with chemical pipe feeders.

c. Provide 4-pipe system to fan coil units for heating and cooling purposes.

3.4.5 Ventilation

Provide ducted toilet exhaust from each toilet area. Ventilation/exhaust system shall be in accordance with ETL 97-13, Dormitory Ventilation and Exhaust System Design Criteria. Provide maintenance access to central exhaust fans and/or ventilators used. Provide ventilation fans as required to ducted toilet exhaust.

Control humidity and moisture in bathroom area; provide individual climate control in each living/sleeping area.

Provide a 4-pipe HVAC hydronic system to FCUs for space heating and cooling. Provide hydronic unit heaters for heating of all mechanical spaces. Provide electrical unit heater for heating of all electrical rooms and TV and communications closets (if heating is needed).

Comply with ETL 97-11

3.5 FIRE PROTECTION

A Monaco fire alarm system shall be used and tied into the base's alarm system. Fire suppression piping utilizing screwed joints shall be minimum schedule 40. FCI 72 or equal fire alarm panel and Monaco transceiver shall be located in the equipment room.

Smoke detectors with audible alarm (Pyrontrics DU #3 or equal) controlled by the fire alarm panel (24V). Fire alarm and detection system shall be in accordance with NFPA 72.
The Design Build Contractor shall provide a complete fire protection analysis for this project and shall be responsible for designing and executing all fire protection requirements as noted in MIL-HDBK 1008 and NFPA 101. MIL-HDBK 1008 also references portions of the Uniform Building Code (UBC) which shall apply as noted in the Handbook.

Fire alarm panel shall have modular cards that can be removed without disconnecting any wiring. Each zone shall have individual trouble and alarm lights.

The fire alarm system shall be either a Non-addressable (FCI 72 or equal) with Class A (4 wire) wiring or an Addressable (FCI 72 or equal) with Class B (2 wire) system. All connections shall be T-tapped. When one device is disabled it shall not affect the other devices further down the line.

3.6 ELECTRICAL

3.6.1 Exterior

Power service characteristics and location: The existing overhead distribution line is to remain in place. Provide and install new underground electrical service to the new dormitory. Tie into the existing overhead line at the pole located on the southwest corner of building 5930. The new underground feeder shall have one (1) 15 kV feed-thru switch and a pad-mounted transformer.

Installation of the pad-mounted transformer shall include a coordination study of the electrical distribution back to the substation. This study shall include all service entrances to facilities currently fed from the overhead distribution line. Any deficiencies shall be brought to the attention of the Contracting Officer.

All transformers (exterior and interior) shall have copper windings.

Existing utilities shall be extended from the existing overhead distribution line.

3.6.2 Interior Electrical:

Interior electrical distribution for the building shall have new feeders, panelboards, dry type transformers, branch circuits, and lighting systems. Transformers shall have copper windings and panelboards shall have copper busses.

All new conductors shall be copper with THHN or THWN insulation.

All work shall be specified to be done in accordance with the latest edition of the National Electric Code and Tinker AFB standards.

3.6.3 Lighting:

Special interior functional lighting requirements: New interior lighting levels shall be designed with the applicable ETLs described under Energy Conservation in the Base Facility Standard, Part II, Paragraph B,9.

Tabulation of lighting intensities and fixture types

Living/Sleeping Rooms (w/dimmer switches)	15 fc
Desk Tops in Living/Sleeping Areas	50 fc
Shared Kitchen	30 fc
Shared Bedroom	20 fc
Office	50 fc
Vending Room	30 fc
TV Room (w/dimmer switch)	30 fc
Game Room	30 fc
Meeting/Study Room (w/dimmer switch)	30 fc
Laundry	30 fc
Janitor Closet with Sink	10 fc
Janitor/Storage Rooms	10 fc
Mechanical Rooms	10 fc
Public Restrooms	20 fc
Entrance	20 fc
Stairways (Interior)	20 fc
Stairways (Exterior)	15 fc
Exterior Walkways	20 fc
Exterior Walls of Building	3 fc

Emergency lighting for both exit and egress shall be provided throughout the facilities. Egress lighting shall comply with ETL 94-5. Source of power for egress lighting shall be the local panelboard serving the general illumination for each covered area.

Lighting in bedrooms shall be wall-mounted, combination indirect/direct fluorescent fixtures. Overhead fluorescent or track lighting is not acceptable in bedrooms. Lighting in game rooms, recreational areas and lounges shall be recessed, 600 x 1200mm fluorescent with 4mm thick lenses along with dimple, recessed fluorescent can light fixtures. Lighting in closets shall be overhead and shall be operated by a 15 A, 120 V switch located beside closet.
Each bedroom shall have a minimum of 1 quadraplex outlet and 4 duplex outlets in each Living/Sleeping area. Mount and switch as required in the Facilities Design Guide, Appendix B, page 46.

Unique Lighting (exterior, interior : ambient & task lighting; fluorescent lighting in kitchen.

3.6.4 Grounding

Add ground fault circuit interrupts on all receptacles installed in bathroom and laundry areas. Exterior receptacles shall be water-proof and ground fault circuit interrupting.

A grounding bus, separate from the grounded (neutral) bus, shall be in all new panelboards.

All receptacles installed shall be of the grounding type.

A ground conductor shall be pulled in all branch circuits.

Provide 110AC, 20A duplex outlets in each electrical closet.

3.6.5 Metering

Metering exists on each main service panel. Metering, instrument transformers and other utility systems shall be suitable for future connection via a pulsing device (or similar transducer) to a planned base energy monitoring and control system (EMCS). Meters shall include at a minimum Volts, Amps, KWH and power factor.

Power factor correcting capacitors shall be connected on the load side of the motor controller, for all motors 7.46 kW or larger.

Provide phase reversal and phase loss relays for each motor greater than 2.4 kW in size. Relay shall be integral part of starter which does not require a separate enclosure.

3.7 COMMUNICATIONS

3.7.1 Communications and Computer Systems

Communications equipment room/closet shall be provided on each floor. Closet dimensions inside shall be minimum 1200x1200x2400mm high and shall include 1200x1200x19mm plywood backboard securely attached to one wall.

3.7.2 Telephones

A complete telephone wiring system shall be installed within a telephone closet. Two outlets shall be provided for each sleeping room (approximately 144) as well as one for each office. Pay phones shall be provided for each floor. Telephone wiring shall be 4 conductor.

Provide cable TV system with outlets located in each sleeping room as well as Office and TV Lounge. Make arrangements with Local Cable TV supplier to furnish Cable TV to the building and pay all cost associated with initial installation of cable TV exclusive of the regular cable TV service costs.

Provide one dedicated communication/data connection in each living/bedroom area.

3.7.3 Outside plant manhole/duct system

Communications will require two 100mm (5") PVC conduits encased in a concrete ductbank from the nearest manhole as designated by the Communications Squadron to the inside of the building stubbed up in the ground floor Elec/Telephone Room. Conduits shall be buried a minimum of 450mm deep and shall be stubbed up approximately 450mm above finish floor. Provide a 1200mm X 2500 mm X 19mm sheet of plywood attached horizontally to the one wall of the Telephone Room at a height from finished floor of approximately 600mm. Install 2 quadraplex 110VAC outlets within 300mm of the plywood backboard (1 each side.)

Existing telephone lines are overhead and will be placed underground by the Telephone Company when the overhead power service is replaced by underground service as required by this RFP. Provide and install an underground conduit system as described above and a manhole system for the Government to install telephone cables to the new facilities. Existing communications lines on telephone poles shall not be removed until after the Government has installed the new communication cables in the contractor furnished underground duct. Each facility shall have 2 conduits for the service entrance.

3.7.4 Communication Requirements for New Buildings:

Inside building should be wired to industry standards with category 5 (4 pair) wire in steel conduit to accommodate data and telephone service.

3.8 COMMISSIONING

All equipment and mechanical and process system shall undergo a complete commissioning process to verify all building systems are integrated and in proper operating condition.

End of Section

COLOR SCHEDULE*
Construct New 144 Person Dormitory
Project No. 003002

Floor Materials

Mark	Mfg/Pattern	Product	Color No.	Color Name	Remarks
AA	Bigelow Carpets / Saratoga	Broadloom Carpet	298	Savanna	
AB	Armstrong / Premium Excelon	Vinyl Composition Tile	52506	Rodeo Fawn	Vending, Closets, Telephone Areas, Entries, Kitchens, Lobby.
AC	Dal Tile / Keystones	Unglazed Ceramic Mosaic Floor Tile	DK-440	Honey	2" x 2" Field, Women/Men Restrooms
AD	Dal Tile / Keystones	Unglazed Ceramic Mosaic Floor Tile	DK-49	Midnight Blue	2" x 2" Accent, Women/Men Restrooms
AE	Dal Tile / Porcelana	Porcelain Pavers	TK03	Sabbia	12" x 12", Laundry Room
AF	Roppe	Rubber Treads	240	Fawn	Abrasive Strip - Black

Base Materials

Mark	Mfg/Pattern	Product	Color No.	Color Name	Remarks
BA	Roppe	4" Rubber Base	30	Buckskin	Cove A-3401 4-14" x 4-1/4"
BB	Dal Tile / Semi-Gloss	Ceramic Base	K-180	Chamois	

Wall Materials

Mark	Mfg/Pattern	Product	Color No.	Color Name	Remarks
CA	Bigelow Carpets / Saratoga	Paint	298	Savanna	All painted wall surfaces.
CB	Dal Tile / Semi-Gloss	Glazed Ceramic Wall Tile	K-180	Chamois	4-1/4” x 4-1/4" Field
CC	Dal Tile / Semi-Gloss	Glazed Ceramic Wall Tile	K-189	Navy	4-1/4” x 4-1/4" Field
CD	Design Materials / No Flame	Sisal	3201	X	Telephone Alcoves, Floor to Ceiling
CE		Exterior Insulating Finishing System			Paint to match adjacent dormitory bldgs

Ceiling Materials

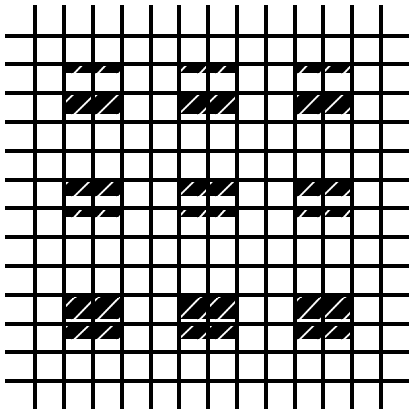
Mark	Mfg/Pattern	Product	Color No.	Color Name	Remarks
DA	Sherwin Williams	Refer to paint spsec 09900	1004	Pure White	
DB	USG / Auratone Pebbled Ceilings Shadowline Tapered	Acoustical Ceiling Tile	4806	White	24" x 48" x 5/8"

*Equal materials, patterns, and colors of other manufacturers will be acceptable.

COLOR SCHEDULE
Construct New 144 Person Dormitory
Project No. 003002

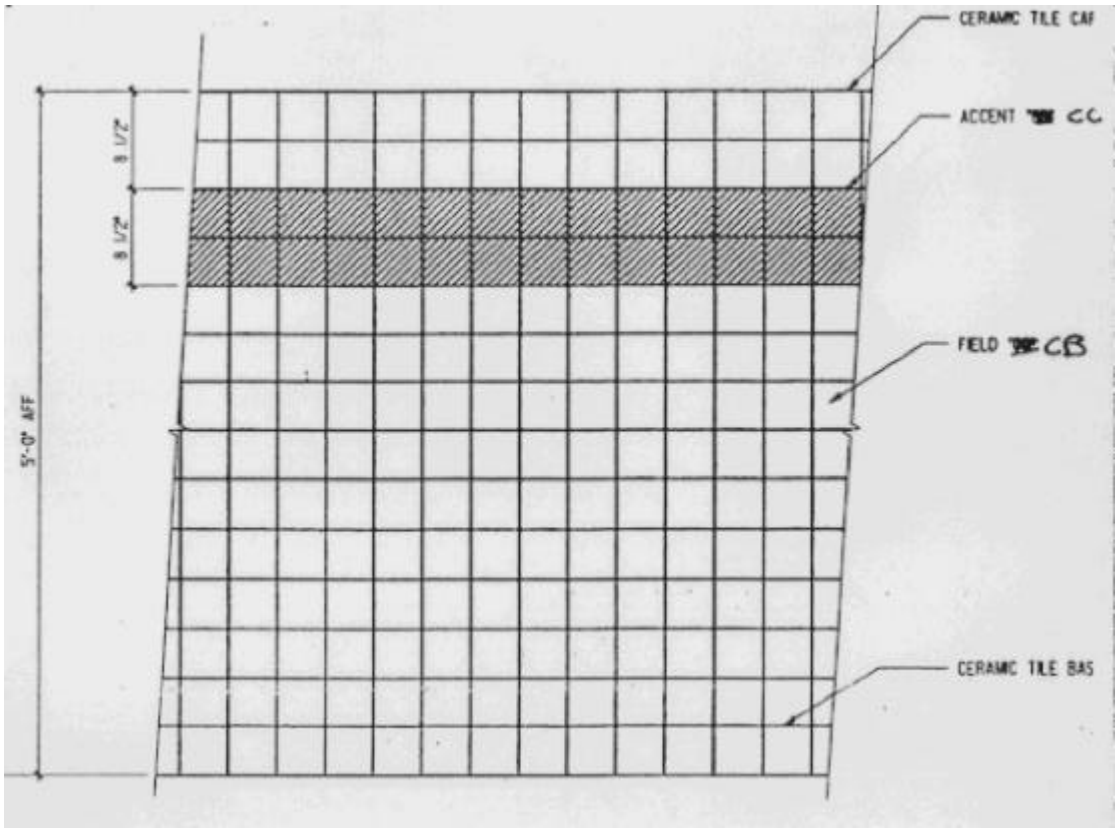
Color Schedule Notes

1. Interior hollow metal doors, frames, and window frames shall be painted to match Sherwin Williams 1118 Fringed Jacket.
2. Horizontal mini-blinds shall match Bali-Graber 112 Alabaster.
3. Interior closet doors shall be painted to match Sherwin Williams 1118 Fringed Jacket.
4. Preformed shower stalls in living units shall be Praxis Industries Aquarius, Color Bone.
5. Interior wood doors and cabinetry shall be finished with a clear stain.
6. Plastic laminate vanities and kitchen countertops shall match Wilsonart 4143-60 Neutral Glace.
7. Grout for ceramic wall and floor tile shall be C-Cure 30 Sandstone.
8. Corner guards and chair rails shall match Acrovyn 102 Desert Sand.
9. Walls outside of preformed showers in bathrooms in living units shall have a 4'-0" ceramic wall tile wainscot, color shall be CB with painted gypsum board above to ceiling, color CA. Flooring shall be 2" x 2" ceramic mosaic tile, color AC.
10. Refer to drawings below for tile layout in Women/Men/Laundry Rooms.



CERAMIC FLOOR TILE PATTERN

CERAMIC WALL TILE PATTERN

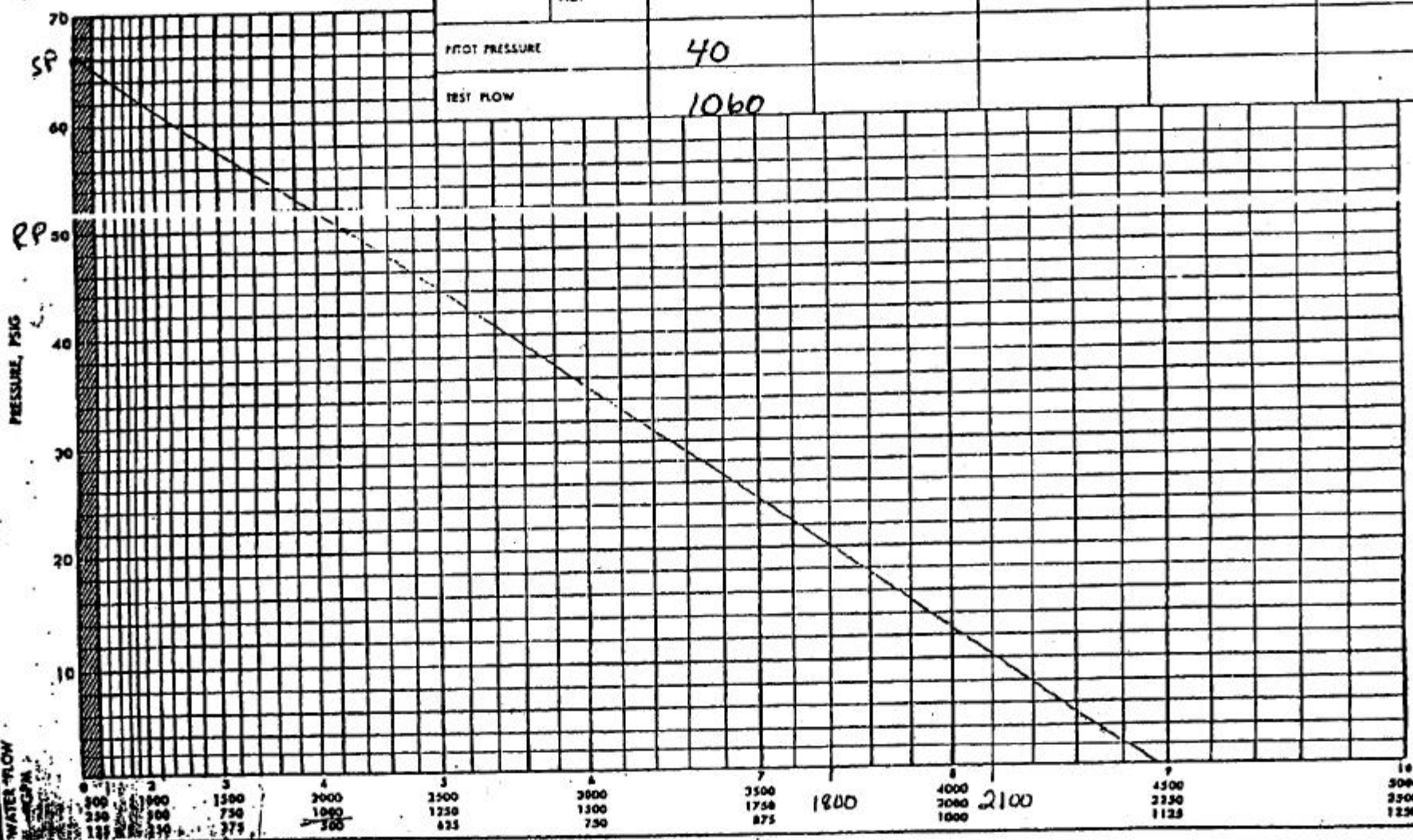


WATER FLOW TEST RECORD

(See sketch and procedure on reverse)

LOCATION Bldg 5910
Arnold & Doolittle

DATE 27 June 97		Test				
STATIC PRESSURE		66				
RESIDUAL PRESSURE		56				
OUTLET	SIZE	2.5"				
	NO.					
PITOT PRESSURE		40				
TEST FLOW		1060				



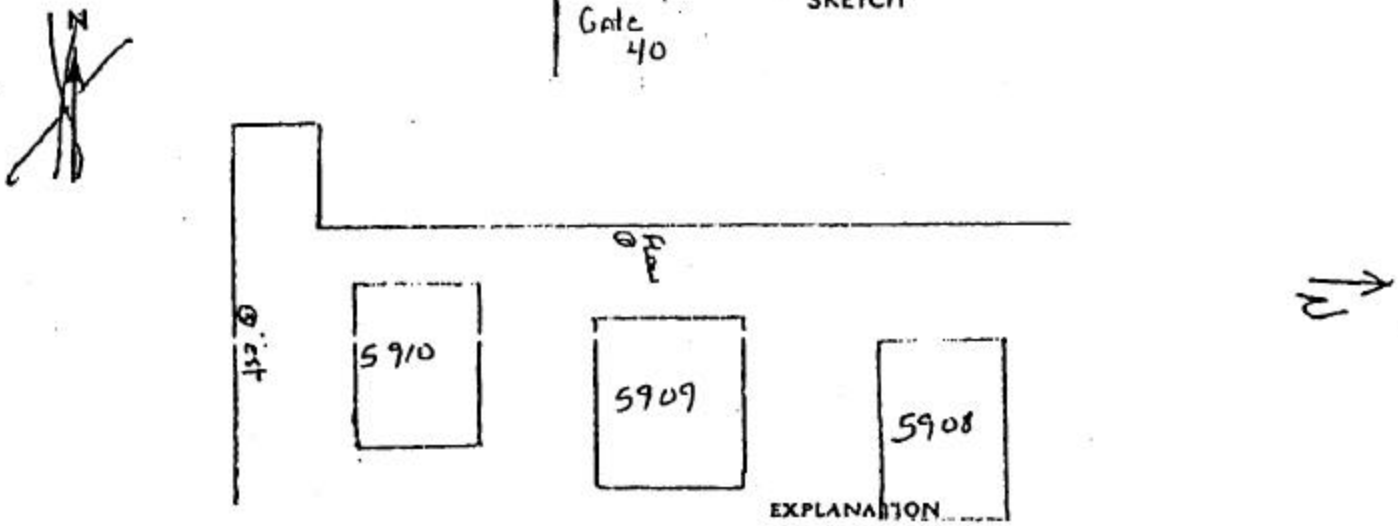
AF FORM 1027 PREVIOUS EDITIONS OF THIS FORM WILL BE USED UNTIL STOCK IS EXHAUSTED.

FLOW HYDT(S) _____

TEST POINT _____

DATE	22 June 92				
AVAIL @ 20	1800				
AVAIL @ 10	2100				

SKETCH



EXPLANATION

The water flow chart on the opposite side of this sheet is a semilogarithmic scale that has been developed to simplify the process of determining available water in an area. The chart is accurate to a reasonable degree, if one uses a fine point pencil or pen when plotting results. The figures on the vertical and/or horizontal scales may be multiplied or divided by any constant, as may be necessary to fit any problem. For example, if a static pressure is recorded that exceeds 75 psig the vertical pressure scale can be changed to read 10, 20, 30 and up to 150 psig. Also, if a total discharge during a test was less than 1,000 gpm, it would be exceedingly difficult to use the top scale on the horizontal water flow. When flows of low volume exist, the lower or middle scale should be used.

PROCEDURE

1. Determine which scale should be used.
2. Plot the total discharge during test on the chart.
3. Plot the residual pressure during test on the chart.
4. Make a point where these two lines intersect.
5. Plot the static pressure on the vertical scale.
6. Draw a straight line from the static pressure point through the residual pressure point to the water flow scale.
7. Read the GPM available flow at 10 psig and record. (This reading represents the total available water if pressure losses in the fire hydrant, the hydrant branch, and the pump suction hose are disregarded. The 10 psig residual pressure is required by AFM 85-13, Maintenance and Operation of Water Plants and Systems, when rating Air Force water systems.)
8. Read the GPM available flow at 20 psig and record. (This reading represents the total available water that can be relied upon. The 20 psig residual pressure is required by the National Board of Fire Underwriters when rating water systems.)

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

CEMP-ET

ETL 1110-3-489

Technical Letter
No. 1110-3-489

3 April 1998

Engineering and Design
DOMESTIC WATER HEATERS FOR BARRACKS

Distribution Restriction Statement

Approved for public release; distribution is unlimited.

U.S. Army Corps of Engineers
Washington, D.C. 20314-1000

Technical Letter
No. 1110-3-489 3 April 1998

Engineering and Design
DOMESTIC WATER HEATERS FOR BARRACKS

1. Purpose. This letter provides basic design guidance for the sizing of domestic water heaters for barracks buildings.

2. Applicability. This letter applies to all HQUSACE elements and USACE Commands having military construction and design responsibility.

3. Reference. None

4. Distribution. Approved for public release; distribution is unlimited.

5. Background. There have been questions regarding the sizing for domestic water heaters for barracks. Designers have often used ASHRAE design criteria for motels or dormitories with some over sizing. However the peak demand for domestic hot water in barracks is significantly larger than motels or dormitories due to the concentrated shower pattern of the occupants. This ETL provides a uniform approach to determine domestic water heating requirements for barracks.

6. Guidance.

(a) General

(1) As with any domestic water heating system, storage tank temperature should be maintained at a minimum of 60°C (140°F) to reduce the potential for Legionella Pneumophila (Legionnaire's Disease). Note that higher storage temperatures will result in a lower recovery rate to satisfy the peak demand. Include a cross connection with a mixing valve between the domestic water supply and hot water supply lines (leaving the storage tank) to limit the temperature of water distributed to plumbing fixtures to 43°C (110°F). Require a strainer upstream of the thermostatic mixing valve on both the hot and cold water connections to protect the small orifice in the mixing valve from debris that may be in either line.

(2) If a backflow preventer is installed in the domestic water main entering a building or in the line supplying the domestic hot water system, include provisions to accommodate thermal expansion. In barracks this can be critical as occupants often shower at the same time and after this peak usage event, the hot water loop will be at a relatively low

temperature. During the subsequent recovery phase the water temperature will rise causing the water to expand. If little hot water is being used, this expansion will cause a pressure increase that may activate a relief valve or rupture the storage tank.
The best method to alleviate this excess pressure is to install an expansion tank, sized in accordance with Chapter 12 of the 1996 ASHRAE Systems and Equipment handbook.

(3) Normally if a central energy plant is available it will be life cycle cost effective (an analysis must be performed) to generate domestic hot water using distributed media as the heat source. If there is no central plant or if the plant does not operate during the non-heating season provide a separate domestic hot water source. If the site consists of several barracks buildings, evaluate the life cycle cost of these alternatives:

(a) A single boiler to provide low temperature hot water, 94°C (200°F) to heat exchangers in each barracks for domestic hot water generation.

(b) A single heating source for domestic hot water in each individual barracks separately.

If the barracks building is not part of a building complex and there is no central plant or distribution system available then a single heating source must be provided.

b. Calculations: The following information applies to all types of domestic water heating systems for barracks.

(1) Peak Demand: Design for the case where all occupants are taking showers at essentially the same time. Public law limits the maximum flow from of each shower head and lavatory faucet to 0.16 Lps (2.5 gpm). It is assumed during peak demand that the shower requires 7.5 minutes and the lavatory requires 2 minutes of full hot water flow. As a result, the peak domestic hot water demand can be found using equation (1) below:

$$\underline{V_p = (h)(occ)(P)\left(\frac{T_d}{T_s}\right)} \qquad (1)$$

where:

V_p = volume of domestic hot water required at peak, L (gal).
h = number of shower heads, ea.
occ = number of occupants using each shower, ea.
T_d = temperature of water delivered to shower valve = 43°C (110°F)
T_s = temperature of water in storage tank, degrees C (degrees F)
P = amount of water used per occupant during peak demand, 90 L/occupant (23.75 gal/occupant)

Note that there is no diversity in the number of occupants in the building. The peak volume of domestic hot water is calculated assuming 100% building occupancy. Also note that equation (1) does not take laundry or dining facilities into account. Add additional hot water requirements if laundry or dining facilities will be requiring hot water during the peak demand period.

(2) Tank Size: Once the peak demand is known, the tank capacity and corresponding recovery rate can be determined. Since space in the mechanical room is frequently limited, select the desired tank capacity first. An initial estimate of tank size can be determined by using 50 L per occupant (12.5 gal per occupant). Normally a selection of 50 L (12.5 gal) will provide acceptable operation at a reasonable cost but it should be noted that other factors including larger tank sizes and higher storage temperatures will reduce amount of recovery required. Larger tank sizes and increased storage temperatures will also result in greater heat loss from the storage tank. Compare selected tank size to standard tank capacities available commercially and with the space available in the mechanical room.

(3) Recovery Rate: Once the tank capacity is known, the recovery rate can be calculated. The recovery rate is the quantity of water to be heated from the inlet temperature to the desired storage temperature. The difference between the inlet water temperature and the water storage temperature is often assumed to be 55°C (100°F). However, this temperature difference should be coordinated with local conditions and revised as necessary. Equation (2) below is used to determine the required recovery rate:

$$R = \frac{V_p - (M\ S_t)}{d} \qquad (2)$$

where:

R = recovery rate at the required temperature, Lps, (gph).
M = ratio of usable water to storage tank capacity (60 - 80%)
S_t = storage tank capacity, L (gal).
d = duration of the peak, (seconds) = $\frac{9.5\ \text{min}}{occupant}\ occ\ \frac{60\ \text{sec}}{\text{min}}$ (SI)

d = duration of the peak, (hours) = $\frac{\frac{9.5\ \text{min}}{occupant}\ occ}{60\frac{\text{min}}{hr}}$ (IP)

The duration is calculated assuming that the peak usage period will be 9.5 minutes per occupant. Therefore, if two occupants share a bathroom the duration is 19 minutes, 3 occupants would be 28.5 minutes, etc.

Note that the recovery rate is an output condition. Insure that manufacturer's data, submitted for the hot water generation unit, indicates that sufficient input capacity to satisfy the recovery rate with actual inlet water and storage temperatures will be provided.

(4) Pipe Sizes: The next component to be sized in the system is the domestic hot water distribution piping. Appendix A of the 1997 National Standard Plumbing Code, Chapter 45 of the 1995 ASHRAE Applications Handbook and Chapter 33 of the 1997 ASHRAE Fundamentals Handbook provide an ample set of resources on this topic. Therefore, this letter will not discuss this process.

(5) Domestic Hot Water Circulation Pump: After the domestic hot water distribution piping has been sized, the domestic hot water circulation pump can be sized. This pump is used to circulate the domestic hot water through the distribution piping system. Size the pump using equation (3) below:

$$Q_p = \frac{q}{c\ r\ c_p\ \Delta T} \tag{3}$$

where:

Q_p = pump capacity, Lps (gpm)
q = heat loss in the piping system, kW (BTUH)
c = constant, $1\frac{kW \cdot \sec}{kJ}$ $(60\frac{\min}{hr})$
ρ = density of water, $0.9971\frac{kg}{L}$ $(8.33\frac{lb}{gal})$
c_p = specific heat of water, $4.18\frac{kJ}{kg \cdot K}$ $(1\frac{BTU}{lb \cdot °F})$
ΔT = allowable temperature drop through the system, K (°F)

Equation (3) can be simplified to :

$$Q_p = \frac{q}{4.1679\left(\frac{kW \cdot \sec}{L \cdot K}\right)\Delta T} \tag{4 - SI}$$

$$Q_p = \frac{q}{500\left(\frac{BTUH}{gpm \cdot °F}\right)\Delta T} \tag{4-IP}$$

Heat loss in the piping system (q) can be calculated using Table 2 in Chapter 45 of the 1995 ASHRAE Applications Handbook. However, a common rule of thumb is 0.032 kW/m (30 BTUH/ft.).

The allowable temperature drop through the piping system (ΔT) is usually 2 to 5K (5 to 10°F). It is recommended to use 2K (5°F) to assure that sufficient hot water is provided for all occupants under peak conditions. If the temperature drop through the piping system will result in a temperature less than 40°C (105°F) at the most remote

fixture, require the supply water temperature leaving the mixing valve to be above 43°C (110°F) and revise the storage tank and recovery capacities accordingly.

c. Systems using a separate hot water generation unit and storage tank: The following information applies to systems using a separate storage tank and forced circulation type water heater, boiler or heat exchanger to generate and store domestic hot water. A forced circulation type water heater is similar to a boiler in that it is designed to heat domestic water as it passes through a series of coils rather than heating water in a storage tank but is designed for generating domestic hot water only.

(1) Locate the storage tank and hot water generation unit in the same mechanical room whenever possible. This keeps the head requirements at a minimum for the pump circulating water between the hot water generation unit and the storage tank.

(2) Require the domestic water supply be connected in the line supplying hot water to the storage tank. This allows the cold water to mix with the warmer water in the storage tank before entering the boiler, minimizing problems associated with condensation and thermal stress and improving overall system efficiency. Require a submittal from the manufacturer addressing whether a thermostatically controlled bypass line between the boiler supply and return lines or other means are needed to preclude the possibility of thermal shock to the boiler.

(3) If a forced circulation type water heater or boiler is used, equation (3) again can be used to size the circulation pump between the heater and the storage tank. In this case limit the temperature differential to no greater than 16K (30°F) to minimize problems with condensation and thermal stress and improve overall system efficiency. Also note that the sizing of the circulation pump must account for the heating of the domestic cold water being provided. Therefore, the value of q required to use equation (3) is found with equation (5):

$$q = q_{pipe} + \left(R\ c\ r\ \ c_p\ \Delta T_t\right) \qquad (5)$$

where:

q_{pipe} = heat loss in the piping between the boiler and the storage tank, kW (BTUH)
ΔT_t = temperature difference between the tank water and the make-up water, K (°F)

Determine actual storage tank and domestic water supply temperatures based on local requirements. If the water in the tank is assumed to be 60°C (140°F) and the make-up water is 4°C (40°F, equation (5) can be simplified to:

$$q = q_{pipe} + \left(R \times 233.402\left(\frac{kW \cdot \sec}{L}\right)\right) \qquad (5\text{-SI})$$

$$q = q_{pipe} + \left(R \times 50{,}000 \left(\frac{BTUH}{gpm} \right) \right) \qquad \text{(5-IP)}$$

The new value of q can then be inserted into equation (3) to determine the required flow rate for the pump. Compare this flow rate with the minimum flow rates required for boiler or water heater operation and require the larger of the two values. Once the required flow rate is known, the pressure drop for the circulation pump can be determined. The resources listed in paragraph 6.b(4) (Pipe Sizes) give adequate information on calculating the pressure drop through the piping. However, several manufacturers should be contacted to determine the pressure drop through the water heater or boiler. This value will vary widely between different manufacturers. Therefore, the circulation pump should be sized to overcome the highest pressure drop. However, flow rates over or under those required by the boiler or water heater manufacturer can reduce the efficiency of the unit. As a result, the drawings should indicate the pump characteristics used for the design. Then add a note indicating that the pump is to be sized by the boiler or water heater manufacturer with the horsepower requirements not to exceed those listed in the schedule.

(4) If a heat exchanger is used, size the circulation pump based on the flow required for the heat exchanger to meet the recovery calculated in equation (3) and the heat lost through the piping.

d. Sample Computations:

(1) Given:

h = 36 shower heads
occ = 2 occupants per shower
T_d = 43°C (110°F)
T_s = 60°C (140°F)
M = 75% useable tank capacity
ΔT = 5K (9°F) Maximum temperature drop through distribution system.
ΔT_t = 54K (97°F)
Piping system consists of:
9 meters of 50 mm pipe
6 meters of 25 mm pipe
15 meters of 20 mm pipe
A separate tank and hot water boiler will be used.
q_{pipe} = 0.10 kW = 341.18 BTUH

(2) Find:

(a) Peak domestic hot water demand, L (gal).
(b) Storage tank size, L (gal).
(c) Recovery rate required given the tank size selected, Lps (gph).
(d) Flow rate required for domestic hot water circulation pump.
(e) Flow rate required for boiler circulation pump.

(3) Solution:

(a) Peak Domestic Hot Water Demand:

$$V_p = h\ occ\left(\frac{90}{occupant}\right)\left(\frac{T_d}{T_s}\right)$$

$$V_p = (36 heads)\left(\frac{2\ occupants}{head}\right)\left(\frac{90\ L}{occupant}\right)\left(\frac{43°\ C}{60°\ C}\right)$$

$$Vp = 4644\ L\ (1227\ gal)$$

(b) Storage Tank Size:

$$S_t = (36\ heads)\left(\frac{2\ occupants}{head}\right)\left(\frac{50\ L}{occupant}\right)$$

$$S_t = 3{,}600\ L\ (951\ gal)$$

Use 2 tanks of 1893 L (500 gal) each to fit into the available space.

(c) Recovery Rate:

$$d = \left(\frac{9.5\,\text{min}}{occupant}\right)(2\ occupants)\left(\frac{60\ \text{sec}}{\text{min}}\right) = 1140\ \text{sec}\ (0.32\ hours)$$

$$R = \frac{4644\ L - (75\% \times 2\ each \times 1{,}893\ L)}{1140\ \text{sec}} = 1.58\ Lps\ (1505\ gph)$$

(d) Flow rate for circulation pump (heat loss through piping is 0.629 kW):

$$Qp = \frac{0.629\ kW}{\left(4.1679\ \frac{kW \cdot \text{sec}}{L \cdot K}\right)5K} = 0.0302\ Lps\ (0.48\ gpm)$$

(e) Flow rate for boiler circulation pump:

$$q = qpipe + \left(R \times 233.402 \frac{kW \cdot \sec}{L} \right)$$

$$q = 0.1\ kW + \left(1.58 \frac{L}{\sec} \times 233.402 \frac{kW \cdot \sec}{L} \right) = 368.875 kW$$

$$Qp = \frac{368.875\ kW}{4.1679 \frac{kW \cdot \sec}{L \cdot K} \times 16\ K} = 5.53\ Lps\ (87.6\ gpm)$$

7. Action. The guidance included in this technical letter will be used for the planning, design and construction of new and renovated facilities.

8. Implementation. This letter will have routine application, as defined in paragraph 8c, ER 1110-345-100.

FOR THE COMMANDER:

KISUK CHEUNG, P.E.
Chief, Engineering and
Construction Division
Directorate of Military Programs

SECTION 01040

COORDINATION, FIELD ENGINEERING, AND MEETINGS

PART 1 GENERAL

1.1 UTILITY OUTAGE COORDINATION

1.1.1 Approval

The Contractor shall obtain written permission/approval from the Contracting Officer 21 days prior to:

(1) Performing any work which will close any runway or street or interrupt any utility service.

(2) Making any excavation: Any damage to underground utilities, communication lines, etc, will be the responsibility of the Contractor if the approval is not obtained.

(3) Utility outages: The proposed outage request shall indicate the proposed work and length of outage.

1.1.2 Government Right to Delay

The Government reserves the right to postpone for 7 days, any scheduled outages. There shall be no outages when the outside temperature is expected to be below \~35 degrees F ~\\^2 degrees C^\.

1.1.3 Government Performance

Government personnel shall perform all shutting off and turning on of valves and switches necessary to accomplish scheduled outage.

1.2 QUANTITY SURVEYS (APR 1984) (FAR 52.236-16)

1.2.1 General

Quantity surveys shall be conducted, and the data derived from these surveys shall be used in computing the quantities of work performed and the actual construction completed and in place.

1.2.2 Conducting Surveys and Computations

The Contractor shall conduct the original and final surveys and surveys for any periods for which progress payments are requested. All these surveys shall be conducted under the direction of a representative of the Contracting Officer, unless the Contracting Officer waives this requirement in a specific instance. The Government shall make such computations as are necessary to determine the quantities of work performed or finally in place. The Contractor shall make the computations based on the surveys for any periods for which progress payments are requested.

1.2.3 Submittals

Promptly upon completing a survey, the Contractor shall furnish the

originals of all field notes and all other records relating to the survey or to the layout of the work to the Contracting Officer, who shall use them as necessary to determine the amount of progress payments. The Contractor shall retain copies of all such material furnished to the Contracting Officer.

1.3 LAYOUT OF WORK (APR 1984) (FAR 52.236-17)

The Contractor shall lay out his work from Government-established base lines and bench marks indicated on the drawings 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, and 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 his 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.

1.4 OTHER CONTRACTORS

(Reference CONTRACT CLAUSE entitled "Other Contracts.") Other Contractors may be working in the project area during construction under this contract. The Contractor shall arrange and perform his work and store his materials in cooperation with other Contractors and as directed by the Contracting Officer.

1.5 MONUMENT REPLACEMENT

1.5.1 General

Government-established horizontal and vertical control monuments that are shown on the drawings, if destroyed shall be reestablished by the Contractor in locations as directed by the Contracting Officer. Control points set by the Contractor for the purpose of reestablishing the monuments and to properly control the work, if destroyed and not reset by the Contractor, shall be reestablished by the Government at the Contractor's expense. Survey shall be performed by a Registered Land Surveyor.

1.5.2 Horizontal Control

Horizontal control shall be based on the State Plane Coordinate System as developed by the National Geodetic Survey. Horizontal control shall originate and close on control points established by the Government.

1.5.3 Vertical Control

Elevations shall originate and close on vertical controls established by the Government. Third Order Accuracy or better shall be maintained for all vertical survey control. Vertical error shall be adjusted for all control markers established throughout each level loop. A transcript of all adjusted vertical marks set and adjusted horizontal marks set, shall be furnished on forms furnished by the Government. (SWD Form 598)

1.5.4 Survey Procedure

Standard ground survey methods necessary to obtain Third Order Accuracy standards shall be used. The standard \~4-3/4- by 7-1/2-inch~\ \^120 mm by 190 mm ^\hardback fieldbook shall be used. The party setup, weather conditions, and date shall be entered at the top of the page for each workday. The original notebook shall be turned in at the completion of the work and shall become the property of the Government.

1.5.5 Monuments

Concrete monuments shall be set as control monuments, where required. The monuments shall consist of \~6-inch ~\\^150 mm^\-diameter concrete posts of standard mix and a Government-furnished bronze disk flush with top, set at \~least 2.6 feet~\ \^780 mm ^\into solid ground and \~0.4 foot~\ \^120 mm ^\above the ground surface. A No. 4 18-inch reinforcing bar shall be cast in the top portion of the monument. Each monument shall be identified by stamping the bronze disk with steel dies, indicating thereon the name of the site and number of the monument. A Government-furnished galvanized U-channel rail steel delineator post, \~6.5 feet~\ \^1950 mm ^\in length with a USCE sign attached shall be set in concrete within 1 foot of each control monument. Markers which fall in roads or improved areas shall be either buried or a disk set flush in pavement, whichever may be appropriate to the situation. Control monuments shall be referenced by chain distance and angle to at least three objects, such as blazed trees, crosses in solid rock, or other physical features in the immediate vicinity.

1.6 ACCIDENT PREVENTION PREPLANNING (SWTCD)

In addition to the requirements of the CONTRACT CLAUSE entitled "Accident Prevention," the Contractor shall:

a. Meet with the Contracting Officer and/or his representative before each major phase of construction. The purpose of the meeting will be to identify the specific hazards that are associated with that phase of construction. The meeting will include the general Contractor's superintendent, Quality Control Inspector, and superintendent or foreman in charge of the operation whether performed by the general Contractor or subcontractor.

b. Identify at this meeting what construction methods and equipment will be used to protect the workmen against the hazards that are anticipated during that phase of construction. This plan, when agreed upon by the Contracting Officer and Contractor, will become a part of the Contractor's safety program.

c. Be responsible for insuring that all subcontractors are knowledgeable and follow the safety plan agreed upon by the Contractor and Contracting Officer.

1.7 ACCIDENT PREVENTION MANAGEMENT (JAN 1985 OCE)

a. Full-time, on-site, safety coverage shall provided by the Contractor.

b. The following conditions shall be met:

(1) The Contractor shall employ at the project site to cover all hours of work at least one Safety and Occupational Health person to manage the Contractor's accident program. Duties which are not germane to the safety program shall not be assigned to the Safety and Health person(s). The principal safety person shall report to and work directly for the

Contractor's on-site top manager, higher level official, or corporate safety office. The Safety and Health person(s) shall have the authority to take immediate steps to correct unsafe or unhealthful conditions. The presence of a Safety and Health person will not abrogate safety responsibilities of other personnel.

(2) Qualifications for Safety and Health person(s).

(a) Shall have a degree in engineering or safety in at least a four year program from an accredited school; or

(b) Shall have legal registration as a Professional Engineer or a Certified Safety Professional and, in addition, shall have been engaged in safety and occupational health for at least one year of experience, no time being credited to this one year unless at least fifty percent of the time was devoted to safety and occupational health; or

(c) Shall have a degree other than that specified in (a) above and, in addition, shall have been engaged in safety and occupational health for at least three years, no time being credited to these three years unless at least fifty percent of the time each year was devoted to safety and occupational health; or

(d) In lieu of a degree, shall have been engaged in safety and occupational health for at least five years, no time being credited to these five (5) years unless at least fifty percent of the time each year was devoted to safety and occupational health;

(e) First aid work is not a creditable experience.

(3) The name and qualifications of the nominated safety person(s) shall be furnished to the Contracting Officer for acceptability and a functional description of duties shall be provided prior to the pre-work conference.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

--End of Section--

-- End of Section --

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 require 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 Oklahoma 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 SWD Form 743-J "MONTHLY EXPOSURE REPORT OF OPERATIONS AND ACTIVITIES" which will be provided to the Contractor at the pre-construction conference.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

SECTION 01300

SUBMITTAL PROCEDURES

1 GENERAL

1.1 SHOP DRAWINGS

1.1.1 General

Shop drawings shall conform to requirements of CONTRACT CLAUSE entitled "Specifications and Drawings for Construction." The Contractor shall submit to the Contracting Officer for approval five copies of all shop drawings as called for under the various headings of these specifications. Three sets of all shop drawings will be retained by the Contracting Officer and one set will be returned to the Contractor. 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.

1.1.2 Review and Approval of Shop Drawings and Samples

The Contractor shall submit all items as required in the other sections of these specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work required. Units of weights and measures used on all submittals shall be the same used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each respective transmittal shall be stamped, signed, and dated by the CQC representative certifying that the accompanying submittal complies with the contract requirements.

1.1.3 Approval Stamp

Approval by the Contractor shall be accomplished by stamping shop drawings with a stamp with information similar to the following:

_____ Approved

_____ Approved with corrections as noted on submittal data and/or attached sheets(s).

SIGNATURE: _____

TITLE: _____

DATE: _____

1.2 TRANSMITTAL FORM (ENG FORM 4025)

Transmittal Form (ENG Form 4025) shall be used for submitting submittals in accordance with the instructions on the reverse side of the form. (See sample Form 4025 at the end of this section) These forms will be furnished to the Contractor as needed. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. The specification paragraph or sheet number of the contract drawings pertinent to the data submitted shall be provided for each item. All samples of materials submitted as required by these specifications shall be properly identified and labeled for ready identification, and upon being approved, stored at the site of the work for jobsite use until all work has been completed and accepted by the Contracting Officer.

All proposed deviations requested by the Contractor shall be noted in the "Remarks" column of the ENG Form 4025. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the shop drawing. The Government reserves the right to rescind inadvertent approval of shop drawings containing unnoted deviations.

1.3 SUBMITTAL REGISTER (ENG FORM 4288)

1.3.1 Preparation

A Submittal Register as shown at the end of this section shall list all items required by the specifications to be submitted to the Government. The list shall include shop drawings, tests, certificates, computations, and all other items specified to be submitted to the Contracting Officer except safety plans, quality control plans, environmental plans, and routine quality control tests. The listing shall give the page and paragraph number of the specifications for each item listed and the Contractor Scheduled Dates.

The technical specification sections shall be referenced for complete submittal requirements. The Contractor shall complete the form and return the completed form to the Contracting Officer for approval. The approved Submittal Register will become the scheduling document and will be used to control submittals throughout the life of the contract. This register and the progress schedules shall be coordinated.

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. All various types of submittals for each item (i.e. data, drawings, instructions, certifications, etc.) shall be submitted concurrently. Adequate time, but not less than 30 days, shall be allowed on the Submittal Register for review and approval by the Government of all submittals. Delays, damages, or time extensions will not be allowed for time lost due to late submittals.

1.3.2 Submittal and Maintenance of Submittal Register

1.3.2.1 Initial Submittal

The Submittal Register shall be submitted within 21 days after notice to proceed.

1.3.2.2 Register Maintenance

The Contractor shall maintain the Submittal Register listing all submittals as the items are submitted. Listings shall be grouped by section number and listed in numerical sequence of the Transmittal Number shown on Form 4025. When the project is 90 percent complete, the up-to-date, typed Form shall be submitted to the Contracting Officer for review to assure that required submittals and resubmittals have been noted.

1.3.2.3 Final Submittal

Upon completion of the work the completed Submittal Register shall be submitted to the Contracting Officer.

1.4 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.4.1 Government Approved (GA)

Governmental approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings." Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Three copies of the submittal will be retained by the Contracting Officer and one copy of the submittal will be returned to the Contractor.

1.4.2 For Information Only (FIO)

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.5 APPROVED SUBMITTALS

The approval of submittals by the Contracting Officer shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be given consideration unless accompanied by an explanation as to why a substitution is necessary.

1.6 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies as specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, notice as required under the Contract Clause entitled "Changes" shall be given promptly to the Contracting Officer.

1.7 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

1.8 SUBMITTAL DESCRIPTIONS

The submittals described below are those required and further described in other sections of the specifications. Submittals required by the CONTRACT CLAUSES and other nontechnical parts of the contract are not included.

SD-01 Data

Submittals which provide calculations, descriptions, or documentation of 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.

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

Tabular lists showing location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the work.

SD-08 Statements

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 test methods used, test results, analysis and interpretation of test results.

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 identifies the date of the certificate, name of the project, and list of 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.

1.9 CONSTRUCTION COLOR BOARD (SWT-EC-DM, MILITARY DESIGN SECTION)

1.9.1 Description

Contractor shall prepare in binder format a series of construction color boards which illustrate by means of physical samples the materials and finishes that are integral to the exterior and interior finishes of the completed facility. These items include, but are not limited to: masonry, architectural concrete, metal panels, siding and roofing, interior and exterior trim, paints, wall coverings, floor coverings and base, ceiling materials, plastic laminates, casework, stained woodwork, toilet partition and accessory finishes, etc. Color board samples (especially of exterior finish materials) are not required to be of full size or thickness but must represent the full range of color, texture, and finish of the materials. Carpet samples shall not be less than 3" by 5" or larger if needed to indicate complete color and design.

1.9.2 Format

Material samples shall be mounted on 8 1/2" x 11" modules with the project title and name of the installation placed in the lower right corner of each module. Sample board modules shall consist of protection (mat) boards of sufficient strength and thickness to support and anchor samples. Large or heavy samples shall be anchored with mechanical fasteners or epoxy resin cement. "Rubber cement" or other contact adhesives shall not be used. 8- 1/2" x 11" boards shall be three-hole punched and placed in 3-ring binders. 8-1/2" x 11" boards may be securely taped together at edges to provide a "fold-out" display presentation provided overall dimensions of fold-out materials does not exceed 25-1/2" x 33". Each 3-ring binder shall be identified on its spine with the following information: project fiscal year, project title, contract number, installation name where project is to be built and date of submittal (month and year). Presentation shall be organized in a logical manner to facilitate an orderly and speedy review. Sample items and color names shall be identified with names that correspond to names shown on the project color and finish schedule. If not readily apparent from the color and finish schedule, the sample boards shall be annotated to reflect what areas or surfaces of the facility are to receive the finishes shown.

1.9.3 Submittal

Five complete sets of the construction color boards shall be submitted to the Contracting Officer for approval within 120 calendar days after Notice to Proceed. All other technical submittals regarding finish materials depicted on these boards (test reports, certifications, manufacturer's instructions or data sheets, etc.) as required by technical portions of this project specification, shall be submitted prior to or concurrent with the construction color boards.

1.9.4 Approval

Upon receipt by the Contracting Officer of all finish material submittals (technical submittal materials and construction color boards) a 30-day review period by the Government shall be allowed. No finish work involving any item included on the color board shall be started by the Contractor prior to the approval of the total construction color boards. After receipt of final approval by the Government, the Contractor shall mark each approved item on the color board with its appropriate technical submittal transmittal number, make any corrections, additions or deletions required by the Government and return the five sets of approved construction color boards to the Contracting Officer. Any Contractor proposed substitutions of materials following approval must be approved by the Government as coordinating visually with other approved items equally as well as the originally approved item.

1.10 WIRING AND CONTROL DIAGRAMS

The Contractor shall furnish one reproducible, unfolded copy of all wiring and control diagrams and approved system layout drawings with the operating instructions called for under the various headings of these specifications for mechanical and electrical systems.

1.11 EMCS, MECHANICAL EQUIPMENT, AND TEMPERATURE CONTROL SUBMITTAL COORDINATION

1.11.1 General

Submittals for temperature controls and mechanical equipment as specified in Division 15 and/or energy management control systems (EMCS) as specified in Division 13 shall be submitted in accordance with the procedure outlined below.

1.11.2 Procedure

Submittals shall be submitted as Groups with each group to include items scheduled below. All items in Group 3 shall be submitted together at the same time. All items in each group shall be submitted prior to submittal of any item in a subsequent package.

1.11.3 Approval

Items to be submitted which are required to receive Government Approval (GA) as specified in the specifications shall be approved prior to the submittal of any item in a subsequent group.

1.11.4 Group Descriptions

Submittals included in each group shall be for items listed in the following schedule:

GROUP 1

Control Valves Control Dampers Temperature control piping and other control\EMCS rough-in hardware VAV controllers (when not specified as a part of the VAV boxes)

GROUP 2

Mechanical equipment operated or associated with temperature controls and/or EMCS.

GROUP 3

Temperature controls and EMCS items including the following:

point-to-point wiring diagrams bills of materials sequences of operation (with reference to I/O summary for EMCS) hardware data sheets EMCS I/OS summaries, system schematics, installation details, and legend

Temperature controls shall be transmitted separate from the EMCS items.

1.11.5 Dual Function Items

Items which serve for both the temperature control systems and the EMCS system shall be submitted (and approved if GA) in accordance with the temperature control requirements. However, the appropriate corresponding EMCS information shall also be submitted for information only (FIO). This information shall be listed separately as "Supplemental Reference" on the Transmittal Form.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION (NOT APPLICABLE)

--End of Section--

SECTION 01310

CONTRACTOR PREPARED NETWORK ANALYSIS SYSTEM (NAS)

1 GENERAL

1.1 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 01300 SUBMITTAL PROCEDURES:

SD-07 Schedules

Initial Project Schedule; GA. Preliminary Project Schedule; GA. Periodic Schedule Updates; GA.

Three copies of the schedules showing codes, values, categories, numbers, items, etc., as required.

SD-08 Statements

Qualifications; GA.

Documentation showing qualifications of personnel preparing schedule reports.

SD-09 Reports

Narrative Report; GA. Schedule Reports; GA.

Three copies of the reports showing numbers, descriptions, dates, float, starts, finishes, durations, sequences, etc., as required.

1.2 QUALIFICATIONS

The Contractor shall designate an authorized representative who shall be responsible for the preparation of all required project schedule reports. This person shall have previously created and reviewed computerized schedules. Qualifications of this individual shall be submitted to the Contracting Officer for review with the Preliminary Project Schedule submission.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION

3.1 GENERAL

Pursuant to the Contract Clause, SCHEDULE FOR CONSTRUCTION

CONTRACTS a Project Schedule as described below shall be prepared. The scheduling of construction shall be the responsibility of the Contractor. Contractor management personnel shall actively participate in its development. Subcontractors and suppliers working on the project should also contribute in developing and maintaining an accurate Project Schedule. The approved Project Schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis of all progress payments.

3.2 BASIS FOR PAYMENT

The schedule shall be the basis for measuring Contractor progress. Lack of an approved schedule or scheduling personnel shall result in an inability of the Contracting Officer to evaluate Contractor progress for the purposes of payment. Failure of the Contractor to provide all information, as specified below, shall result in the disapproval of the entire Project Schedule submission and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes. In the case where Project Schedule revisions have been directed by the Contracting Officer and those revisions have not been included in the Project Schedule, then the Contracting Officer may hold retainage up to the maximum allowed by contract, each payment period, until revisions to the Project Schedule have been made.

3.3 PROJECT SCHEDULE

The computer software system utilized by the Contractor to produce the Project Schedule shall be capable of providing all requirements of this specification. Failure of the Contractor to meet the requirements of this specification shall result in the disapproval of the schedule. Manual methods used to produce any required information shall require approval by the Contracting Officer.

3.3.1 Use of the Critical Path Method

The Critical Path Method (CPM) of network calculation shall be used to generate the Project Schedule. The Contractor shall provide the Project Schedule in either the Precedence Diagram Method (PDM) or the Arrow Diagram Method (ADM).

3.3.2 Level of Detail Required

With the exception of the initial and preliminary schedule submission, the Project Schedule shall include an appropriate level of detail. Failure to develop or update the Project Schedule or provide data to the Contracting Officer at the appropriate level of detail, as specified by the Contracting Officer, shall result in the disapproval of the schedule. The

Contracting Officer will use, but is not limited to, the following conditions to determine the appropriate level of detail to be used in the Project Schedule.

3.3.2.1 Activity Durations

Contractor submissions shall be required to follow the direction of the Contracting Officer regarding reasonable activity durations. Reasonable durations are those that allow the progress of activities to be accurately determined between payment periods. A rule of thumb, that the Contractor should use, is that less than 2 percent of all non-procurement activities' Original Durations shall be greater than 20 days.

3.3.2.2 Procurement Activities

Tasks related to the procurement of long lead materials or equipment shall be included as separate activities in the project schedule. Long lead materials and equipment are those materials that have a procurement cycle of over 90 days. Examples of procurement process activities include, but are not limited to: submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing.

3.3.2.3 Government Activities

Government and other agencies activities that could impact progress shall be shown. These activities include, but are not limited to: approvals, inspections, utility tie-in, Government Furnished Equipment (GFE) and notice to proceed for phasing requirements.

3.3.2.4 Workers Per Day

All activities shall have an estimate of the average number of workers per day that are expected to be used during the execution of the activity. If no workers are required for an activity, in the case of activities related to procurement, for example, then the activity shall be identified as using zero workers per day. The workers per day information for each activity shall be identified by the Workers Per Day Code.

3.3.2.5 Responsibility

All activities shall be identified in the project schedule by the party responsible to perform the work. Responsibility includes, but is not limited to, the subcontracting firm, contractor work force, or government agency performing a given task. Activities shall not belong to more than one responsible party. The responsible party for each activity shall be identified by the Responsibility Code.

3.3.2.6 Work Areas

All activities shall be identified in the project schedule by the work area in which the activity occurs. Activities shall not be allowed to cover more than one work area. The work area of each activity shall be identified by the Work Area Code.

3.3.2.7 Modification or Claim Number

Any activity that is added or changed by contract modification or used to justify claimed time shall be identified by a mod or claim code that changed the activity. Activities shall not belong to more than one modification or claim item. The modification or claim number of each activity shall be identified by the Mod or Claim Number.

3.3.2.8 Bid Item

All activities shall be identified in the project schedule by the Bid Item to which the activity belongs. An activity shall not contain work in more than one bid item. the bid item for each appropriate activity shall be identified by the Bid Item Code.

3.3.2.9 Phase of Work

All activities shall be identified in the project schedule by the phases of work in which the activity occurs. Activities shall not be allowed to contain work in more than one phase of work. The project phase of each activity shall be by the unique Phase of Work Code.

3.3.2.10 Category of Work

All Activities shall be identified in the project schedule according to the category of work which best describes the activity. Category of work refers, but is not limited to, to the procurement chain of activities including such items as submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing. The category of work for each activity shall be identified by the Category of Work Code.

3.3.2.11 Feature of Work

All activities shall be identified in the project schedule according to the feature of work to which the activity belongs. Feature of work refers, but is not limited to a work breakdown structure for the project. The feature of work for each activity shall be identified by the Feature of Work Code.

3.3.3 Scheduled Project Completion

The schedule interval shall extend from notice-to-proceed to the contract completion date.

3.3.3.1 Project Start Date

The schedule shall start no earlier than the date that the Notice to Proceed (NTP) was acknowledged. The Contractor shall include as the first activity in the project schedule an activity called "Start Project". The "Start Project" activity shall have: a "ES" constraint, a constraint date equal to the date that the NTP was acknowledged, and a zero day duration.

3.3.3.2 Constraint of Last Activity

Completion of the last activity in the schedule shall be constrained by the contract completion date. Calculation on project updates shall be such that if the early finish of the last activity falls after the contract completion date, then the float calculation shall reflect a negative float on the critical path. The Contractor shall include as the last activity in the project schedule an activity call "End Project". The "End Project" activity shall have: a "LF" constraint, a constraint date equal to the completion date for the project, and a zero day duration.

3.3.3.3 Early Project Completion

In the event the project schedule shows completion, the project prior to the contract completion date, the Contractor shall identify those activities that have been accelerated and/or those activities that are scheduled in parallel to support the Contractor's "early" completion. Contractor shall specifically address each of the activities noted at every project schedule update period to assist the Contracting Officer to evaluate the Contractor's ability to actually complete prior to the contract period.

3.3.4 Interim Completion Dates

Contractually specified interim completion dates shall also be constrained to show negative float if the early finish date of the last activity in that phase falls after the interim completion date.

3.3.4.1 Start Phase

The Contractor shall include as the first activity for a project phase an activity called "Start Phase X" where "X" refers to the phase of work. The "Start Phase X" activity shall have: a "ES" constraint, a constraint date equal to the date that the NTP was acknowledged, and a zero day duration.

3.3.4.2 End Phase

The Contractor shall include as the last activity in a project phase an activity called "End Phase X" where "X" refers to the phase of work. The "End Phase X" activity shall have: a "LF" constraint, a constraint date equal to the completion date for the project, and a zero day duration.

3.3.4.3 Phase X

The Contractor shall include a hammock type activity for each project phase called "Phase X" where "X:" refers to the phase of work. The "Phase X" activity shall be logically tied to the earliest and latest activities in the phase.

3.3.5 Default Progress Data Disallowed

Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in CPM scheduling software systems. Actual Start and Finish dates on the CPM schedule shall match those dates provided from Contractor Quality Control Reports. Failure of the Contractor to document the Actual Start and Finish dates on the Daily Quality Control report for every in progress or completed activity and insure that the data contained on the Daily Quality Control reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's schedule and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes.

3.3.6 Out-of-Sequence Progress

Activities that have posted progress without predecessors being completed (Out-of-Sequence Progress) shall be allowed only by the case-by-case approval of the Contracting Officer. The Contracting Officer may direct that changes in schedule logic be made to correct any or all out-of-sequence work.

3.3.7 Extended Non-Work Periods

Designation of Holidays to account for non-work periods of over 5 days shall not be allowed. Non-work periods of over 5 days shall be identified by addition of activities that represent the delays. Modifications to the logic of the project schedule shall be made to link those activities that may have been impacted by the delays to the newly added delay activities.

3.3.8 Negative Lags

Lag durations contained in the project schedule shall not have a negative value.

3.4 PROJECT SCHEDULE SUBMISSIONS

The Contractor shall provide the submissions as described below. The data disk, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS.

3.4.1 Preliminary Project Schedule Submission

The Preliminary Project Schedule, defining the Contractor's planned operations for the first 60 calendar days shall be submitted for approval within 20 calendar days after Notice to Proceed is acknowledged. The approved preliminary schedule shall be used for payment purposes not to exceed 60 calendar days after Notice to Proceed.

3.4.2 Initial Project Schedule Submission

The Initial Project Schedule shall be submitted for approval within 40 calendar days after Notice to Proceed. The schedule shall provide a reasonable sequence of activities which represent work through the entire project and shall be at a reasonable level of detail.

3.4.3 Periodic Schedule Updates

Based on the result of progress meetings, specified in "Periodic Progress Meetings," the Contractor shall submit periodic schedule updates. These submissions shall enable the Contracting Officer or to assess Contractor's progress. If the Contractor fails or refuses to furnish the information and project schedule data, which in the judgement of the Contracting Officer or authorized representative, is necessary for verifying the contractor's progress, the Contractor shall be deemed not to have provided an estimate upon which progress payment may be made.

3.4.4 Standard Activity Coding Dictionary

The Contractor shall submit, with the Initial Project Schedule, a coding scheme that shall be used throughout the project for all activity codes contained in the schedule. The coding scheme submitted shall list the values for each activity code category and translate those values into project specific designations. For example, a Responsibility Code Value, "ELE", may be identified as "Electrical Subcontractor." Activity code values shall represent the same information throughout the duration of the contract. Once approved with the Initial Project Schedule submission, changes to the activity coding scheme must be approved by the Contracting Officer.

3.5 SUBMISSION REQUIREMENTS

The following items shall be submitted by the Contractor for the initial submission, and every periodic project schedule update throughout the life of the project:

3.5.1 Data Disks

Three data disks containing the project schedule shall be provided. Data on the disks shall be in the format specified in APPENDIX A.

3.5.1.1 File Medium

Required data shall be submitted on 3.5 disks, formatted to hold 1.44 MB of data, under the MS-DOS operating system.

3.5.1.2 Disk Label

A permanent exterior label shall be affixed to each disk submitted. The label shall indicate the type of schedule (Initial, Update, or Change), full contract number, project name, project location, data date, name and telephone number or person responsible for the schedule, and the MS-DOS version used to format the disk.

3.5.1.3 File Name

Each file submitted shall have a name related to either the schedule data date, project name, or contract number. The Contractor shall develop a naming convention that will insure that the names of the files submitted are unique. the Contractor shall submit the file naming convention to the Contracting Officer for approval.

3.5.2 Narrative Report

A Narrative Report shall be provided with each update of the project schedule. This report shall be provided as the basis of the Contractor's progress payment request. The Narrative Report shall include: a description of activities along the 4 most critical paths, a description of current and anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken.

3.5.3 Approved Changes Verification

Only project schedule changes that have been previously approved by the Contracting Officer shall be included in the schedule submission. The Narrative Report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented,

approved schedule changes.

3.5.4 Schedule Reports

The format for each activity for the schedule reports listed below shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float. Actual Start and Actual Finish Dates shall be printed for those activities in-progress or completed.

3.5.4.1 Activity Report

A list of all activities sorted according to activity number or "I-NODE" AND "J-NODE" and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.

3.5.4.2 Logic Report

A list of Preceding and Succeeding activities for every activity in ascending order by activity number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.

3.5.4.3 Total Float Report

A list of all activities sorted in ascending order of total float. Activities which have the same amount of total float shall be listed in ascending order of Early Start Dates.

3.5.4.4 Earnings Report

A compilation of the Contractor's Total Earnings on the project from the Notice to Proceed until the most recent Monthly Progress Meeting. This report shall reflect the Earnings of specific activities based on the agreements made in the field and approved between the Contractor and Contracting Officer at the most recent Monthly Progress Meeting. Provided that the Contractor has provided a complete schedule update, this report shall serve as the basis of determining Contractor Payment. Activities shall be grouped by bid item and sorted by activity numbers. This report shall: sum all activities in a bid item and provide a bid item percent; complete and sum all bid items to provide a total project percent complete. The printed report shall contain, for each activity: Activity Number or "i-node" and "j-node", Activity Description, Original Budgeted Amount, Total Quantity, Quantity to Date, Percent Complete (based on cost), Earnings to Date.

3.5.5 Network Diagram

The network diagram shall be required on the initial schedule submission and on monthly or quarterly schedule update submissions. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.5.1 Continuous Flow

Diagrams shall show a continuous flow from left to right with no arrows from right to left. The activity or event number, description, duration, and estimated earned value shall be shown on the diagram.

3.5.5.2 Project Milestone Dates

Dates shall be shown on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.5.3 Critical Path

The critical path shall be clearly shown.

3.5.5.4 Banding

Activities shall be grouped to assist in the understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

3.5.5.5 S-Curves

Earnings curves showing projected early and late earnings and earnings to date.

3.6 PERIODIC PROGRESS MEETINGS

Progress meetings to discuss payment shall include a monthly on-site meeting or other regular intervals mutually agreed to at the preconstruction conference. During this meeting the Contractor will describe, on an activity by activity basis, all proposed revisions and adjustments to the project schedule required to reflect the current status of the project. The Contracting Officer will approve activity progress, proposed revisions, and adjustments as appropriate.

3.6.1 Meeting Attendance

The Contractor's Project Manager and Scheduler shall attend the regular progress meeting.

3.6.2 Update Submission Following Progress Meeting

A complete update of the project schedule containing all approved progress, revisions, and adjustments, based on the regular progress meeting, shall be submitted not later than 4 working days after the monthly progress meeting.

3.6.3 Progress Meeting Contents

Update information, including Actual Start Dates, Actual Finish Dates, Remaining Durations, and Cost to Date shall be subject to the approval of the Contracting Officer. The following minimum set of items which the Contractor shall address, on an activity by activity basis, during each progress meeting.

3.6.3.1 Start and Finish Dates

The Actual Start and Actual Finish dates for each activity currently in-progress or completed activities.

3.6.3.2 Time Completion

The estimated Remaining Duration for each activity in-progress. Time-based progress calculations must be based on Remaining Duration for each activity.

3.6.3.3 Cost Completion

The earnings for each activity started. Payment shall be based on earnings for each in-progress or completed activity. Payment for individual activities shall not be made for work that contains quality defects. A portion of the overall project amount may be retained based on delays of activities.

3.6.3.4 Logic Changes

All logic changes pertaining to Notice to Proceed on change orders, change orders to be incorporated into the schedule, contractor proposed changes in work sequence, corrections to schedule logic for out-of-sequence progress, lag durations, and other changes that have been made pursuant to contract provisions shall be specifically identified and discussed.

3.6.3.5 Other Changes

Other changes required due to delays in completion of any activity or group of activities are those delays beyond the Contractors control such as strikes and unusual weather. Also included are delays encountered due to submittals, Government Activities, deliveries or work stoppage which makes re-planning the work necessary, and when the schedule does not represent

the actual prosecution and progress of the work.

3.7 REQUESTS FOR TIME EXTENSIONS

In the event the Contractor requests an extension of the contract completion date, he shall furnish such justification, project schedule data and supporting evidence as the Contracting Officer may deem necessary for a determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract. Submission of proof of delay, based on revised activity logic, duration, and costs (updated to the specific date that the delay occurred) is obligatory to any approvals.

3.7.1 Justification of Delay

The project schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved with this request. The Contracting Officer's determination as to the number of allowable days of contract extension, shall be based upon the project schedule updates in effect for the time period in question and other factual information. Actual delays that are found to be caused by the Contractor's own actions, which result in the extension of the schedule, shall not be a cause for a time extension to the contract completion date.

3.7.2 Submission Requirements

The Contractor shall submit a justification for each request for a change in the contract completion date of under two weeks based upon the most recent schedule update at the time of the Notice to Proceed or constructive direction issued for the change. Such a request shall be in accordance with the requirements of other appropriate Contract Clauses and shall include, as a minimum:

a. A list of affected activities, with their associated project schedule activity number.

b. A brief explanation of the causes of the change.

c. An analysis of the overall impact of the changes proposed.

d. A sub-network of the affected area.

Activities impacted in each justification for change shall be identified by a unique activity code contained in the required data file.

3.7.3 Additional Submission Requirements

For any request for time extension for over 2 weeks, the Contracting Officer may request an interim update with revised activities for a specific change request. The Contractor shall provide this disk within 4 days of the Contracting Officer's request.

3.8 DIRECTED CHANGES

If Notice to Proceed (NTP) is issued for changes prior to settlement of price and/or time, the Contractor shall submit proposed schedule revisions to the Contracting Officer within 2 weeks of the NTP being issued. The proposed revisions to the schedule will be approved by the Contracting Officer prior to inclusion of those changes within the project schedule. If the Contractor fails to submit the proposed revisions, the Contracting Officer may furnish the Contractor suggested revisions to the project schedule. The Contractor shall include these revisions in the project schedule until the Contractor submits revisions, and final changes and impacts have been negotiated. If the Contractor has any objections to the revisions furnished by the Contracting Officer, then the Contractor shall advise the Contracting Officer within 2 weeks of receipt of the revisions. Regardless of the objections, the Contractor will continue to update their schedule with the Contracting Officer's revisions until a mutual agreement in the revisions may be made. If the Contractor fails to submit alternative revisions within 2 weeks of receipt of the Contracting Officer's proposed revisions, the Contractor will be deemed to have concurred with the Contracting Officer's proposed revisions. The proposed revisions will then be the basis for an equitable adjustment for performance of the work.

3.9 OWNERSHIP OF FLOAT

Float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

---END OF SECTION---

APPENDIX A

DATA EXCHANGE FORMAT FOR CONTRACTOR PREPARED NAS

1. Description

The data exchange format provides a platform for exchanging scheduling and planning data between various software systems. The Data Exchange Format shall allow project management systems to share information with other programs. Scheduling information shall be transferred from the Contractor's project management system to the Government as described in this section.

2. Electronic Data Exchange

a. The Contractor shall provide schedule data in the Data Exchange Format for each Preliminary, Initial, Monthly NAS Updates, and requests for time extensions or change proposals. The Contractor's failure to provide schedule data in the format described herein shall result in disapproval of the entire schedule submission.

b. The entire set of schedule data shall be transferred at every exchange of scheduling data. Thus, for updates to existing projects, the data exchange file shall contain all activities that have not started or are already complete as well as those activities in progress.

3. Data Transfer Responsibility

The Contractor shall be responsible for Electronic Data exchange File data that may have been lost or destroyed during transit between the Contractor and the Contracting Officer. If Electronic Data Exchange File data is damaged during transit, then the Contractor shall provide the Contracting Officer with a new Electronic Data Exchange File within two working days of notification by the Contracting Officer.

4. Data Consistency Responsibility

The Contractor shall be responsible for the consistency between the Electronic Data Exchange File and printed reports which accompany schedule submissions. If Electronic Data Exchange File data for a schedule submission differs, in any way, from the printed schedule reports or standard activity coding, the Contracting Officer will disapprove the entire schedule submission. The Contractor shall provide the Contracting Officer with a completely revised and consistent schedule submission within 24 hours of notification of inconsistency by the Contracting Officer.

Creating the Electronic Data Exchange File: The Contractor may create the electronic data exchange file by one of the three following methods:

a. Commercially Available Software: Many commercially available scheduling systems support the standard data exchange format specified herein.

b. Interface Program: The Contractor shall produce his own data translation software. This software shall take the information provided by the Contractor's scheduling system and reformat the data into the Data exchange Format.

c. Manual Methods: The Contractor shall manually reformat his scheduling system report files or create all necessary data by manually entering all data into the Data exchange Format.

5. File Transfer Medium

All required data shall be submitted on 5 1/4" diskette(s), formatted to hold 360 KB of data, under the MS-DOS version 3.0 (or higher) operating system. Higher data densities and other operating systems may be approved by the Contracting Officer if compatible with the Government's computing capability,

6. File Type and Format

The data file shall consist of a 132 character, fixed format, "ASCII" file. Text shall be left-justified and numbers shall be right-justified in each field. Data records must conform, exactly, to the sequence, column position, maximum length, mandatory values, and field definitions described below to comply with this standard data exchange format. Unless specifically stated, all numbers shall be whole numbers. All data columns shall be separated by a single blank column.

7. Electronic Data Exchange File Name

The Contractor shall insure that each file has a name related to either the schedule data date, project name, or contract number. No two Electronic Data Exchange Files shall have the same name throughout the life of this contract. The Contractor shall submit his file naming convention to the Contracting Officer for approval. ln the event that the Contractor's naming convention is disapproved, the Contracting Officer shall direct the Contractor to provide files under a unique file naming convention.

8. Disc Label

The Contractor shall affix a permanent exterior label to each diskette submitted. The label shall contain the type of schedule (Preliminary, Initial, Update, or Change), full project number, project name, project location, data date, name and telephone number of the Contractor's scheduler, and the MS-DOS version used to format the diskette.

9. Standard Activity Coding Dictionary

The Contractor shall submit, with the initial schedule submission, a consistent coding scheme that shall be used throughout the project for the Activity Codes specified in this section. The coding scheme submitted shall demonstrate that each code shall only represent one type of information through the duration of the contract. Incomplete coding of activities or an incomplete coding schedule shall be sufficient for disapproval of the schedule.

10. Data Exchange File Format Organization

The Data Exchange File Format shall consist of the following records provided in the exact sequence shown below:

Record Description	Remarks
Volume Record	First Record on Every Data Disk
Project ID Record	Second Record
Calendar Record(s)	Minimum of One Record Required
Holiday Record(s)	Optional Record
Activity Record(s)	Mandatory Record
Precedence Records	Mandatory for Precedence Method
Unit Cost Record(s)	Optional for Unit Cost Projects
Progress Record(s)	Mandatory for Updates
File End Record	Last Record of Data File

11. Record Descriptions

a. Volume Record: The Volume Record shall be used to control the transfer of data that may not fit on a single disk. The first record in every disk used to store the data exchange file shall contain the Volume Record. The Volume Record shall sequentially identify the number of the data transfer disk(s). The Volume Record shall have the following format:

Column Max. Reqd.

Description	Position	len.	Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	VOLM	Fixed	
DISK NUMBER	6- 7	2		Number	Right

(1) The RECORD IDENTIFIER is the first four characters of this record. The required value for this field shall be "VOLM".

(2) The DISK NUMBER field shall identify the number of the data disk used to store the data exchange information. If all data may be contained on a single disk, this field shall contain the value of "1". If more disks are required, then the second disk shall contain the value "2", the third disk shall be designated with a "3", and so on. Identification of the last data disk shall not be accomplished with the Volume Record. Identification of the last data disk is accomplished in the PROJECT END RECORD.

b. Project ID Record: The Project ID Record is the second record of the file and shall contain project information in the following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	PROJ	Fixed	
DATA DATE (2)	6- 12	7		ddmmyy	See
PROJECT IDENTIFIER	14- 17	4		Alpha.	Left
PROJECT NAME	19- 66	48		Alpha.	Left
CONTRACTOR NAME	68-103	36		Alpha.	Left
ARROW OR PRECEDENCE	105	1	A,P	Fixed	
CONTRACT NUMBER	107-112	6		Alpha.	Left
PROJECT START	114-120	7		ddmmyy	Filled
PROJECT END	122-128	7		ddmmyy	Filled

(1) The RECORD IDENTIFIER is the first four characters of this record. The required value for this field shall be "PROJ". This record shall contain the general project information and indicates which scheduling method shall be used.

(2) The DATA DATE is the date of the schedule calculation. The abbreviation "ddmmmyy" refers to a date format that shall translate a date into two numbers for the day, three letters for the month, and two numbers for the year. For example, March 1, 1999 shall be translated into 01Mar99. This same convention for date formats shall be used throughout the entire data format. To insure that dates are translated

consistently, the following abbreviations shall be used for the three character month code: JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC.

(3) The PROJECT IDENTIFIER is a maximum of four character abbreviation for the schedule. These four characters shall be used to uniquely identify the project and specific update as agreed upon by the Contractor and Contracting Officer. When utilizing scheduling software these four characters shall be used to select the project. Software manufacturers' shall verify that data importing programs do not automatically overwrite other schedules with the same PROJECT IDENTIFIER.

(4) The PROJECT NAME field shall contain the name and location of the project edited to fit the space provided. The data appearing here shall appear on scheduling software reports. The abbreviation "Alpha.", used throughout paragraph: RECORD DESCRIPTIONS, refers to an "Alphanumeric" field value.

(5) The CONTRACTOR NAME field shall contain the Construction Contractor's name edited to fit the space provided.

(6) The ARROW OR PRECEDENCE field shall indicate which method shall be used for calculation of the schedule. The value "A" shall signify the Arrow Diagraming Technique. The value "P" shall signify the Precedence Diagraming technique. The ACTIVITY IDENTIFICATION field of the Activity Record shall be interpreted differently depending on the value of this field. The Precedence Record shall be required if the value of this field is "P".

(7) The CONTRACT NUMBER field shall directly identify the contract for the project. For example, a complete government construction contract number, "DACA56-93-C-0001", shall be entered into this field as "930001".

(8) The PROJECT START shall contain the date that the project will start or has started. On government construction projects, this date is the date that the construction Contractor acknowledges the Notice to Proceed.

(9) The PROJECT END shall contain the data that the contract must complete on or prior to. On Government construction projects, this date is the PROJECT START plus the contract period, typically expressed in a specific number of calendar days.

c. Calendar Record: The Calendar Record(s) shall follow the Project Identifier Record in every data file. A minimum of one Calendar Record shall be required for all data exchange activity files. The format for the Calendar Record shall be as follows:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	CLDR	Fixed	
CALENDAR CODE	6- 6	1		Alpha.	Filled
WORKDAYS	8- 14	7	SMTWTFS	See (3)	
CALENDAR DESCRIPTION	16- 45	30		Alpha.	Left

(1) The RECORD IDENTIFIER shall always begin with "CLDR" to identify it as a Calendar Record. Each Calendar Record used shall have this identification in the first four columns.

(2) The CALENDAR CODE shall be used in the activity records to signify that this calendar is associated with the activity.

(3) The WORKDAYS field shall contain the work-week pattern selected with "Y", for Yes, and "N", for No. The first character shall be Sunday and the last character Saturday. An example of a typical five day work-week would be NYYYYYN. A seven day work-week would be YYYYYYY.

(4) The CALENDAR DESCRIPTION shall be used to briefly explain the calendar used.

d. Holiday Record: Optional Holiday Record(s) shall follow the Calendar Record(s). The Holiday Record shall be used to designate specific non-work days for a specific Calendar. More than one Holiday Record may be used for a particular calendar. If used, the following format shall be followed:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	HOLI	Fixed	
CALENDAR CODE	6- 6	1		Alpha.	Filled
HOLIDAY DATE	8- 14	7		ddmmmyy	Filled
HOLIDAY DATE	16-22	7		ddmmmyy	Filled
HOLIDAY DATE	24-30	7		ddmmmyy	Filled
HOLIDAY DATE	32-38	7		ddmmmyy	Filled
HOLIDAY DATE	40-46	7		ddmmmyy	Filled
HOLIDAY DATE	48-54	7		ddmmmyy	Filled
HOLIDAY DATE	56-62	7		ddmmmyy	Filled

HOLIDAY DATE	64-70	7	ddmmmyy Filled
HOLIDAY DATE	72-78	7	ddmmmyy Filled
HOLIDAY DATE	80-86	7	ddmmmyy Filled
HOLIDAY DATE	88-94	7	ddmmmyy Filled
HOLIDAY DATE	96-112	7	ddmmmyy Filled
HOLIDAY DATE	114-120	7	ddmmmyy Filled
HOLIDAY DATE	122-128	7	ddmmmyy Filled

(1) The RECORD IDENTIFIER shall always begin with "HOLI" and shall signify an Optional Holiday Calendar is to be used.

(2) The CALENDAR CODE indicates which work-week calendar the holidays shall be applied to. More than one HOLI record may be used for a given CALENDAR CODE.

(3) The HOLIDAY DATE is to be used for each date to be designated as a non-work day.

e. Activity Records: Activity Records shall follow any Holiday Record(s). If there are no Holiday Record(s), then the Activity Records shall follow the Calendar Record(s). There shall be one Activity Record for every activity in the network. Each activity shall have one record in the following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	ACTV	Fixed	
ACTIVITY IDENTIFICATION	6- 15	10		See (2)	
ACTIVITY DESCRIPTION	17- 46	30		Alpha.	Left
ACTIVITY DURATION	48- 50	3		Integer	Right
ACTIVITY COST	52- 60	9		Integer	Right
CONSTRAINT DATE	62- 68	7			
Filled					
CONSTRAINT TYPE	70- 71	2		See (7)	
CALENDAR CODE	73- 73	1		Alpha.	
Filled					
HAMMOCK CODE	75- 75	1	Y,blank	Fixed	
WORKERS PER DAY	77- 79	3		Integer	Right
RESPONSIBILITY CODE	81- 84	4		Alpha.	Left
WORK AREA CODE	86- 89	4		Alpha.	Left
MOD OR CLAIM NUMBER	91- 94	4		Alpha.	Left
BID ITEM	96- 99	4		Alpha.	Left
UCI CODE	101-105	5		See (15)	
USER DEFINED 1	107-110	4		See (16)	
USER DEFINED 2	112-115	4		See (16)	
USER DEFINED 3	117-120	4		See (16)	
USER DEFINED 4	122-125	4		See (16)	
USER DEFINED 5	127-130	4		See (16)	

(1) The RECORD IDENTIFIER for each activity description record must begin with the four character "ACTV" code. This field shall be used for both the Arrow Diagram Method (ADM) and Precedence Diagram Method (PDM)

(2) The ACTIVITY IDENTIFICATION consists of coding that differs, depending on whether the ADM or PDM method was selected in the Project Record. If the ADM method was selected, then the field shall be interpreted as two right-justified fields of five integers each. If the PDM method was selected, the field shall be interpreted as one right-justified field of ten integers each. The maximum activity number allowed under this arrangement is 99999 for ADM and 9999999999 for the PDM method.

(3) The ACTIVITY DESCRIPTION shall be a maximum of 30 characters. Descriptions must be limited to the space provided.

(4) The ACTIVITY DURATION contains the estimated duration for the activity on the schedule. The duration shall be based upon the work-week designated by the activity's related calendar.

(5) The ACTIVITY COST contains the estimated earned value of the
work to be accomplished in the activity.

(6) The CONSTRAINT DATE field shall be used to identify a date that the scheduling system may use to modify float calculations. If there is a date in this field, then there must be a valid entry in the CONSTRAINT TYPE field. The CONSTRAINT DATE shall be the same as, or later than, the PROJECT START DATE. The CONSTRAINT DATE shall be the same as, or earlier than, the PROJECT END DATE.

(7) The CONSTRAINT TYPE field shall be used to identify the way that the scheduling system shall use the CONSTRAINT DATE to modify schedule float calculations. If there is a value in this field, then there must be a valid entry in the CONSTRAINT DATE field. Below are the minimum list of entries for the CONSTRAINT TYPE. Other types may be available from specific software manufacturers.

Code	Definition
ES	The CONSTRAINT DATE shall replace an activity's early start date, if the early start date is prior to the CONSTRAINT DATE.

LF The CONSTRAINT DATE shall replace an activity's late finish date, if the late finish date is after the CONSTRAINT DATE.

(8) The CALENDAR CODE, as previously explained, relates this activity to an appropriate work-week calendar. The ACTIVITY DURATION must be based on the valid work-week referenced by this CALENDAR CODE field.

(9) The HAMMOCK CODE indicates that a particular activity does not have its own independent duration, but takes its start dates from the start date of the preceding activity (or node) and takes its finish dates from the finish dates of its succeeding activity (or node). If the value of the HAMMOCK ACTIVITY field is "Y", then the activity is a HAMMOCK ACTIVITY.

(10) The WORKERS PER DAY is an optional field that shall be specified at the discretion of the Field Operating Agency (FOA). This field shall contain the average number of workers expected to work on the activity each day the activity is in progress. The total duration times the average number of workers per day shall equal the Contractor's estimate of the total man days of work required to perform the activity.

(11) The RESPONSIBILITY CODE shall identify the Subcontractor or major trade involved with completing the work for the activity.

(12) The WORK AREA CODE shall identify the location of the activity within the project.

(13) The MOD OR CLAIM NUMBER code is an optional field that shall be specified at the discretion of the FOA. This code shall uniquely identify activities that are changed on a construction contract modification, or activities that justify any claimed time extensions.

(14) The BID ITEM field is an optional field that shall be specified at the discretion of the FOA. This field shall designate the bid item number associated with the activity.

(15) The Construction Specification Institute (CSI) Masterformat
CODE is an optional field that shall be specified at the discretion of the FOA. The CSI CODE shall contain the value of code corresponding to the work to be accomplished in this activity.

(16) USER DEFINED fields are optional and not required

to meet the data exchange standard. They are provided to allow for a fixed expansion of capabilities for individual very large projects that may require additional fields.

f. Precedence Record: The Precedence Record(s) shall follow the Activity Records if a Precedence Type Schedule (PDM) is identified in the ARROW OR PRECEDENCE field of the Project Record. The Precedence Record has the following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	PRED	Fixed	
ACTIVITY IDENTIFICATION	6- 15	10		Integer	See (2
PRECEDING ACTIVITY	17- 26	10		Integer	
PREDECESSOR TYPE	28- 29	2		See (4)	
LAG DURATION	31- 34	4		Integer	Right

(1) The RECORD IDENTIFIER shall begin with the four character "PRED" in the first four columns of the record.

(2) The ACTIVITY IDENTIFICATION identifies the activity whose predecessor shall be specified in this record. Refer to the Activity Record for further explanation on this field.

(3) The PREDECESSOR ACTIVITY number is the number of an activity that precedes the activity noted in the ACTIVITY IDENTIFICATION field.

(4) The PREDECESSOR TYPE field indicates the type of relationship that exists between the chosen pair of activities. The PREDECESSOR TYPE field must, as a minimum, contain one of the codes listed below. Other types of activity relations may be supported from specific software vendors.

Code	Definition
SS	Start-to-Start relationship
FF	Finish-to-Finish relationship
FS	Finish-to-Start relationship

(5) The LAG DURATION field contains the number of days delay between the preceding and current activity.

g. Unit Cost Record: The Unit Cost Record shall follow all Precedence Records. If the schedule utilizes the Arrow Diagram Method, then the Unit Cost Record shall follow any Activity Records. The fields for this record shall take the

following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	UNIT	Fixed	
ACTIVITY IDENTIFICATION	6- 15	10		Integer	See (2)
TOTAL QTY	17- 27	11		Floating Pt.	
COST PER UNIT	29- 39	11		Floating Pt.	
QTY TO DATE	41- 51	11		Floating Pt.	
UNIT OF MEASURE	53- 55	3		Alpha.	

(1) The RECORD IDENTIFIER shall be identified with the four character "UNIT" placed in the first four columns of the record.

(2) The ACTIVITY IDENTIFICATION for each activity shall match the format described in the activity record.

(3) The TOTAL QTY is the total amount of this type of material to be used in this activity. This number consists of eight digits, one decimal point, and two more digits. An example of a number in this format is "11111111.11". If decimal places are not needed, this field shall still contain a ".00" in columns 25, 26, and 27.

(4) The COST PER UNIT is the cost, in dollars and cents, for each unit to be used in this activity. This number consists of eight digits, one decimal point, and two more digits. An example of a number in this format is "11111111.11". If decimal places are not needed, this field shall still contain a ".00" in columns 37, 38, and 39.

(5) The QTY TO DATE is the quantity of material installed in this activity up to the data date. This number consists of eight digits, one decimal point, and two more digits. An example of a number in this format is "11111111.11". If decimal places are not needed, this field shall still contain a ".00" in columns 49, 50, and 51.

(6) The UNIT OF MEASURE is an abbreviation that may be used to describe the units being measured for this activity.

h. Progress Record: Progress Record(s) shall follow all Unit Cost Record(s). If there are no Unit Cost Record(s), then the Progress Record(s) shall follow all Precedence Records. If the schedule utilizes the Arrow Diagram Method, then the Progress Record shall follow any Activity Records.

One Record shall exist for each activity in-progress or completed. The fields for this Record shall take the following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	PROG	Fixed	
ACTIVITY IDENTIFICATION	6- 15	10		Integer	See (20
ACTUAL START DATE	17- 23	7		ddmmmyy	Full
ACTUAL FINISH DATE	25- 31	7		ddmmmyy	Full
REMAINING DURATION	33- 35	3		Integer	Right
COST TO DATE	37- 45	9		Integer	Right

(1) The RECORD IDENTIFIER shall begin with the four character "PROG" in the first four columns of the record.

(2) The ACTIVITY IDENTIFICATION for each activity for which progress has been posted, shall match the format described in the Activity Record.

(3) An ACTUAL START DATE is required for all in-progress activities. The ACTUAL START DATE shall be the same as, or later than, the PROJECT START date contained in the Project Record. The ACTUAL START DATE shall also be the same as, or prior to, the DATA DATE contained in the Project record.

(4) An ACTUAL FINISH DATE is required for all completed activities. If the REMAINING DURATION of an activity is zero, then there must be an ACTUAL FINISH DATE. The ACTUAL FINISH DATE must be the same as, or later than the PROJECT START date contained in the Project Record. The ACTUAL FINISH DATE must also be the same as, or prior to the DATA DATE contained in the Project Record.

(5) A REMAINING DURATION is required for all in-progress activities. Activities completed, based on time, shall have a zero REMAINING DURATION.

(6) Cost progress is contained in the field COST TO DATE. If there is an ACTUAL START DATE, then there must also be some value for COST TO DATE. The COST TO DATE is not tied to REMAINING DURATION. For example, if the REMAINING DURATION is "0", the COST TO DATE may only be 95% of the ACTIVITY COST. This difference may be used to reflect 5% retainage for punch list items.

i. File End Record:

(1) The File End Record shall be used to identify that the data file is completed. This record shall be the

last record of the entire data file. The File End Record shall have the following format:

Description	Column Position	Max. Len.	Reqd. Value	Type	Just.
RECORD IDENTIFIER	1- 3	3	END	Fixed	

(2) The RECORD IDENTIFIER for the File End Record shall be END". No data contained in the data exchange file that occurs after this record is found shall be used.

SECTION 01440

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 (1992)	Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329 (1990)	Use in the Evaluation of Testing and Inspection Agencies as Used in Construction

1.2 QUALITY CONTROL PLAN

1.2.1 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 entitled "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.

1.2.2 Content of the CQC Plan

The CQC plan shall include, as a minimum, the following to cover all construction operations, both on-site and off-site, 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 manager or someone higher in the Contractor's organization. Project manager in this context shall mean the individual with responsibility for the overall

management of the project including quality and production.

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 will also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, off-site fabricators, suppliers and purchasing agents. These procedures shall be in accordance with Section 01300 SUBMITTAL DESCRIPTIONS.

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 will 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 and has separate control requirements. It could be identified by different trades or disciplines, or it could 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 feature under a particular section. This list will be agreed upon during the coordination meeting.

1.2.3 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.

1.2.4 Notification of Changes

After acceptance of the QC plan, the Contractor shall notify the Contracting Officer in writing a minimum of seven calendar days prior to any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

1.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the Quality Control Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. 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 on-site and off-site 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.

1.4 QUALITY CONTROL ORGANIZATION

1.4.1 CQC System Manager

The Contractor shall identify an individual within his organization at the site of the work who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. This CQC System Manager shall be on the site at all times during construction and will be employed by the Contractor, except as noted in the following. An alternate for the CQC System Manager will be identified in the plan to serve in the event of the system manager's absence. Period of absence may not exceed two weeks at any one time, and not more than 45 workdays during a calendar year. The requirements for the alternate will be the same as for the designated CQC manager.

1.4.2 CQC Organizational Staffing

The Contractor shall provide a CQC staff which shall be at the site of work at all times during progress, with complete authority to take any action necessary to ensure compliance with the contract.

1.4.2.1 CQC Staff

Following are the minimum requirements for the CQC staff. These minimum requirements will not necessarily assure an adequate staff to meet the CQC requirements at all times during

construction. The actual strength of the CQC staff may vary during any specific work period to cover the needs of the work period. When necessary for a proper CQC organization, the Contractor will add additional staff at no cost to the Government. This listing of minimum staff in no way relieves the Contractor of meeting the basic requirements of quality construction in accordance with contract requirements. All CQC staff members shall be subject to acceptance by the Contracting Officer.

1.4.2.2 CQC System Manager

The system manager shall be a graduate Engineer, having five years of experience on construction of a type similar to this contract, including one year of experience in quality control or a technician with a minimum of eight years (documented) experience on similar type construction, including two years experience in quality control. The CQC system manager shall be assigned no other duties.

1.4.2.3 Supplemental Personnel

The Contractor shall provide as part of the CQC organization, as a minimum, specialized personnel in the areas of electrical, mechanical, civil, and structural. These personnel shall assist and report to the CQC system manager. Individuals qualified under more than one discipline can be utilized to cover up to two (2) disciplines, such as civil and structural. Each person's sole responsibility shall be to assure that construction complies with the contract requirements for their area of specialization. These individuals shall: be employed or contracted directly with the prime contractor and not a part of the subcontractor's organization engaged in performing the construction; be physically present at the construction site a minimum of one day per week or more often as necessary during periods in which significant work under their respective discipline is underway at the construction site to ensure contract complieance; have the necessary education or experience to ensure contract compliance. Physical presence shall begin when each discipline of work begins on site and can be suspended or reduced with the concurrence of the Contracting Officer as significant work in that discipline subsides. In addition, these individuals shall be a part of the submittal review process and shall sign the applicable submittal prior to Submission to the Government.

1.4.3 Training

In addition to the above experience and education requirements the CQC System Manager or the principal member of the CQC staff shall attend an 8 hour training course on "Construction Quality Management." This course will be periodically offered by the Corps of Engineers and times, dates and location will be provided at the Pre-construction Conference.

1.5 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. The controls shall be adequate to cover all construction operations, including both on-site and off-site fabrication, and will be keyed to the proposed construction sequence. The controls shall include at least three phases of control to be conducted by the CQC system manager for all definable features of work, as follows:

1.5.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work and shall include:

a. A review of each paragraph of applicable specifications.

b. A review of the contract plans.

c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. A check to assure that provisions 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 drawing 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 constructing the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that phase 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.

The Government shall be notified at least 24 hours in advance of beginning any of the required action of the preparatory 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.

1.5.2 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 preliminary work to ensure that it is in compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verification of 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 sample panels is 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.

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 QC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases. The initial phase should be repeated for each new crew to work on-site, or any time acceptable specified quality standards are not being met.

1.5.3 Follow-up Phase

Daily checks shall be performed to assure continuing compliance with contract requirements, including control testing, 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 or conceal non-conforming work.

1.5.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases may be conducted on the same definable features of work as determined by the Government if the quality of on-going work is unacceptable; or if there are changes in the applicable QC staff or in the on-site production supervision or work crew; or if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

1.6 TESTS

1.6.1 Testing Procedure

The Contractor shall perform tests specified or required to verify that control measures are

adequate to provide a product which conforms to contract requirements. 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, will be recorded on the Quality Control report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. Actual test reports may be submitted later, if approved by the Contracting Officer, with a reference to the test number and date taken. An information copy of tests performed by an off-site or commercial test facility will 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.

1.6.2 Testing Laboratories

1.6.2.1 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 and ASTM E 329.

1.6.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of $500.00 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.

1.6.3 On-Site 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.

1.6.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Division Laboratory, f.o.b., at the following address:

U.S. Army Corps of Engineers, Southwestern Division Laboratory (SWDL), 4815 Cass Street, Dallas, TX 75235-8011

Coordination for each specific test, exact delivery location and dates will be made through the Area Office.

1.7 COMPLETION INSPECTION

At the completion of all work or any increment thereof established by a completion time stated in the Special Contract Requirements 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 plans 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 and so notify the Government. These inspections and any deficiency corrections required by this paragraph will be accomplished within the time stated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

1.8 DOCUMENTATION

The Contractor shall maintain current records of quality control operations, activities, and tests performed, including the work of subcontractors and suppliers. These records shall be on an acceptable form and shall include factual evidence that required quality control activities and/or tests have been performed, including but not limited to the following:

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/plan requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List

deficiencies noted along with corrective action.

e. Material received with statement as to its acceptability and storage.

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 the first workday following 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 seven 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.

1.9 SAMPLE FORMS

Sample forms are enclosed at the end of this section.

1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor at the site of the work, 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.

DAILY CONSTRUCTION QUALITY CONTROL REPORT

Date: Report No.
Contract No.:
Description and Location of Work:
WEATHER: (Clear) (P. Cloudy) (Cloudy);
Temperature: Min; Max;
Rainfall Inches
Contractor/Subcontractors and Area of Responsibility with Labor Count for Each:
a.
b.
c.
d.
Equipment Data: (Indicate items of construction equipment, other than hand tools, at the jobsite, and whether or not used.)

1. Work Performed Today: (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in table above.)

2. Results of Surveillance: (Include satisfactory work completed, or deficiencies with action to be taken.)

a. Preparatory Inspection:

b. Initial Inspection:

c. Followup Inspections:

3. Test Required by Plans and/or Specifications Performed and Results of Tests:

4. Verbal Instructions Received: (List any instructions given by Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)

5. Remarks: (Cover any conflicts in plans, specifications, or instructions or any delay to the job attributable to weather conditions.)

6. Results of Safety Inspection: (Include safety violations and corrective actions taken.)

Contractor's Inspector

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 Approved Authorized Representative

PREPARATORY INSPECTION CHECKLIST

Contract No.: Date: Title:
Specs Section:

MAJOR DEFINABLE SEGMENT OF WORK:
A. PERSONNEL PRESENT:

NAME	POSITION	COMPANY
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

(List additional personnel on reverse side.)

B. TRANSMITTALS INVOLVED:

CONTRACTOR OR NUMBER & ITEM	CODE	GOVERNMENT APPROVAL
1.		
2.		
3.		
4.		
5.		
6.		

B-I. Have all items involved been approved? Yes No

B-II. What items have not been approved?

ITEM	STATUS
1.	
2.	
3.	
4.	
5.	

C. ARE ALL MATERIALS ON HAND? Yes No
C-I. Are all materials on hand in accordance with approvals? Yes No

C-II. Items not on hand or not in accordance with transmittals:
1.
2.
3.
4.
D. TESTS REQUIRED IN ACCORDANCE WITH CONTRACT REQUIREMENTS:

TEST	PARAGRAPH
1.	
2.	
3.	

E. ACCIDENT PREVENTION PREPLANNING - HAZARD CONTROL MEASURES:
E-I. Applicable Outlines (Attach Completed Copies):

1.
2.
3.
4.
5.

E-II. Operational Equipment Checklists:

ATTACHED FOR:

1.
2.
3.
ON FILE FOR:

1.
2.
3.

Quality Control - Prime Contractor

Quality Control - Work Involved

INITIAL INSPECTION CHECKLIST

Contract No.:

Date:

Description and Location of Work Inspected:

Specs Section:

REFERENCE CONTRACT DRAWINGS:

A. PERSONNEL PRESENT:

	NAME	POSITION	COMPANY
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			10.

B. MATERIALS BEING USED ARE IN STRICT COMPLIANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS. Yes No
IF NOT, EXPLAIN:

C. PROCEDURES AND/OR WORK METHODS WITNESSED ARE IN STRICT COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS. Yes No IF NOT, EXPLAIN:

D. WORKMANSHIP IS ACCEPTABLE. Yes No STATE AREAS WHERE IMPROVEMENT IS NEEDED:

E. SAFETY VIOLATIONS AND CORRECTION ACTION TAKEN:

Quality Control Representative

OPERATION AND MAINTENANCE FIELD INSTRUCTIONS

CONTRACT NO.
DESCRIPTION

LOCATION

DATE

Operation and maintenance instructions were conducted for (Type of Equipment) required by section , paragraph , on . (Date)

The following personnel were present: (Signatures of Attendees)

Instructions were given by (Contractor's Representative)

The personnel identified herein by their signatures certify that they have been instructed in the operation and maintenance of the above-mentioned equipment.

PIPING SYSTEM TEST REPORT

STRUCTURE OR BUILDING

CONTRACT NO.
DESCRIPTION OF SYSTEM OR PART OF SYSTEM TESTED:

DESCRIPTION OF TEST:

NAME AND TITLE OF PERSON IN CHARGE OF PERFORMING TESTS FOR CONTRACTOR:

NAME

TITLE

SIGNATURE
I HEREBY CERTIFY THAT THE ABOVE-DESCRIBED SYSTEM HAS BEEN TESTED AS INDICATED ABOVE AND FOUND TO BE ENTIRELY SATISFACTORY
AS REQUIRED IN THE CONTRACT SPECIFICATIONS.

(SIGNATURE OF INSPECTOR)

(DATE)
REMARKS:

DRILLED PIER RECORD

A Pier No.	B Date Placed	C Size Shaft/Bell	D Ground Elev.	E W.T. Depth	F Bottom El. Plan/Actual	G Top Elev.	H Depth Drilled Overburden/Bearing Formation	I Casing[1] Length/ Stickup	J Drilling[2] Beginning/ End	K Concrete[2] Beginning/ End	L Concrete Used (C. Y.)	M REMARKS (Include Bearing Strata Description, Casing Description, and Concrete Compressive Strength)

[1]Distance from ground surface to Casing ** Top of Casing above ground, top of Casing below ground
[2]Clock Time beginning and end of indicated operation

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 AVAILABILITY AND USE OF UTILITY SERVICES (APR 1994) (FAR 52.236-14)

1.1.1 Availability

The Government will make available to the Contractor, from existing outlets and supplies, all reasonably required amounts of utilities 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.

1.1.2 Use

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 by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

1.2 PAYMENT FOR UTILITY SERVICES (APR 1984)

Temporary utilities will be metered and shall be paid for by the Contractor at rates as stated in paragraph 1.1.1 above.

1.3 MOWING

Grass and weedy vegetation within the areas utilized by the Contractor, including work areas, administrative areas, and storage areas, shall be kept mowed to control vegetative growth. Vegetation shall be mowed to a height of 3 inches when it reaches a height of 6 inches. Mowing shall be done with a rotary mower. Mowing shall be done during periods and in such a manner that the soil and grass will not be damaged. Areas adjacent to trees, shrubs, fences, buildings, etc. shall be hand trimmed. The Government may, after notice to the Contractor and at the discretion of the Contracting Officer, mow the Contractor's areas at any time the vegetation height exceeds 6 inches and all costs incurred by the Government for performing such work will be deducted from the contract.

1.4 STAGING AREA PREPARATION (Request by DE, Jul 91)

The Contractor's staging area or areas shall be located within the boundaries of the project parking lots shown. The staging area(s) shall be prepared by the Contractor to the limits as required for the Contractor's temporary field office facilities, material storage, parking, and other necessary staging activities. The Contractor shall prepare the staging area and the driveway access by grading and constructing in accordance with the plans and specifications. The parking area and drives may be constructed to pavement completion or to partial completion as desired but shall be not less than the construction of base course. The Contractor shall be responsible for the maintenance of all completed or partially completed construction and shall repair any damage prior to acceptance of the project.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

SECTION 01561

ENVIRONMENTAL PROTECTION

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.

CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 262 Subpart D, Recordkeeping and Reporting

ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPAPUB (1992) NPDES (National Pollution Discharge Elimination System) General Permits for Storm Water Discharges from Construction Sites

1.2 DEFINITIONS

For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, radiant energy and radioactive materials, as well as other pollutants.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having a "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL DESCRIPTIONS:

SD-01 Data

Environmental Protection Plan

The environmental protection plan shall address all items in the paragraph ENVIRONMENTAL PROTECTION REQUIREMENTS.

Pollution Prevention Plan; GA.

The pollution prevention plan (PPP) shall address all items in the paragraph STORM WATER POLLUTION PREVENTION PLANS. The plan shall be submitted and approved prior to the beginning of construction.

1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with Federal, State, and local regulations pertaining to the environment, including but not limited to water, air, and noise pollution.

1.4.1 Environmental Protection Plan

Within 15 days after receipt of Notice of Award of the contract and at least 7 days prior to the Preconstruction Conference, the Contractor shall submit in writing, with drawings, an Environmental Protection Plan and meet with representatives of the Contracting Officer to develop mutual understanding relative to compliance with this provision and administration of the environmental protection program. Approval of the Contractor's plan will not relieve the Contractor of his responsibility for adequate and continuing control of pollutants and other environmental protection measures. The Government reserves the right to make changes in his environmental protection plan and operations as necessary to maintain satisfactory environmental protection performance. The environmental protection plan shall include but not be limited to the following:

1.4.1.1 Laws, Regulations, and Permits

The Contractor shall prepare a list of Federal, State and local laws, regulations, and permits concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations and permits.

1.4.1.2 Protection of Features

The Contractor shall determine methods for the protection of features to be preserved within authorized work areas. The Contractor shall prepare a listing of methods to protect resources needing protection, i.e., trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archaeological and cultural resources.

1.4.1.3 Procedures

The Contractor shall implement procedures to provide the required environmental protection and to comply with the applicable laws and regulations. The Contractor shall set out the procedures to be followed to correct pollution of the environment due to accident, natural causes or failure to follow the procedures set out in accordance with the environmental protection plan.

1.4.1.4 Permit or License

The Contractor shall obtain all needed permits or licenses for disposal of solid, liquid, chemical, and other waste generated as a result or this contract including construction and operating permitting with the State and permitting of any hydrocarbon discharges. (See par. 3.2.2)

1.4.1.5 Drawings

The Contractor shall include drawings showing locations of any proposed temporary material storage areas, structures, sanitary facilities, stockpiles of earth materials, and disposal areas.

1.4.1.6 Environmental Monitoring Plans

The Contractor shall include environmental monitoring plans for the job site which incorporate land, water, air and noise monitoring.

1.4.1.7 Traffic Control Plan

The Contractor shall include a traffic control plan for the job site.

1.4.1.8 Work Area Plan

The Contractor shall include a work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. The plan shall include measures for marking the limits of use areas.

1.4.1.9 Method of Controlling Equipment

The Contractor shall include a plan of the method for controlling equipment maneuvering to avoid environmental damage.

1.4.1.10 Training of Contractor's Personnel

The Contractor shall include a plan for training and control of his personnel for environmental damage.

1.4.1.11 Prevention and Control of Spillage

The Contractor shall include a plan for prevention and control of damaging spillages.

1.4.1.12 Layout of Work Areas and Other Areas

The Contractor shall include a plan of his method for layout of work areas.

1.4.1.13 Method and Location of Waste and Debris Disposal

The Contractor shall include the location for disposal of waste and debris.

1.4.1.14 Preplanning

Meetings of the Contractor with Contracting Officer or his authorized representative as specified in the paragraph MEETINGS, for the purpose of preplanning prevention of environmental damage.

1.4.1.15 Proposed Schedule for Training of Contractor Personnel

The Contractor shall include a schedule of proposed meetings to be attended by all Contractor personnel for the purpose of training for environmental protection with a Contracting Officer's representative present at appropriate intervals. Sufficient length of time to accomplish the purpose shall be included.

1.4.1.16 Method of Training

The Contractor shall include a proposed method of training all new employees in environmental protection before they commence working project.

1.5 STORM WATER POLLUTION PREVENTION PLANS

The Contractor shall prepare a storm water pollution prevention plan (PPP) for the construction activity. This plan shall be in accordance with EPAPUB NPDES General Permits for Storm Water Discharges from Construction Sites. The plan shall identify potential sources of pollution resulting from storm water discharge from the project site(s) and present methods for reducing or eliminating such discharge.

The Contracting Officer and the Contractor shall review the PPP to determine the accuracy of the plan. The PPP may be modified to insure that all current measures to prevent offsite migration of pollutants, including soils, are included in the plan.

1.5.1 Contents of the Pollution Prevention Plan

The pollution prevention plan shall include as a minimum:

(a) a narrative description of potential pollution sources for each construction site through a description of the nature of the construction activity;

(b) the intended phasing of construction activities related to soil disturbance and the storm water control measure proposed for that activity. For each storm water control measure proposed, the PPP shall indicate when the measure will be implemented. Perimeter controls shall be actively maintained until final stabilization of that portion of the site upward of the perimeter control is established;

(c) estimates of total acerage to be disturbed, estimates of the runoff coefficient of the site once construction is completed, and any existing soils data or discharge quality data;

(d) site mapping detailing drainage patterns, slopes, major activities, location of structural controls such as hay bale barriers and the location of point sources;

(e) storm water management controls appropriate for the project, including perimeter controls, and stabilization practices to be employed such as temporary grading to control runoff velocities, temporary seeding and mulching and permanent seeding and planting. For a common drainage location that serves an area of 2.2 (5) or more disturbed hectares (acres) at one time, a sediment basin providing 255 cubic meters of storage per hectare (3,600 cubic feet of storage per acre) drained shall be provided. Equivalent control measures may be taken where attainable and after approval by the Contracting Officer;

(f) a description of maintenance procedures to be employed to minimize the offsite discharge of pollutants, and an inspection program to insure that the PPP is effective, or if not, to insure that necessary changes to the plan are made and implemented in a timely manner;

(g) identification for each storm water management measure set forth in the plan, the Contractor and/or subcontractor(s) that will implement such measure. Contractor and subcontractors identified in the PPP shall sign a certification that they have reviewed the general permit as listed in the paragraph STORM WATER POLLUTION PREVENTION PLANS and understand the terms and conditions therein. All such certifications shall be included in the PPP, which is to be kept on the job side for inspection by EPA or state or local regulatory agencies;

(h) plan for control of offsite vehicle tracking of soils. Contractor shall make every effort to keep soils onsite. This may be accomplished by including paved or graveled entrances, graveled and dedicated roadways, or vehicle wash stations.

1.6 MEETINGS

The Contractor shall meet with representatives of the Contracting Officer to develop mutual understanding relative to compliance with this section of the specifications and administration of the environment protection program. The Contractor shall be prepared to discuss the program in conferences convened by the Contracting Officer before starting work on each major phase of operation. Approval of the Contractor's plan for environmental protection will not relieve the Contractor of his responsibility for adequate and continuing control of pollutants and protection of environmental features. All Contractor personnel shall be required to attend.

1.7 SUBCONTRACTORS

Assurance of compliance with this section by subcontractors will be the responsibility of the Contractor.

1.8 REGULATORY REQUIREMENTS

The Contractor shall comply with all federal, state, and local regulatory and statutory requirements.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 PROTECTION OF ENVIRONMENTAL RESOURCES

The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine his activities to areas defined by the contract drawings or specifications. Environmental protection shall be as stated in the following subparagraphs.

3.1.1 Protection of Land Resources

Prior to the beginning of any construction, the Contracting Officer will identify all land resources to be preserved within the Contractor's work area. The Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without special permission from the Contracting Officer. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such special emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.

3.1.1.1 Work Area Limits

Prior to any construction, the Contractor shall mark the areas where no work is to be

performed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence and during all construction operations. Where construction operations are to be conducted during darkness, the markers shall be visible during darkness. The Contractor shall convey to his personnel the purpose of marking and/or protection of all necessary objects.

3.1.1.2 Protection of Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features to be preserved, indicated and defined on the drawings submitted by the Contractor as a part of the Environmental Protection Plan, shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques.

3.1.1.3 Reduction of Exposure of Unprotected Erodible Soils

Earthwork brought to final grade shall be finished as indicated and specified. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Except in instances where the constructed feature obscures borrow areas, quarries and waste material areas, these areas shall not initially be cleared in total. Clearing of such areas shall progress in reasonably sized increments as needed to use the areas developed as approved by the Contracting Officer.

3.1.1.4 Temporary Protection of Disturbed Areas

Such methods as necessary shall be utilized to effectively prevent erosion and control sedimentation, including but not limited to the following:

a. Retardation and Control of Runoff

Runoff from the construction site shall be controlled by construction of diversion ditches, benches, and berms to retard and divert runoff to protected drainage courses, and the Contractor shall also utilize any measures required by area-wide plans approved under Paragraph 208 of the Clean Water Act.

b. Sediment Basins

Sediment from construction areas shall be trapped in temporary sediment basins in accordance with the paragraph: STORM WATER POLLUTION PREVENTION PLANS. The Contractor shall institute effluent quality monitoring programs as required by state and local environmental agencies.

3.1.1.5 Erosion and Sedimentation Control Devices.

The Contractor shall construct or install all temporary erosion sedimentation control features as required. Temporary erosion and sediment control measures such as berms, dikes, drains, sedimentation basins, grassing and mulching shall be maintained until permanent drainage and erosion control facilities are completed and operative.

3.1.1.6 Stabilization of Disturbed Soils

Stabilization measures of areas involved in the Pollution Prevention Plans shall be initiated on disturbed areas as soon as practicable, but no more than 14 days after the construction activity on a particular portion of the site has temporarily or permanently ceased except as follows:

(a) where construction activities will resume on a portion of the site within 21 days from the time when construction activities temporarily ceased;

(b) where the initiation of the stabilization measure is precluded by snow cover in which case stabilization measures shall be initiated as soon thereafter as practicable.

3.1.1.7 Inspections

Weekly inspections of construction sites shall be conducted by the Contractor to insure that the various controls and components of the various plans required by this section are in place. In addition, the Contractor shall make an inspection within 24 hours following a 1/2 inch or greater rainfall event to insure that the controls are working adequately and have not been impacted by the rainfall event.

3.1.1.8 Location of Contractor Facilities

The Contractor's field offices, staging areas, stockpiles, storage, and temporary buildings shall be placed in areas designated on the contract drawings and approved by the Contracting Officer. Temporary movement or relocation of Contractor facilities shall be made only on approval by the Contracting Officer.

3.1.1.9 Disposal of Solid Wastes

Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. All handling and disposal shall be conducted to prevent contamination. The Contractor shall transport all solid waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal.

3.1.1.10 Disposal of Chemical Wastes

Chemical wastes shall be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with Federal, State, and local regulations.

3.1.1.11 Disposal of Discarded Materials

Discarded materials other than those which can be included in the solid waste category shall be handled as directed by the Contracting Officer.

3.2 PROTECTION OF AIR RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to minimize pollution of air resources. All activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with all Federal and State emission and performance laws and standards. Special management techniques as set out below shall be implemented to control air pollution by the construction activities which are included in the contract.

3.2.1 Particulates

Dust particles, aerosols, and gaseous by-products from all construction activities, processing and preparation of materials, such as from asphaltic batch plants, shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and all other work areas within or outside the project boundaries free from particulates which would cause the air pollution standards mentioned in the paragraph "PROTECTION OF AIR RESOURCES" to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated at such intervals as to keep the disturbed area damp at all times. The Contractor must have sufficient competent equipment available to accomplish this task. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs.

3.2.2 Hydrocarbons and Carbon Monoxide

Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

3.2.3 Odors

Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

3.2.4 Monitoring Air Quality

Monitoring of air quality shall be the responsibility of the Contractor. All air areas affected by the construction activities shall be monitored by the Contractor.

3.3 TESTS

The Contractor shall establish and maintain quality control for environmental protection operations to assure compliance with contract requirements and maintain records of his quality control for all construction operations, including, but not limited to the following items. The Contractor shall record on daily reports any problems in complying with laws, regulations and ordinances and corrective action taken. Three copies of these records and tests, as well as the records of corrective action taken, shall be furnished the Government as directed by the Contracting Officer.

3.3.1 Laws, Regulations and Ordinances

The Contractor must comply with all Federal, State, and local laws, regulations and ordinances concerning pollution control.

3.3.2 Protection of Land Resources

The Contractor shall prevent landscape defacement and provide post-construction clean-up.

3.3.3 Protection of Water Resources

The Contractor shall prevent the contamination of lakes, ditches, or other bodies of water with harmful chemicals; the Contractor shall dispose of waste materials; and the Contractor shall provide erosion control.

3.3.4 Pollution Control Facilities

The Contractor shall provide for the maintenance of pollution control facilities. The Contractor shall conduct a training course on the maintenance of pollution control facilities.

3.4 INSPECTION

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with any of the Contractor's required plans. The Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and take such action as may be approved. If the Contractor fails 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 time extensions will be granted or costs or damages allowed to the Contractor for any such

suspension.

3.5 POST CONSTRUCTION CLEANUP

The Contractor shall clean up all area(s) used for construction.

3.6 RESTORATION OF LANDSCAPE DAMAGE

The Contractor shall restore all landscape features damaged or destroyed during construction operations outside the limits of the approved work areas. Such restoration shall be in accordance with the plans submitted for approval by the Contracting Officer.

3.7 MAINTENANCE OF POLLUTION FACILITIES

The Contractor shall maintain all constructed facilities and temporary pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.8 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL

The Contractor shall train his personnel in all phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities (vegetative covers and instruments required for monitoring purposes) to insure adequate and continuous environmental pollution control.

3.9 RECORD KEEPING

During construction, all records shall be retained onsite. Inspection reports, and modifications of the plans required shall be retained for 3 years following construction.

-- End of Section --

SECTION 01580

BULLETIN BOARD, PROJECT SIGN, AND SAFETY SIGN

PART 1 GENERAL

Immediately upon beginning of work under this contract, the Contractor shall accomplish the work covered in this section. Locations of the bulletin board, project sign, and safety sign shall be as determined by the Contracting Officer. Upon completion of work under this contract, the signs shall be removed from the jobsite and shall remain the property of the Contractor.

PART 2 PRODUCTS

2.1 BULLETIN BOARD

Bulletin board shall be a weatherproof, glass-covered board not less than 36 by 48 inches in size, for displaying the Equal Employment Opportunity Poster, a copy of the wage decision contained in the contract, Wage Rate Information Poster, and other information approved by the Contracting Officer. The bulletin board shall be located at the site of work in a conspicuous place easily accessible to all employees. Legible copies of the above items shall be displayed until work under the contract is complete.

2.2 PROJECT SIGN

The project sign shall be constructed as shown on the drawings at the end of this section. The sign shall receiveone coat of primer paint followed by two coats of finish gloss exterior enamel paint, color as directed by the Contracting Officer. Lettering shall be as shown on the drawing and shall be white gloss exterior type enamel.

2.3 SAFETY SIGN

The safety sign shall be located in a conspicuous place within view of all employees and visitors. Details of construction shall be as shown on the drawing attached at the end of this section. Paint shall be gloss exterior enamel. Lettering shall be as shown on the drawing. The Contractor shall keep the safety sign current by posting the numbers daily.

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

Each contrrator's safety record is to be posted on Corps managed or supervised construction projects and mounted with the construction project identification sign.

The graphic format, color, size and type-faces used on the sign are to be reproduced exactly as specified below. The title with First Aid logo in the top section of the sign and the performance record captions are standard for all signs of the type. Legend Groups 2 and 3 below identify the project and the contractor and are to be placed on the sign as shown.

Safety record numbers are mounted on individual metal plates and are screwmounted to the background to allow for daily revisions to posted safety performance record.

Legend Group 1: Standard two-line title "Safety is a Job requirement" with (8 od.) Safety Green First Aid logo.
Color: to match PMS 347
Typeface: 3" Helvetica Bold
Color: Black

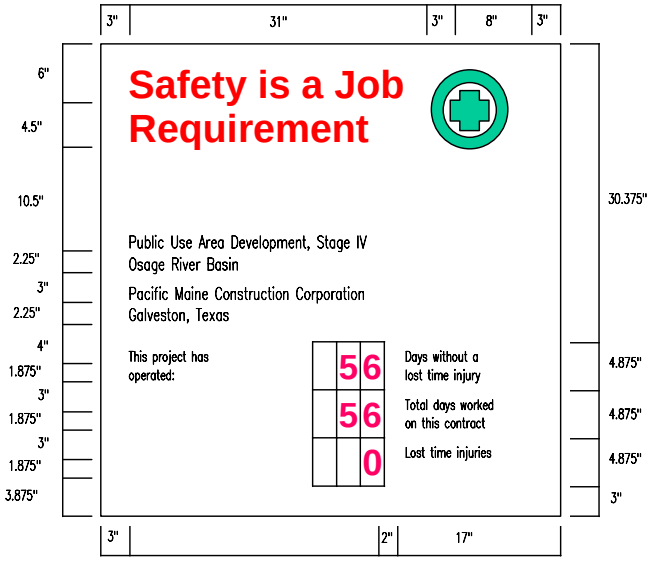
Legend Group 2: One to two-line project title legend describes the work being done under this contract and name of host project.
Color: Black
Typeface: 1.5" Helvetica Regular
Maximum line length: 42"

Legend Group 3: One to two-line identifation: name of prime contractor and city, state address.
Color: Black
Typeface: 1.5" Helvetica Regular
Maximum line length: 42"

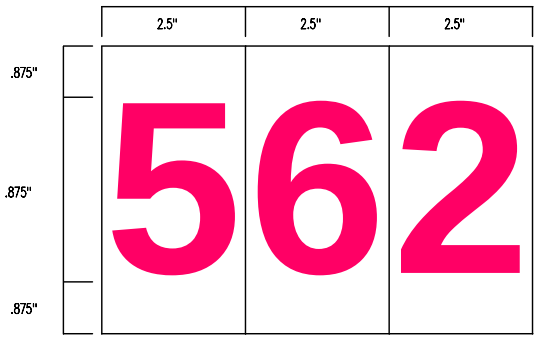
Legend Group 4: Standard safety record capitons as shown.
Color: Black
Typeface: 12.5" Helvetica Regular

Replaceable numbers are to be mounted on white .060 aluminum plates and screw-mounted to background.
Color: Black
Typeface: 3" Helvetica Regular
Plate size: 2.5" x .5"

All typography is flush left and rag right. Upper and lower case with initial capitals only as shown. Letter- and word-spacing to follow Corps standards.



Sign Type	Legend Size	Panel Size	Post Size	Specification Code	Mounting Height	Color Bkg/Lgd
CID-02	various	4"x4"	4"x4"	HDO-3	48"	WH/BK-GR



SAFETY PERFORMANCE SIGN

Fig. 5d

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 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.

1.3.3 Final As-Built Drawings

Upon approval of the preliminary as-built prints, the Contractor shall provide the final as-built drawings in MicroStation 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 Tinker 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.

1.3.3.1 Media

Digital Data Format shall be as listed below in order of preference. Compression is optional on Compact Disc and Bernoulli.

More than 20mb 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. 8mm magnetic tape cartridge (5.0gb max.) utilizing NT Backup software.
4. 8mm magnetic tape cartridge (2.3gb) utilizing UNIX SCPIO Backup software.
5. 1/4" magnetic tape cartridge utilizing UNIX SCPIO Backup software.
6. 3.5-in. High-density diskette(1.44mb) utilizing DOS, Windows Backup or Pkzip software.

Less than 20mb 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(1.44mb) utilizing DOS, NT, Windows Backup or Pkzip software.

1.3.3.2 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.

1.3.4 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 SPECIFICATIONS. The operating and maintenance instructions shall include two separate manuals, an Operations Manual and a Maintenance Manua,l and shall include framed instructions when required by the specific section. Each system or piece of equipment shall be covered in the two separate manuals regardless of the number of suppliers or subcontractors involved. Combining more than one system or piece of equipment into the same manuals may be permitted if the manuals are indexed by section and do not exceed 4 inches in thickness. Data submitted for the manual shall be in addition to that furnished as shop drawings. Unless otherwise specified in the SPECIFICATIONS, the Contractor shall assemble six complete bound Operations Manuals and six complete bound Maintenance Manuals. Operations and maintenance data shall be submitted within 30 days after approval of the equipment or system and not less than 60 days prior to scheduled testing. Operations and maintenance data shall also be submitted and approved by the time the project reaches 90 percent completion. If O & M data cannot be completed until equipment or systems have been tested and balanced, a draft copy shall be submitted within the specified time. The completed O & M data shall then be submitted within 30 days after the completion of such testing and balancing. Unless otherwise authorized by the Contracting Officer, the Government will not accept the equipment or systems nor will the Government take possession of the associated work until O & M data are submitted and approved.

1.4.2 Manuals

Operations and maintenance manuals shall be assembled in a durable stiff (hard) covered binder for 8-1/2 by 11-inch sheets with slide binding or screwpost fastening for replacement. Loose-leaf ring binders shall not be used. A permanently printed title on the covers shall show the project name, contract number, and the name of the equipment or system. Shop assembly or special drawings for manuals or parts catalogs shall be of a size that requires folding only a left-to-right coordinate. Each sheet shall be numbered and an index shall be provided. All

standard catalog cuts, manufacture's data, parts sheets, or illustrations, shall be originals. A warning page shall be provided to warn of potential dangers, such as high voltage, toxic chemicals, flammable liquids, explosive materials, carcinogens, or high pressures. The warning page shall be placed inside the front cover or tab page if more than one section is combined, in front of the title page. The title page shall show the name of the preparing firm (designer or contractor) and the date of publication. All nonapplicable data such as descriptions of other models and optional equipment not included shall be marked out or all applicable data shall be distinctly highlighted. If reference is made to other drawings or data, they shall be included. Manuals shall include the following information for each item of equipment or system:

1.4.2.1 Operations Manual

The Operations Manual shall show operating procedures, sequences, and precautions. The Contractor shall coordinate subcontractors, suppliers, and manufacturers to assure complete submittals on interrelated components. Include adequate illustrative material to identify and locate operating controls, indicating devices and locations of areas or items requiring operation or adjustments. As a minimum, the manual shall include piping and equipment layout and simplified wiring and control diagrams of the complete system as installed. Describe, in detail, starting and stopping procedures for components, adjustments required to obtain optimum equipment performance, and corrective actions for malfunctions. Catalog cuts describing equipment operating procedures shall not be used as system operating instructions.

1.4.2.2 Maintenance Manual

The Maintenance manual shall provide instructions for routine and preventive maintenance showing lubrication, dismantling, assembly, repair, and adjustment, electric schematic and connection diagrams, hydraulic circuit diagrams with control and relief valve settings, control and interlock system diagrarms, and lists of special tools required. Lubrication instructions shall be for service intended and shall include tables indicating items, frequencies, grades, and types of lubricants. Instructions shall include clearances, bolt torques, pressure settings, and other data. The nature and frequency of routine maintenance and procedures shall be indicated. The materials and test equipment that may be required shall be noted. Performance sheets and graphs, as applicable, showing capacity data, efficiencies, electrical characteristics, pressure drops, and flow rates shall be included. Marked-up catalogs or catalog pages shall not be used for this purpose. Performance information shall be presented concisely and shall contain only data pertaining to equipment actually installed.

Spare parts data and catalogs showing identification, nomenclature, part numbers, required parts, recommended spare parts stocked, and spare parts supplied shall be included. Local source of parts and dated current price list shall be included. Data shall match equipment furnished. Standard catalog data may be used only if irrelevant parts are marked out or relevant parts are clearly identified. Repair information shall show diagrams and schematics, guidance for diagnosing problems, and detailed instructions for making repairs.

Troubleshooting information shall be provided that includes a statement of the indication or symptom of trouble and the sequential instructions necessary. Test hookups to determine the cause of trouble, special tools and test equipment, and methods for returning the equipment to operating conditions shall be identified. Information may be in chart form or in tabular format with appropriate headings.

1.4.3 Framed Instructions

Framed instructions shall include as-built schematics of all wiring, controls, piping, etc., necessary for the operation of the equipment or system, and condensed, printed description of the system and of the operating procedure. The framed data may include approved shop drawings, layout drawings, riser and block diagrams and shall indicate all necessary interrelationships with other equipment and systems. The operating instructions shall explain equipment or system prestart checkout, start-up and shut-down procedures, safety precautions, preventive maintenance procedures, and normal operations checks for satisfactory performance of the equipment or system. The framed data may be presented in one or several frames, under glass or plexiglas, for clarity and convenience of location. The framed data presentation and outline shall be acceptable to the Contracting Officer and posted at locations designated by the Contracting Officer. The data shall be posted before personnel training or performance testing acceptance for the related items of equipment or system.

1.5 TRAINING

Formal classroom and on-site training shall be provided as required in other sections of these Specifications. If significant changes or modifications in the equipment or systems are made during the term of the contract after instructions have been concluded, additional instructions shall be provided to acquaint the O&M personnel with the changes or modifications.

The Contractor shall videotape all formal classroom and on-site instruction training sessions. The Contractor shall provide equipment, material and trained personnel to record the sessions using VHS audio-video recording format. Upon completion of the training instructions, the recordings shall become the property of the Government. The recordings shall be indentified, indexed, and placed in appropriate approved storage containers for submittal to the Contracting Officer."

1.6 PAYMENT VALUES FOR O&M MANUALS AND AS-BUILT DRAWINGS (SWD LTR 8/2/90 & MEMO ES-Q DTD 1 JUN 94)

1.6.1 O & M Manuals

The estimated value for O&M manuals is considered by the Government to be $50,000. Payments will be made for this work only upon receipt and approval of O&M data as required in paragraphs "Operating and Maintenance Instructions" and "Training" above. Payment in the

amount of 50 percent of the estimated value may be made upon receipt and approval of the draft O&M data as specified in paragraph "Operating and Maintenance Instructions," provided all other submittals have been submitted and approved.

1.6.2 As-Built Drawings

The estimated value of as-built drawings is considered by the Government to be $20,000. Payments will be made for this work only upon receipt and approval of final as-built drawings as required in paragraph "As-Built Drawings" above.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

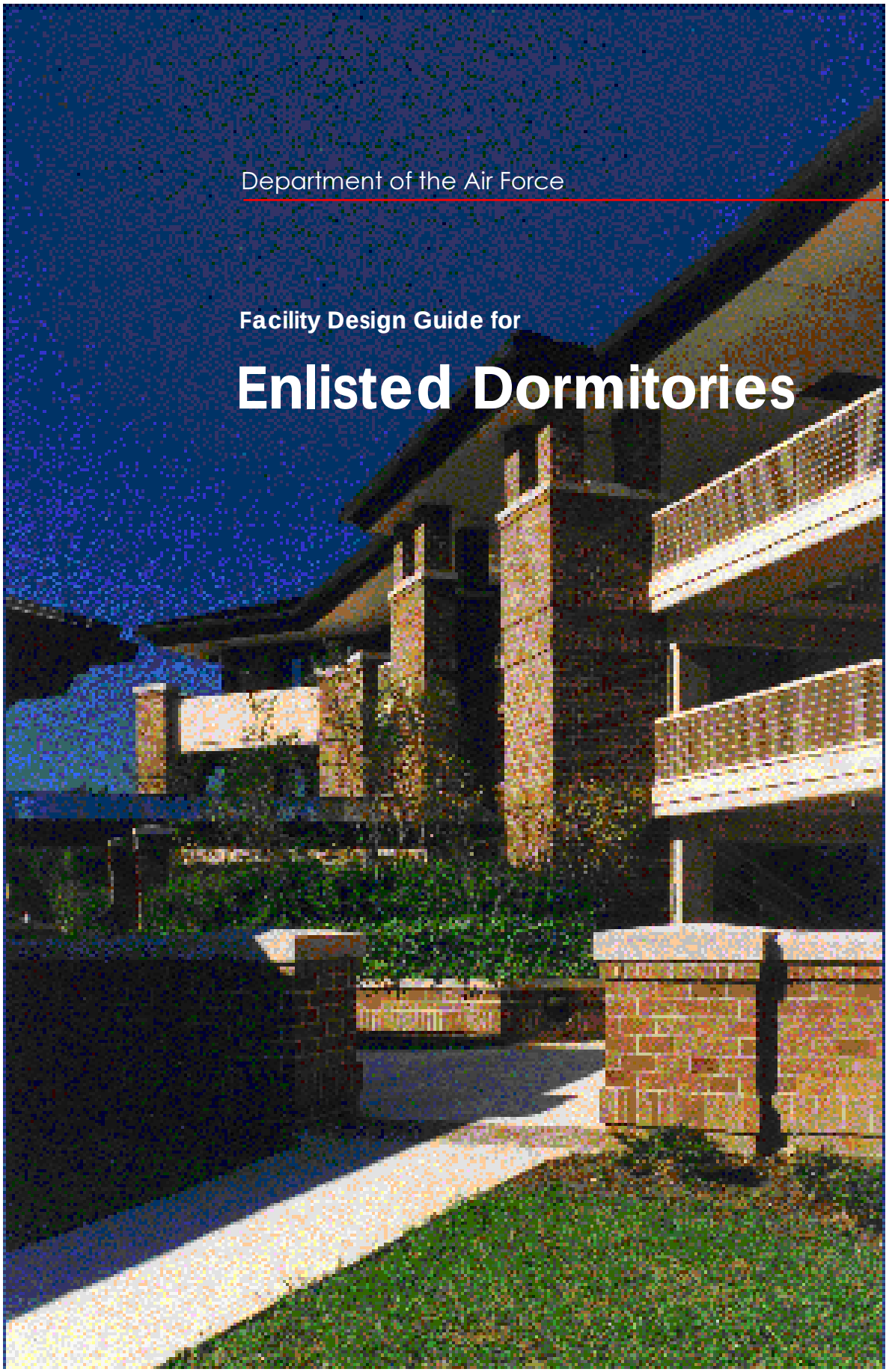
APPENDIX B

FACILITY DESIGN GUIDE FOR ENLISTED DORMITORIES

Department of the Air Force

Facility Design Guide for

Enlisted Dormitories



June 1997

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Chapter 1
Introduction
A. Purpose

1. Contents

This design guide provides the basic criteria to plan, program and design Air Force enlisted permanent party dormitories. It presents guidance for development of enlisted dormitories taking into account local program operations and requirements. This guide expands upon and details the principles of two prefacing documents: the Commander's Guide for Installation Development and Airmen Communities. The guide also takes into account the preliminary findings of the Airmen's Community Survey conducted by the Air Force and the Army. The criteria herein applies to new enlisted dormitories and major enlisted dormitory renovations. At time of printing, separate design standards that apply to basic trainee barracks, pipeline student dormitories, and transient visiting airmen's quarters are under development.

This design guide provides guidance on the new Office of the Secretary of Defense (OSD) dormitory design standard, called the "1+1" standard because it features two private sleeping rooms. The Secretary of Defense approved the new standard on 6 November 95, and the Military Services were given authority to submit FY 96 and later MILCON unaccompanied housing projects with 1+1 standards. This guide incorporates the latest 1+1 design guidance found in draft OSD guidance and the HQ USAF/CE policy letter dated 16 February 95. As additional guidance is received from OSD and Air Staff, it will be included in updates of this guide.

2. Use and Intentions

This document is for use by:

- Base Civil Engineers
- Community Planners
- Programmers
- Housing Managers
- Major Command and Headquarters
- Architects
- Landscape architects
- Interior designers
- Engineers.

This guide is intended to promote a better understanding of enlisted dormitory requirements and design criteria.

3. Quality

Air Force facilities project quality by their appearance, ambiance, and their fulfillment of functional requirements and mission objectives. Quality is derived from a professional commitment by users, planners, programmers, and designers to achieve understated excellence through the delivery of complete and usable facilities. To achieve quality results, the proposed enlisted dormitory must satisfy the design intent, be easily maintained and present a positive image of the Air Force in its care-taker role of personnel as well as the environment.

4. Goal

This design guide serves to provide a better understanding of the many issues involved in quality housing for our unaccompanied enlisted personnel. It also promotes teamwork in the project development process.

B. Scope and Customers

1. Application

This Enlisted Dormitory Design Guide is applicable to all projects in the continental United States and overseas. It applies to new facilities and renovation projects. It provides criteria for determining:

- Program requirements
- Site evaluation and planning
- Facility design
- Landscape design
- Interior design

2. Limitations

This document provides information needed to produce a program or a conceptual design for a specific project. Use this guide in conjunction with other Air Force and Department of Defense documents that give related guidance. Unique design requirements of a specific project are addressed individually at the local level. This design guide is not a substitute for programming research by the designers, and it recognizes that the major commands have their own special requirements for their dormitories. It does, however, establish minimum design standards that must be followed. Designers are encouraged to exceed these standards where appropriate.

3. Criteria Development

A number of diverse groups have an interest in the delivery of quality enlisted dormitory facilities. Each has their own criteria for what is important, and each plays a vital role in establishing design criteria. The following is a list of these participants:

- Unaccompanied Enlisted Personnel
- Senior Enlisted Advisors
- 1st Sergeants
- Commanders
- Designers
- Operations and Maintenance Personnel
- Housing Managements Personnel

4. Project Development Stages

Project Initiation

Information required for preparation of DD Form 1391, which initiates project development, is found in this design guide. This includes the functions, the space allowances, overall building size, site evaluation, and special factors to consider in developing cost estimates. This guide provides data and criteria needed at each stage of the Air Force project development process.

Site Selection

This is generally part of the comprehensive planning process. Guidance for this selection is provided in Chapter 2, Site Evaluation.

Program Definition

The Requirements Document/Project Management Plan (RAMP) provides the design agent and the designer with information used in negotiating the design contract and completing the project definition phase of the project. The information in this design guide provides the basis for developing the RAMP. This includes the space planning guidance found in Chapter 2 plus the site design, building design and building systems concepts in Chapter 3. Unique local requirements concerning building program and design criteria also are included in the RAMP.

Design

Design drawings and data are normally prepared in the following sequence: project definition (10-20% design), preliminary (35-65% design), prefinal (95% sesign), and final working drawings (100% design). Often, when project definition is approved, preliminary design submittals are omitted and the designers are directed to proceed to prefinals. Project definition designs must conform to the overall project design considerations in Chapter 3. Commands must provide copies of all concept designs for enlisted dormitory projects with the new 1+1 standard to HQ AFCEE/DG. Include typical module plans, overall building plans, and module furnishing layouts. Show critcical dimensions and calculations reflecting compliance with 1+1 design criteria. These concept submissions will allow the Air Force Design Group to build a library of good 1+1 designs which will be crossfed to MAJCOMs and the Air Staff.

Chapter 2
Programming

A. Functions

The following basic functional activities must be addressed in enlisted personnel dormitories. These three basic functional categories are interactive, and designers must fully understand the relationships between the categories. The designer must take a holistic approach to creating a fully integrated facility. The three basic functional categories are:

1. Residential

- Sleeping
- Personal hygiene
- Personal study
- Food preparation and dining
- Personal storage
- Indoor relaxation
- Personal cooking and dining

2. Recreation/Community

- Television viewing
- Fitness/workout rooms
- Room games
- Outdoor sports
- Outdoor relaxation areas (These include individual and group activities.)

3. Service

- Laundry
- Mail delivery
- Vending
- Bulk storage
- Administrative support

B. Parameters

1. Planning Considerations

Planning the facility space program must take the following items into consideration:

- The current and projected resident population served by the proposed facility
- The potential for retention and renovation of existing facilities
- The need for additions versus complete new construction projects
- Existing community facilities on base and their adequacies relative to current and future needs

2. Proximity

Locate dormitories within a resonable distance of all community facilities, such as dining facilities, postal service centers, base exchanges, and commissaries. While most airmen in the United States have cars, many in overseas locations do not. Programmers must address the capacity of existing community facilities and accommodate any additional requirements incurred by the proposed dormitory increase. The proximity of dormitories to community services must be balanced with the need for quietness and privacy.

C. Allowances, Types, and Modules

1. Established Criteria

The area and occupancy requirements listed in Table 1 are construction standards, not assignment standards. There is currently no direct correlation between assignment standards and construction standards. Programmers must establish the anticipated number of occupants and the grade mix as the first step in developing a dormitory design. See AFH 32-1084, latest edition, for space allowances for Air Force Enlisted Dormitories, category code 721-312, Enlisted Personnel Permanent Party/PCS Student Dormitory.

Construction Standards

Grade:	E1 - E4
Net Living Area per Person:	11 m2 (118 SF)
Maximum number of persons per module	2 (1 per side)
Kitchen and bath configuration	Semi-private (shared by 2)

Table 1. Construction Standards

Note: At time of publication, assignment standards were not finalized. E-5s and above will likely be housed off-base. This guide therefore focuses on grades E-1 through E-4.

Career E-4s are allowed a minimum of 12.5 m^2 (135 SF) net living area in a private room configuration in existing dormitories. Career E-4s are afforded this additional space in recognition of their long-term commitment to the Air Force. This is an assignment standard only and must not be used to program or construct new dormitories.

New enlisted dormitories must satisfy the new construction requirements cited in Table 1. Note that the net living area per person in Table 1 is neither a minimum or maximum but must be met exactly, or to the greatest extent possible in the case of a major renovation. Assignment standards will most likely change before any changes occur for construction standards.

Enlisted dormitory major renovation projects must satisfy the construction standards to the maximum extent possible. Deviations are often necessary due to column locations, load bearing walls, or other pre-existing conditions. Where deviations are required a waiver must be obtained from HQ USAF/ILEH.

2. Recomended Spaces and Sizes

Dormitories fall into three general facility types: Type A provides access to the living units from interior double-loaded corridors, Type B provides access to the living units from exterior balconies or sidewalks, and Type C provides access to the units in a "garden apartment" arrangement. Figures 2 through 10 show typical modules for each type of facility. These are the basic building blocks from which enlisted dormitory programs are developed. **These designs are not mandatory standards, but are provided to serve as examples and to illustrate critical design issues. The module layout may vary provided the required net living area, minimum dimensional clearances, and maximum gross building area conform.** These modules are based on a standard of 22 m^2 (236 SF) net living area per module, and should be designed to readily convert to a private apartment as proposed in Vision 2020. See Chapter 5.

3. Net Living Area

Net living area is generally defined as the floor area of the living/bedroom space, measured to the inside face of the room walls as indicated by the shaded areas on Figures 1 through 9.

Provide a total of 11 m^2 (118.4 SF) net living area in each room (22 m^2 or 236 SF total for each module). Note that this is neither a minimum or maximum but must be met exactly, except in major dormitory renovations. The width of a living/bedroom area should not be less than 2800 mm (9'-4"); a minimum width of 3048 mm (10 ft.) is recommended. It is often impossible or impractical to satisfy this exact area and minimum width requirement when doing major renovation of an existing dormitory. When such occasions arise, the net living area may be increased up to 5%, or 11.55 m^2 (124 square feet). In no case should the net living area per side of a module be less than 11 m^2.

A generally good method of estimating the net living area is to measure the ceiling area of the living/bedroom space.

Items <u>included</u> in net living area calculations are:

- All door swings that encroach upon the living/bedroom area (typical in Type B dormitories).
- Mechanical equipment such as heat/air-conditioning units, radiators, and base board heaters.

Items <u>excluded</u> from net living area calculations are:

- Items extending from floor to ceiling, which have been <u>boxed-in</u> and extend into the room from the wall plane (such as columns, pilasters, vertical pipes and air ducts.)
- Where vanities occur within the living/bedroom area, exclude the area occupied by the vanity from the net living area calculation.
- Closets and wardrobes are no longer included as net living area.

See Figures 1 through 10 for examples of net living area.

Countless configurations are possible in the design of modules, and it is impossible to describe all configurations in this guide. The method of measuring net living area for intricate designs may require interpretation by MAJCOM or HQ AFCEE/DCD. Where it is necessary to deviate from this criteria, MAJCOMs must obtain a waiver from HQ USAF/ILEH.

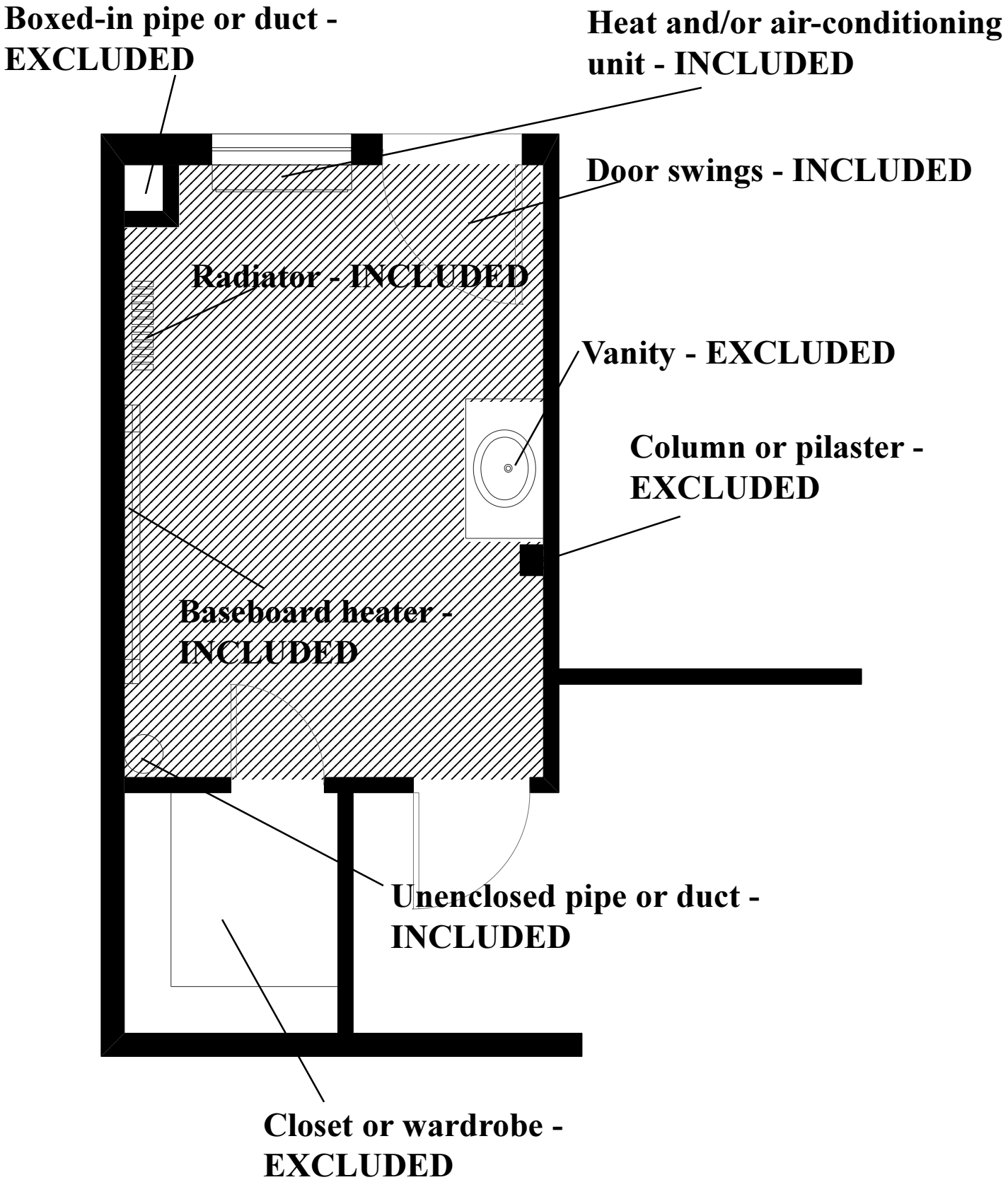


Figure 1. Measuring Net Living Area

4. Gross Module Area

Gross module area is defined as the area within the walls comprising the perimeter of a module. The wall thicknesses within the perimeter walls are included. Vertical shafts and chases are excluded. Gross module area is measured from the centerline of perimeter walls shared with interior corridors, vertical chases, or other rooms. It is measured to the outside face of exterior walls. Corner rooms with two exterior walls must have the same interior dimensions as other rooms even though, technically, the gross module area for these corner rooms is slightly more than for other rooms. The gross module area shall not exceed 47 m^2 (506 SF), except for the slight adjustment for corner rooms cited previously. Also, some deviation is allowable for major renovation projects; however, a waiver from HQ USAF/CEH is required. See Figure 11.

5. Gross Building Area

Gross building area is measured to the outside face of the exterior enclosure walls. Do not include normal roof overhangs in gross building area. Normal roof overhangs are generally less than three feet wide and are unsupported by columns. Exterior covered areas such as balconies count as half scope and are measured from the face of the enclosure wall to the edge of the covered area. Stairs and elevator shafts count as half scope per floor that they serve. Refer to AFH 32-1084 for more information on scope calculation. The gross building area for Enlisted Dormitories must not exceed 66 m^2 (710 SF) per module. This limitation can be increased by 4m^2 (43 SF) for high-rise dormitories (4 stories or more) or for dormitories with site specific programming requirements, such as mobility gear storage areas, cold weather vestibules, etc.

Dormitory MILCON projects must comply with the design and construction guidance establishing the absolute size for the net living/sleeping area and maximum sizes for the 1+1 module and the gross building area. Commands desiring a waiver from these absolute planning factors must submit a fully justified request, formatted as a normal Congressional reprogramming action, including an economic analysis to:

HQ USAF/ILEH
1260 Air Force Pentagon
Washington DC 20330-1260

Table 2 lists the required and optional spaces, respectively, associated with Enlisted Dormitories.

There are no maximum allowable areas for the optional spaces provided the maximum gross area for the building/complex of 66 m^2 (710 SF) per module is not exceeded. It is difficult to accommodate all of the listed optional spaces at their recommended sizes in many dormitories. Programmers, therefore, must prioritize these optional spaces and their sizes based on individual project needs.

Required Spaces

Functional Space	Minimum Net Area	Maximum Net Area	Recommended Net Area
Living/bedroom area, 2 per module	11 m2 (118 SF)	11 m2 (118 SF)	11m2 (118 SF) (See Figures 2 thru 10)
One bathroom per module (Bath compartment containing 1 commode, 1 tub or shower.	2.3 m2 (25 SF)	None	Approximately 2.3 m2 (25 SF) (See Figures 2 thru 10)
Private lavatory vanity - 2 per module, minimum 900 mm (36 inches) wide, separate from shared bath and within or immediately adjacent to living/bedroom area	None	None	Approximately 1.87 m2 (20.1 SF) per lavatory vanity(See Figures 2 thru 10)
1 closet space for each living/bedroom area. May be walk-in closets or built-in wardrobe(s)	1.86 m2 (20 SF)	None	1.86 m2 (20 SF)
Kitchenette - 1 per module. Includes minimum 0.3 m3 (11 cubic foot) frost-free refrigerator/freezer, double-bowl sink, 2-burner cooktop with oven (self-cleaning recommended), microwave shelf with electrical outlet, range hood with exhaust fan, and eating space adequate for table and two chairs or breakfast bar and two stools.	None	None	Approximately 9.5 m2 (102 SF)
Laundry Facilities (1 appliance set [washer and dryer] per 12 persons. The ratio of dryers may be increased as appropriate)	None	None	2.3 m2 (25 SF) per appliance.
Bulk storage	None	None	2 m2 (22 SF) per storage cubicle. 1 storage cubicle per .667 residents
Utility Space	None	None	Requirements dependent on local conditions
Mail service area(s) 1 box per area. May be covered exterior space if climate allows	None	None	Requirements dependent on local conditions
Circulation Space	None	None	7.4 m2 (80 SF) per module, varies with layout

Table 2A. Enlisted Dormitory Spaces and Sizes

Optional Spaces

Functional Space	Minimum Net Area	Recommended Net Area
Multi-purpose space (May be programmed as meeting/study rooms, television rooms, workout rooms, etc.)	13.9 m2 (150 SF) for each multi-purpose area	0.19 m2 (2 SF) per module for each multi-purpose area
Game Room	28 m2 (300 SF)	0.19 m2 (2 SF) per module
Vending Area	9.3 m2 (100 SF) each	9.3 m2 (100 SF) per floor
Guest Toilets	9.3 m2 (100 SF) per dormitory	9.3 m2 (100 SF) per dormitory
Supply Storage Room	9.3 m2 (100 SF) per dormitory	23.2 m2 (250 SF)
Administration Area	12.4 m2 (134 SF) per dormitory	12.4 m2 (134 SF) per dormitory

Table 2B. Enlisted Dormitory Spaces and Sizes

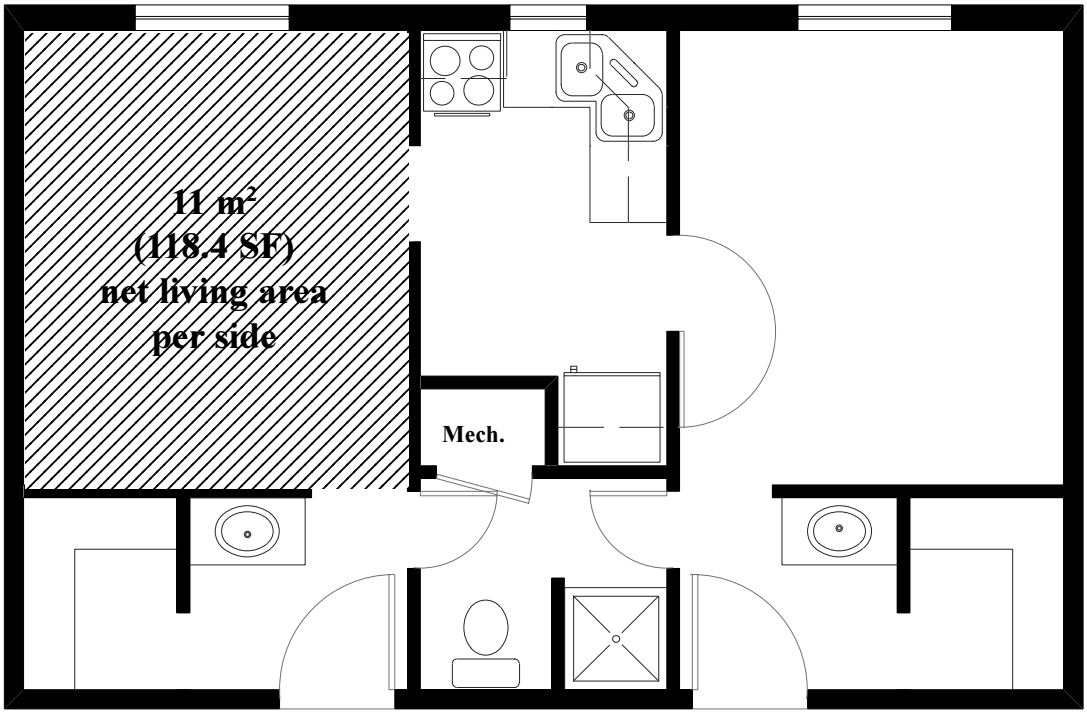


Figure 2. Typical Module, Type A Dormitory

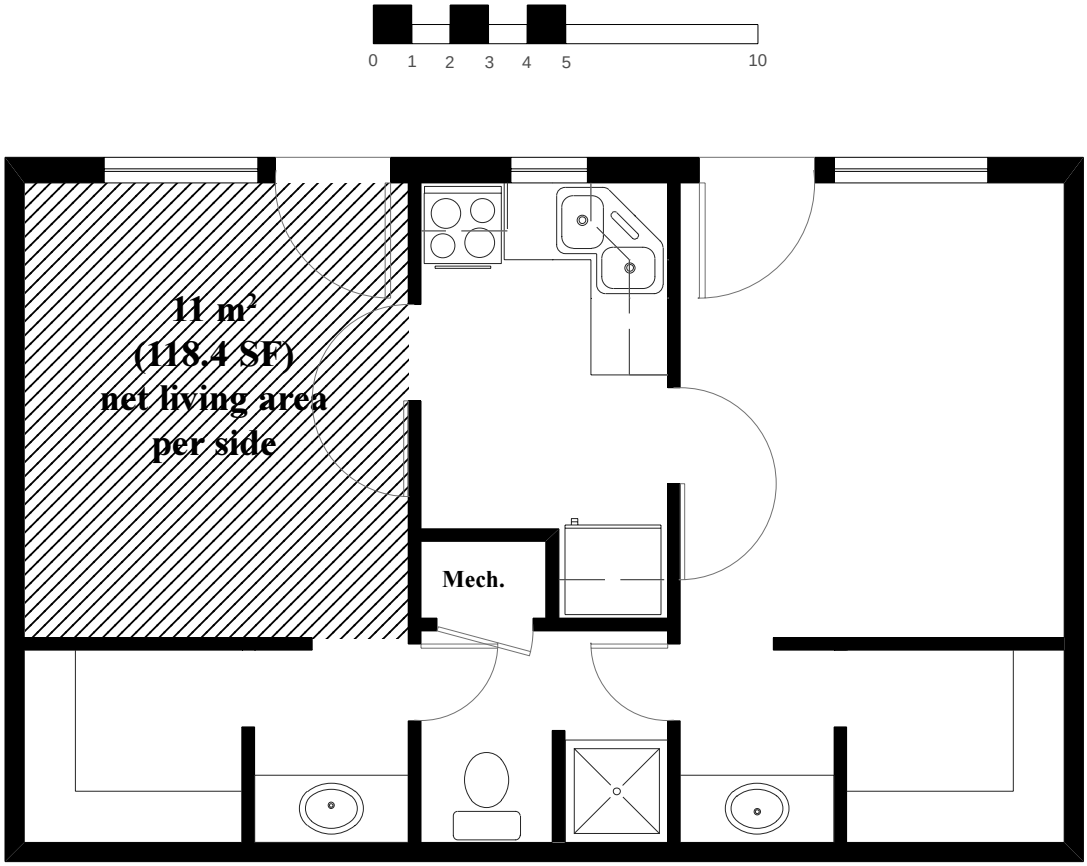


Figure 3. Typical Module, Type B Dormitory

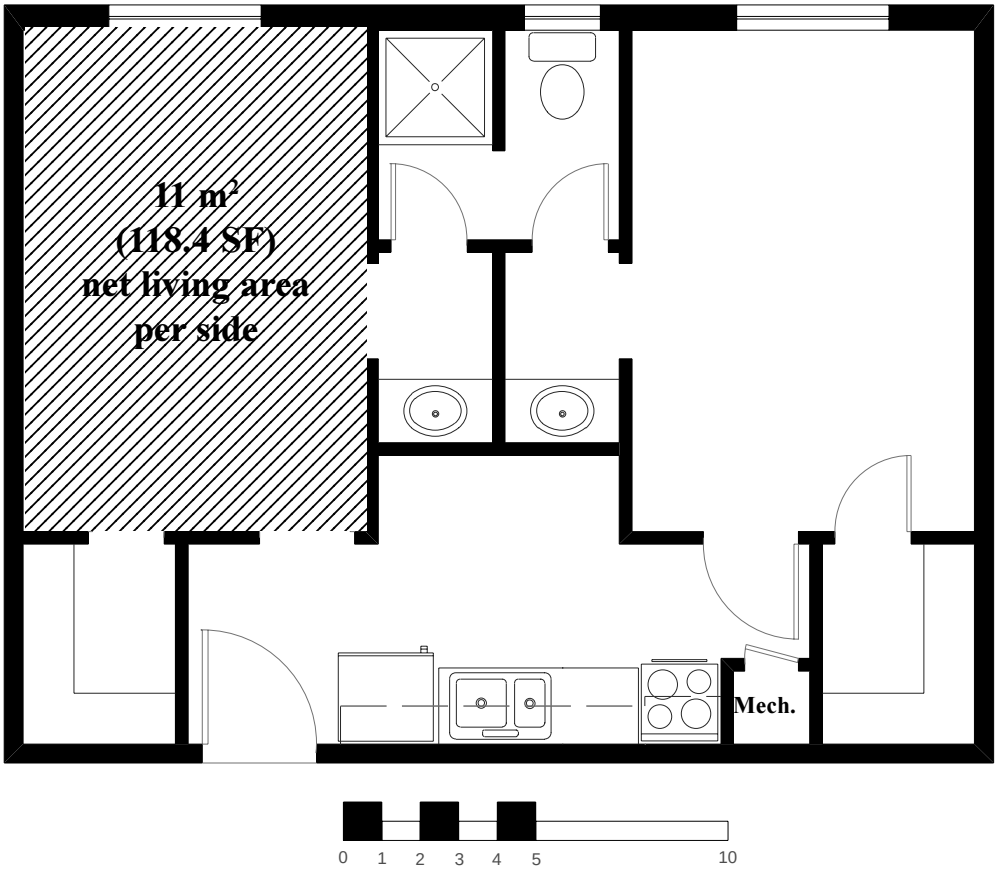


Figure 4. Typical Module, Type A Dormitory

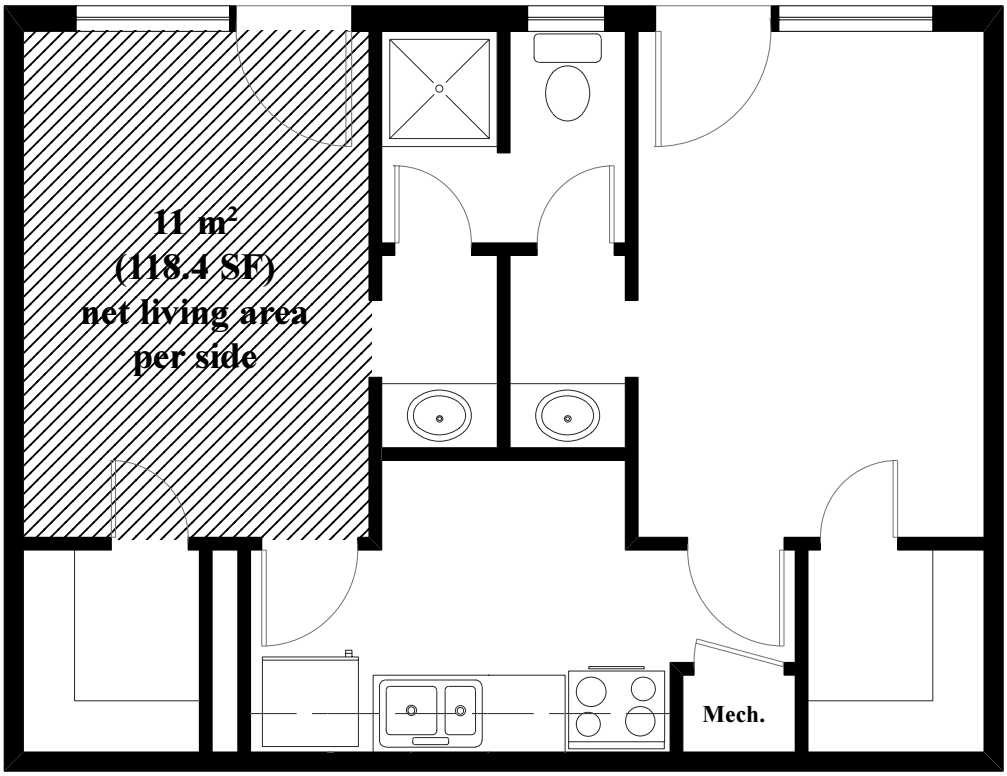


Figure 5. Typical Module, Type B Dormitory

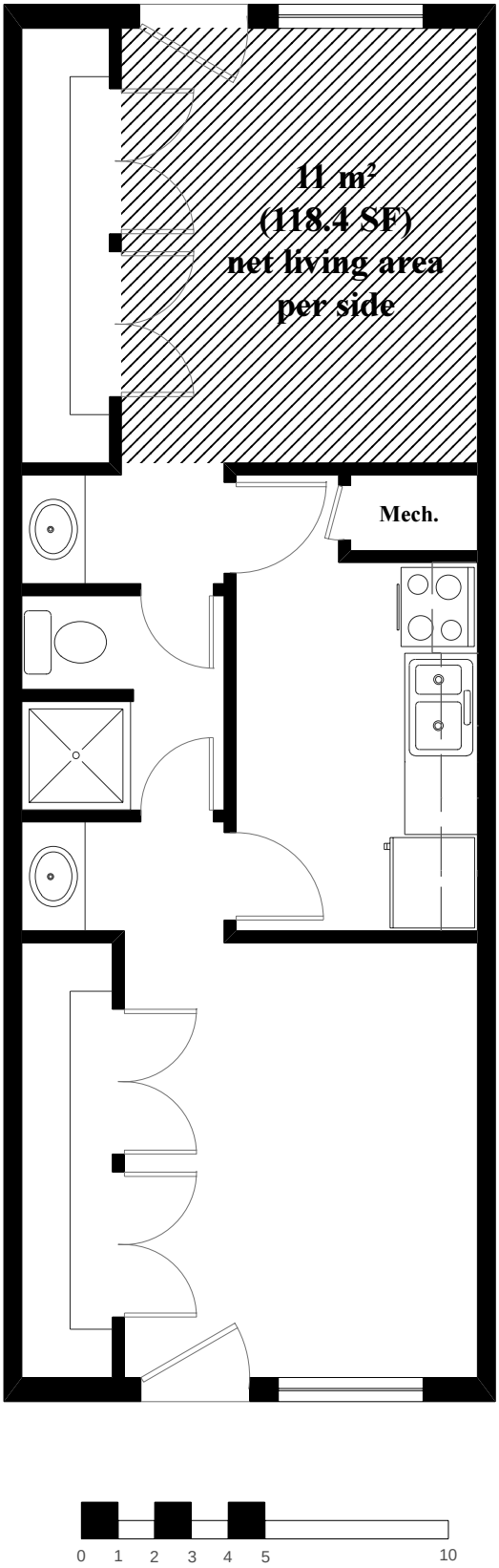


Figure 6. Typical Module, Type B Dormitory

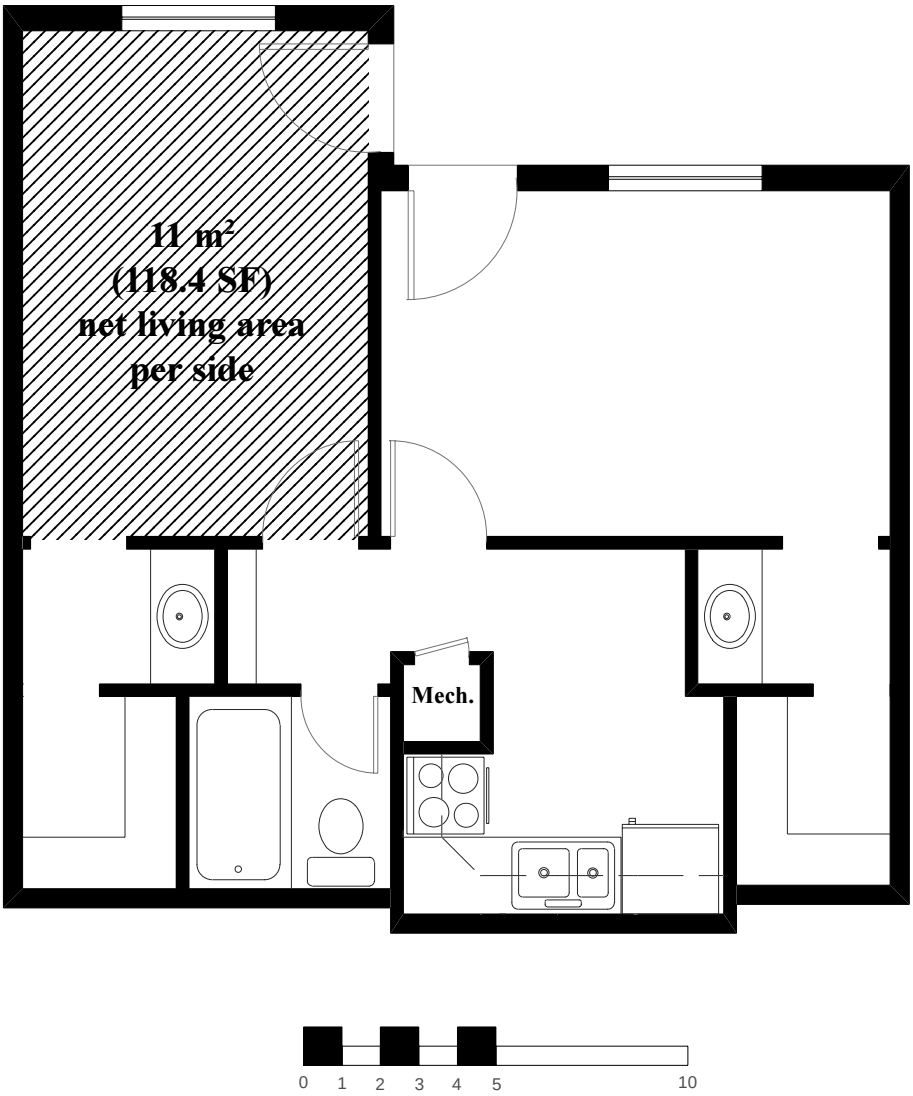


Figure 7. Typical Module, Type C Dormitory

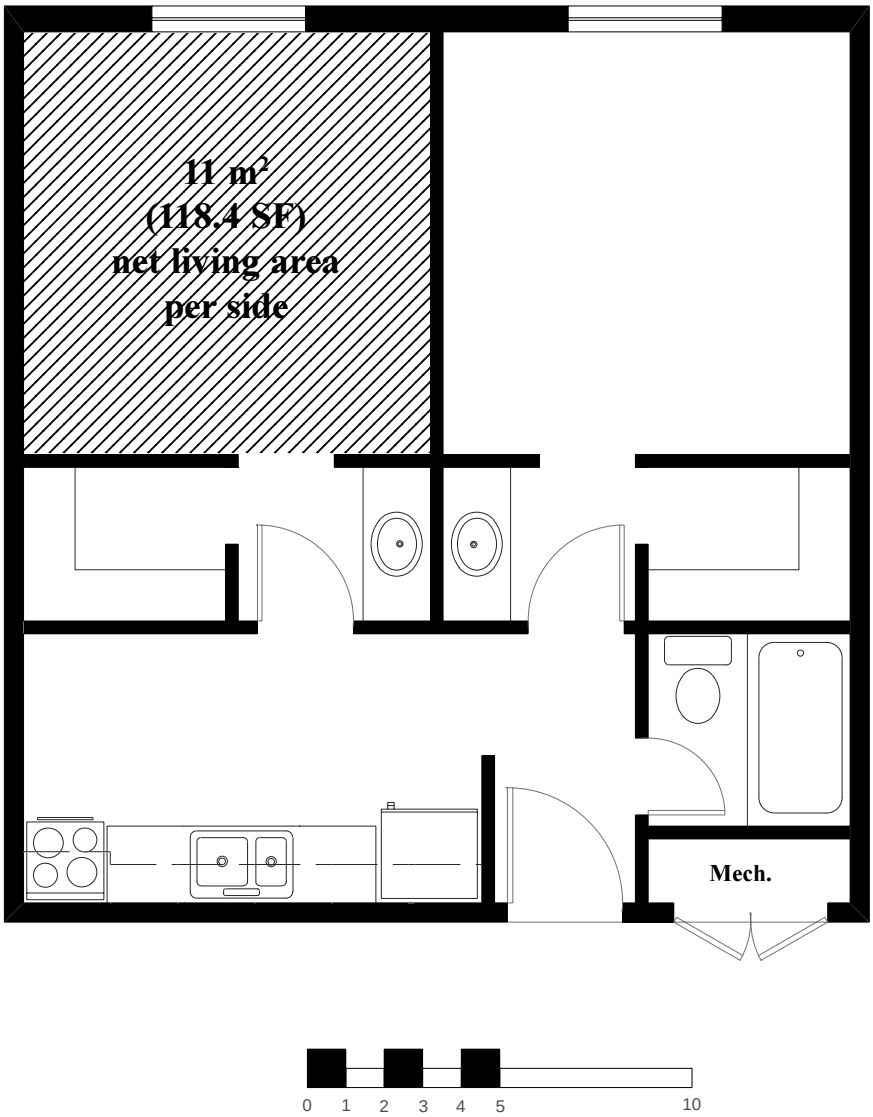


Figure 8. Typical Module, Type A Dormitory

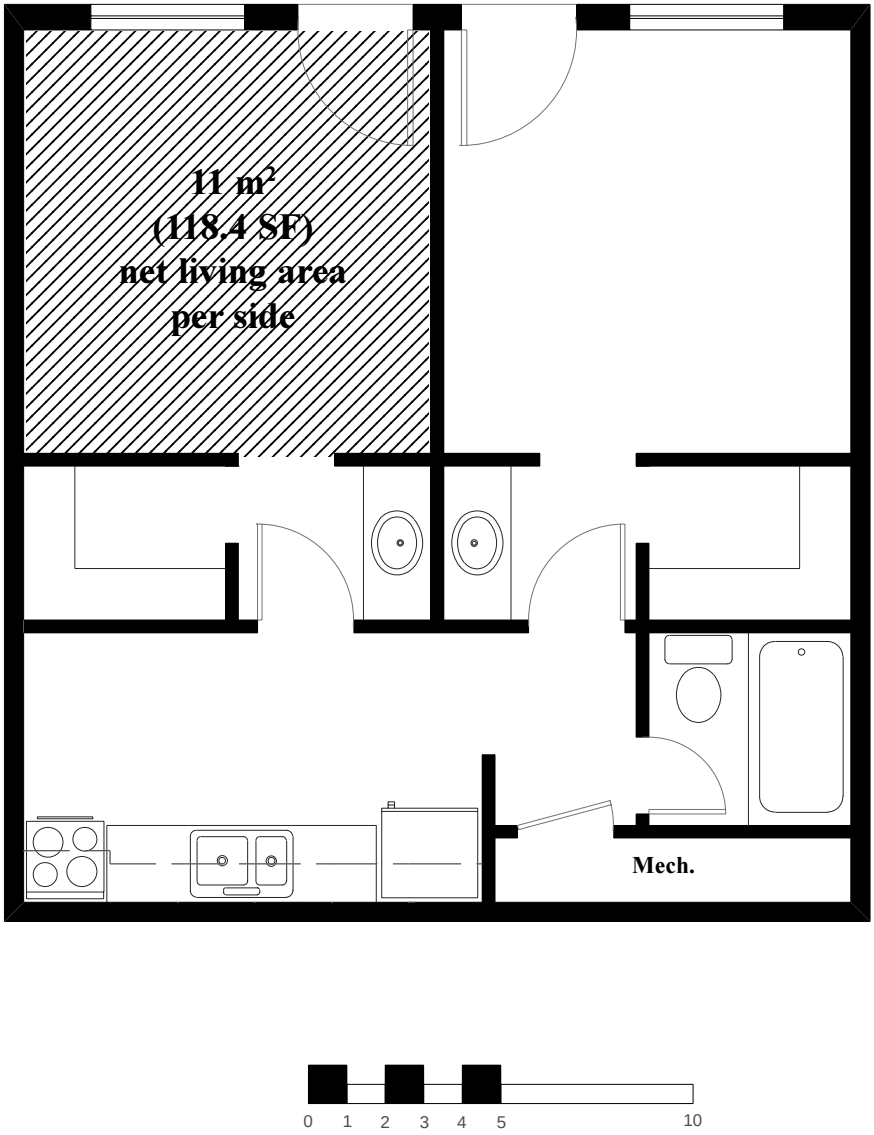


Figure 9. Typical Module, Type B Dormitory

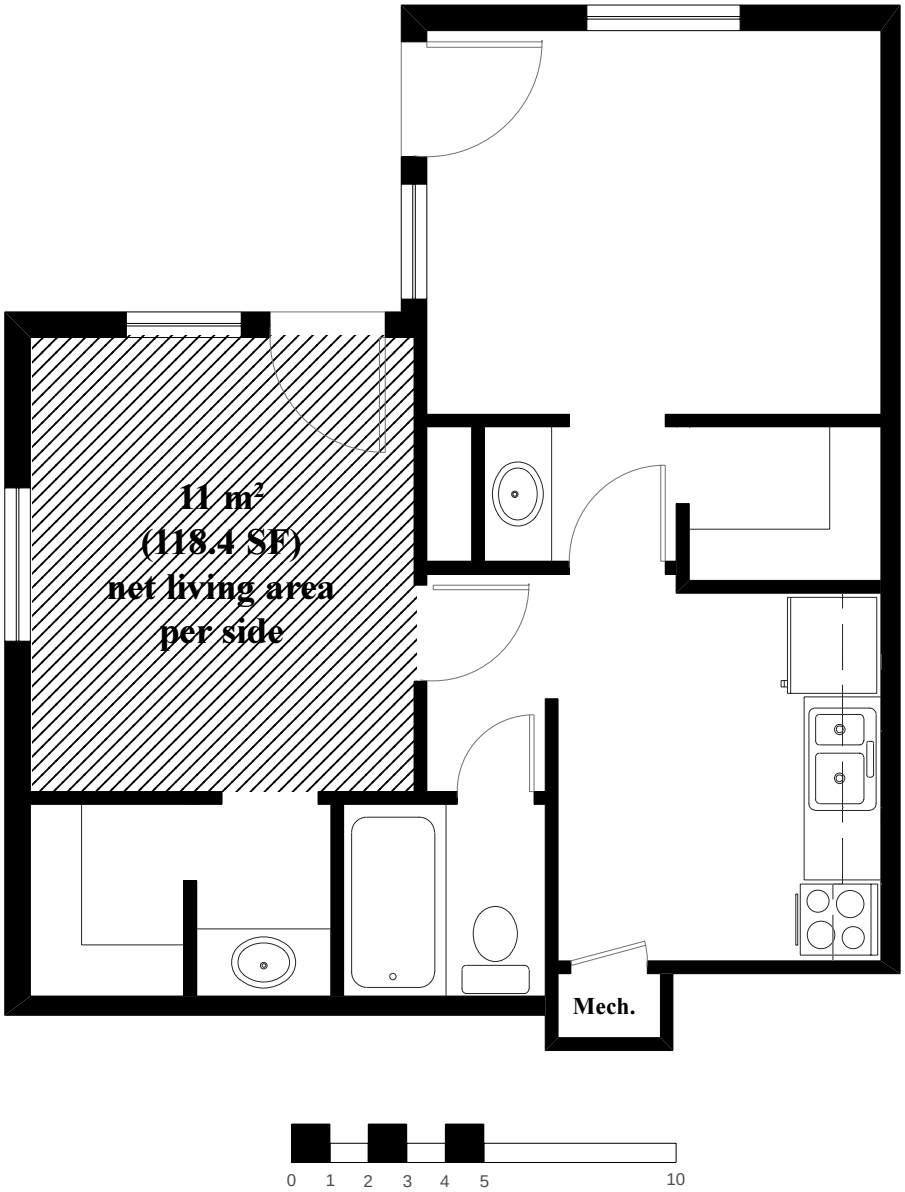


Figure 10. Typical Module, Type C Dormitory

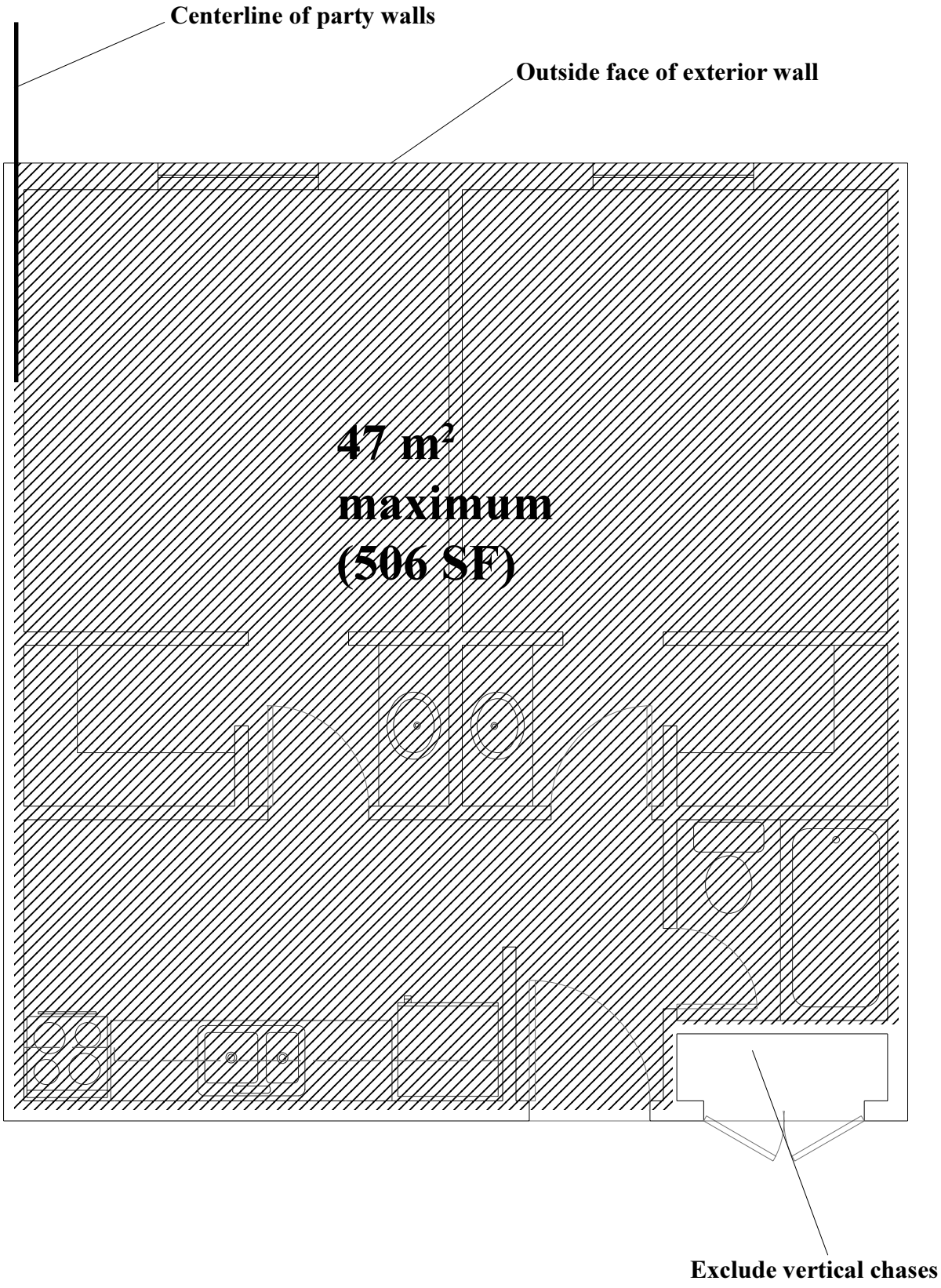


Figure 11. Shaded Area Indicates Gross Module Area

6. Example

The following example shows how the areas defined by Table 2 are used to program a typical Enlisted Dormitory.

Assume, a 3-story dormitory will house 200 persons and assume all are grade E-1 thru E4.

A. E1-E4s are housed 2 persons per module therefore, 100 modules are required (200 persons divided by 2 = 100). Figure adjusted to 102 to allow for an even distribution of modules per floor.

B. Total number of modules per floor is 34 (102 modules divided by 3 stories). It is usually important for the number of modules per floor to be an even number, as this allows equal distribution of modules on each side of a central corridor (Type A dormitory) or arranged evenly back-to-back or side-by side (Type B dormitory). This is not mandatory, however, and the space normally reserved for a module can be used for other purposes.

C. The maximum allowable gross building area for this building is 6,732 m^2 or 72,463 SF (102 modules x 66 m^2 allowable gross area per module).

D. The gross building area occupied by the modules is 4,794 m^2 or 51,602 SF (102 modules x 47 m^2 maximum gross area per module).

E. The recommended net area devoted to Multipurpose Space is 19.4 m^2 each or 209 SF (102 modules x 0.19 m^2 per module). A meeting room, television room, and a workout room are desired; therefore, 58.2 m^2 or 626 SF is required. (19.4 m^2 per module x 3 modules)

F. The recommended net area devoted to the Game Room is 28 m^2 or 300 SF (102 modules x 0.19 m^2 per module or a minimum 28 m^2).

G. The recommended net area devoted to Laundry Facilities is 78.2 m^2 or 842 SF (1 appliance per 3 modules, 102 divided by 3 = 34 appliances. 34 x 2.3 m^2 per appliance = 78.2 m^2).

H. The recommended net area devoted to Vending is 27.9 m^2 or 300 SF (one 9.3 m^2 space per floor x 3 floors = 27.9 m^2).

J. The net area devoted to Bulk Storage is 272 m^2 or 2,928 SF (204 residents x .667 = 136 storage cubicles at 2 m^2 each = 272 m^2. 2 m^2 includes circulation).

K. The recommended net area devoted to Guest Toilets is 9.3 m^2 (100 SF).

L. The recommended net area devoted to Administration area is 12.4 m^2 (134 SF).

M. The recommended net area devoted to Circulation is 754.8 m^2 or 8,125 SF (102 modules x 7.4 m^2 per module).

N. The total area included in paragraphs D through M is 6,035 m^2 (64,957 SF).

O. The remaining area available for Mail Service, Utility Space, half-scope exterior covered areas, wall thicknesses, etc., is 697 m^2 or 7,502 SF (6,732 m^2 allowable gross building area minus the 6,035 m^2 from paragraph N).

The area of 697 m^2/7502 SF available for utility space, mail service, etc., may be insufficient and may require reducing or eliminating optional space.

Note: The spaces identified in paragraphs E through L are often grouped together, either in a common area or a separate building or nodule. In this example, the total net area for these spaces is 447.2 m^2 (4,813 SF).

Functional Space	Area in Square Meters	Area in Square Feet
102 modules (102 modules x 47 square meters)	4,794	51,602
Multi-purpose Space (102 modules x 0.19 square meters x 3)	58.2	626
Game Room (minimum 28 m2)	28	300
Laundry Room(s) (1 appliance/ 3 modules = 34 appliances x 2.3 m2)	78.2	842
Vending area (9.3 m2 x 3 floors)	27.9	300
Bulk Storage (136 storage cubicles x 2 m2)	272	2,928
Guest Toilets	9.3	100
Administration	12.4	135
Circulation (102 modules x 7.4 m2)	754.8	8,125
Subtotal	**6,035**	**64,958**
Maximum allowable building area (102 modules x 66 m2)	6,732	72,463
Difference available for Utility space, Mail service, etc.	697	7,505

Note: figures in table above vary slightly due to rounding and metric conversion.

Note: figures in table above vary slightly due to rounding and metric conversion.

Table 3. Summary of Example

D. Site Selection Process

1. Team Composition

The site selection process involves forming an interdisciplinary team to evaluate various alternatives. The team should consist of: a community planner, architect, installation or wing senior enlisted advisor, site development professionals (landscape architect and/or civil engineer), an operations and maintenance representative, and representatives from the using organization.

2. Evaluation Criteria

Use the Comprehensive Plan to evaluate potential sites for the proposed development. Each site has differing inherent values differing values caused by the site's relationship to other sites. The site evaluation team must develop a system of ranking and rating the development potential of each site. The ranking/rating system developed must provide a fair evaluation of all factors influencing the enlisted dormitory project. The program needs for the project must be the key in developing the ranking system.

Ranking

A system of weighting each factor will help differentiate the importance of each factor. Use a weighting scale of one to five, with five being the most important and highest value. Each factor has a weight assigned agreed upon by the site selection team.

Rating

Rate each using a scale of one to ten with ten being the highest and most important value. The following is a suggested list of factors:

- Development Potential
- Proximity to Existing Recreation Facilities
- Relationship to Community Facilities
- Existing Topography
- Existing Landscape
- Available Base Infrastructure
- Adjoining Land Uses
- Vehicle Circulation System
- Future Expansion
- Existing Enlisted Dormitories
- Existing Walkways, Designated Bike and Jogging Paths
- Other Factors as Might Be Determined by the Design Program

An easy means of organizing the ranking and rating of each factor is to organize the data into a matrix format. Each team member must evaluate each site utilizing the factors identified above and must record the information on a tabulation sheet. The numerical value assigned by each rater is multiplied by the factor weighting value and the tabulation sheets are summarized and totaled to obtain the evaluation results. The decision matrix is a summary document that displays the results of the evaluation data and forms the basis for a decision regarding specific site selection. This is a good summary document for the community planner to present to the Facilities Board with the recommendation for siting approval.

E. Special Project Costs

1. Cost Factors

Consider the following special factors when establishing initial estimates of project costs in addition to usual cost estimating considerations:

- Expenses associated with special design features in a dormitory room can account for a large portion of the total project cost because the features are repeated in every module. Programmers and designers must be aware of current unit cost factors. Programmers will only use unit costs; therefore, designers must be concerned about the cost impact of special design features. A good example is kitchen equipment, where the cost can vary greatly, depending upon the quality of each item.

- Utility requirements for dormitories often exceed those of other facilities of similar size because of the higher energy demands and occupancy densities. Programmers must determine these requirements and include them in the construction budget if they are associated with the cost of supporting facilities. Otherwise, accomplish the program requirements within the unit cost. The cost of pipe tunnels and trench systems associated with dormitories can have a significant impact on construction costs.

- The type of mechanical system selected for a dormitory has major impact on the cost of the project. An existing steam and chilled water distribution system from a central energy plant may have the capacity to supply the new dormitory. In other cases, the new dormitory complex may justify its own central energy plant, or it may be more cost effective to provide each dormitory with a separate mechanical system. Make these decisions as early in the programming or design process as possible. Life cycle cost analysis is especially important for mechanical systems in dormitories due to unique use requirements.

- Preliminary soils analysis is essential to determine whether extensive site work and foundation costs are required. Local environmental and climatic conditions can also impact costs. Dormitories located in areas prone to seismic activity generally cost more. Climatic influences such as heavy snow loads, wind loads, and extreme temperatures result in additional costs due to structural and insulation requirements.

The dimensional proportions of modules are critical to the overall construction cost of a dormitory. Designers must consider not only efficiency in design of the individual modules, they must also focus on how the modules string together to create a building. Figure 12 illustrates the effects of module proportion.

- Examples 1, 3 and 5 have almost identical widths (dimension 'A') and are essentially the same length, considering Example 5 is a Type A dormitory with a central corridor. Based on module proportions alone, the comparable construction costs between these three examples would be negligible.

- Example 2 has the largest 'A' dimension. It also has the smallest 'B' dimension, but results in the longest building of all the examples. Longer buildings require a larger site and have more exterior wall surface area.

- Example 4 has one of the smallest 'A' dimensions, and the 'B' dimension is almost identical to Examples 1 and 3.

- Example 5 is a Type C "garden apartment type dormitory. The landing area is smaller than a central corridor or a balcony, but a stair tower is required to access fewer units.

- Example 6 has the smallest 'A' dimension and the largest 'B' dimension, resulting in the shortest building of all the examples.

- The modules used for the examples have large differences in the amount of interior wall surface and the number of doors.

These examples show that there are many factors that affect construction costs. While module proportions, interior wall quantity, and the number of doors can be optimized to produce the lowest cost, designers must also consider the impact these factors may have on privacy, functionality, and aesthetics.

A hypothetical cost analysis was performed for Examples 1, 4, and 6. The analysis assumed that the same program criteria was used to develop complete dormitories from the three examples. The total facility cost and the cost per module varied only slightly (less than 3% difference between the highest and lowest.)

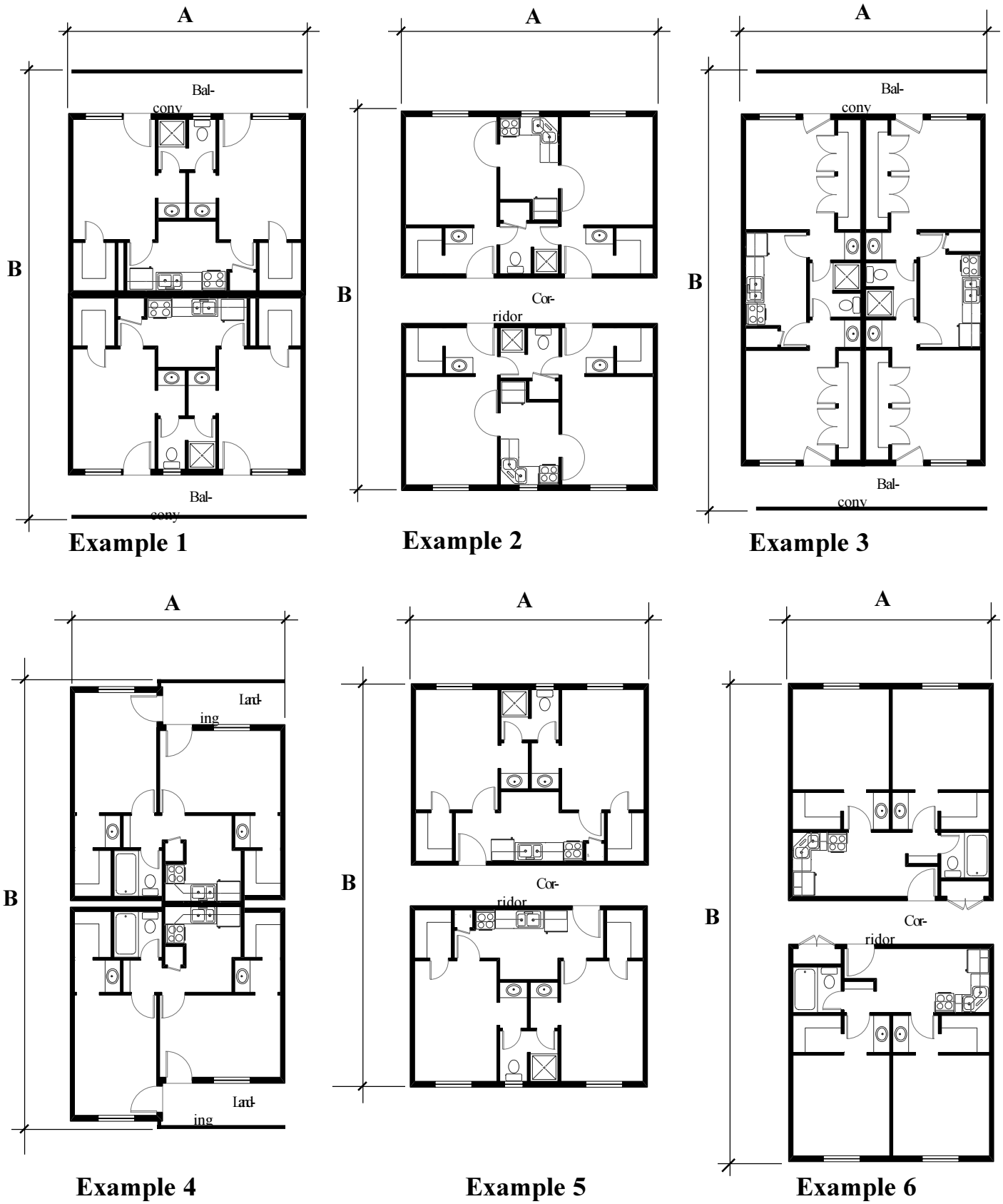


Figure 12. Module Proportions

Chapter 3 - Overall Project Design

A. Site Planning

Site planning is one of the more important elements of any project design and can "make or break" the overall success of the enlisted dormitory project. The art of site planning requires an interdisciplinary involvement of the community planner, landscape architect, architect, interior designer, and civil, mechanical and electrical engineers. Leave one of these design disciplines out of the site planning process and the quality of the design will suffer. The landscape architect should lead and be responsible for the development of the site plan, coordinating with the other disciplines.

1. Siting Requirements

To achieve the optimum site plan, each design discipline must work in concert with one another. The following siting requirements must be evaluated and analyzed to ensure the optimal solution is selected:

Location

New enlisted dormitories should be sited in accordance with the installation's Comprehensive Plan and should be located within walking distance of the airmen's dining hall, wherever applicable.

Site Organization

Pay special attention to building orientation, mass and scale in developing the site plan. Develop a sense of order, arrival, orientation and community in planning the site. Insofar as possible, dormitory structures must not be overwhelming in apparent size. Site dormitories in relationship to one another to create outdoor spaces for use as passive or active recreation areas.

Most Air Force enlisted dormitories are three stories in height. This configuration maximizes the efficient use of available real estate while avoiding the additional fire protection, inconvenience to occupants, and structural and life safety cost associated with buildings over four stories in height.

Achieve spatial balance and scale through thoughtful placement and arrangement of structures, landscaping and landforms. See Figure 13 for an illustration utilizing professional site development concepts for a typical Enlisted Dormitory project.

Expansion potential for dormitories usually involves the addition of more living units. It is generally impractical to build an addition onto an existing dormitory building. If the potential for adding additional living units to a dormitory project is identified during the initial programming stage, allow space in the site development plan for additional structures and size site utilities accordingly.

Orientation

Site dormitories to take advantage of the positive features of the site. Provide protection from undesirable winds and glare, shading from excessive sun in warm climates, and orient operable windows to take advantage of summer breezes. Solar gain and prevailing winds can enhance energy conservation and affect a significant cost savings. Building placement and design should also take advantage of views that are scenic, pleasant, or interesting. Designers must be sensitive to the approaches to the facility and strive to create a clear sense of arrival for newcomers.

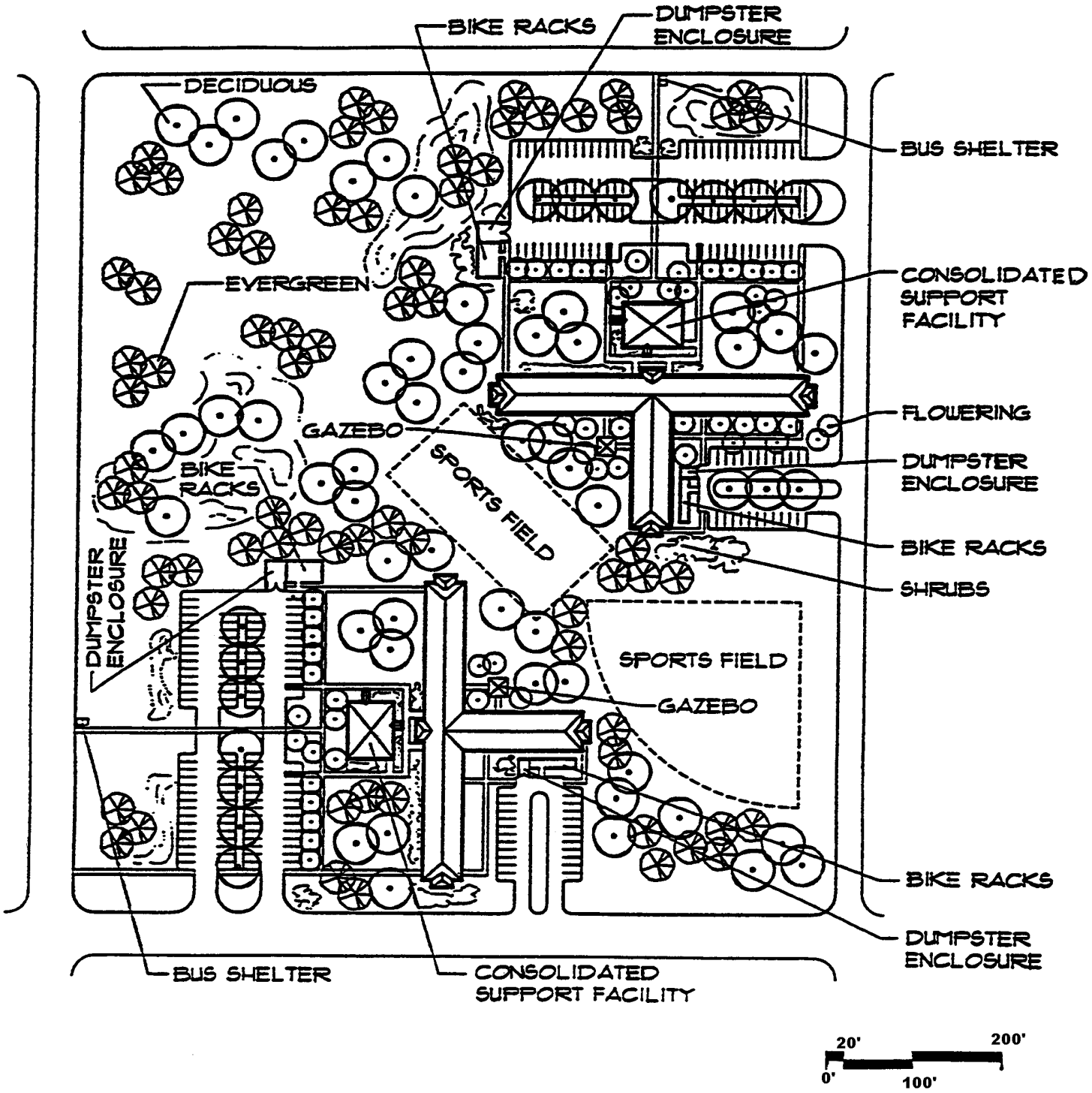


Figure 13. Typical Enlisted Dormitory Site Development

Design roof overhangs to work with sun angles to provide solar shading. This configuration is a built-in by-product of Type B dormitories that have exterior balconies. Achieve mutual shading by sensitively arranging adjacent structures. Avoid excess east or west facing glass and design for maximum cross-ventilation where feasible.

View of the Site

All design disciplines involved in the site planning process must evaluate and re-evaluate their design concepts to ensure the dormitory project presents a professional image of the Air Force, and encourage "pride of ownership". As a minimum, consider the initial view presented to visitors and the more personal view or impressions of the user.

2. Circulation

Vehicular Access

Provide access to the dormitory from secondary (collector) streets to reduce congestion associated with main arterial streets. Where possible, divide main entrances with landscaped traffic medians between entry and exit lanes. Because of the high volume of traffic using the entrances, the width of non-divided entrances must be a minimum of 7.32 m (24 feet).

Fire Protection

Site all dormitories a minimum of 40 feet laterally from the closest adjacent building. Provide access to fire protection vehicles from three sides. Obtain width, weight, and turning radii of fire fighting vehicles from the base fire department.

Service Vehicles

Design access streets and parking areas to accommodate service vehicles and fire protection equipment. Where interior court areas are proposed between adjoining dormitories, consider designing the main pedestrian walks to accommodate service and fire protection vehicles. As an example, the minimum width of such walkways must be a minimum of 8' wide and must be constructed using reinforced concrete to accommodate medium weight vehicles. Consider treating the walkways with a patterned concrete system to minimize the negative impact of the wider access route. Use materials such as concrete grassroad type pavers to provide access to infrequent service vehicles.

Bus Route Access

Designers should consider developing shelters and walks to serve enlisted personnel needs if the base provides bus service. Bus shelters must be compatible with the architectural style of existing buildings and other bus shelters on base. Where existing shelter design needs upgrading, the site planner must coordinate with the base in selecting a new style that is programmed with all new projects. Coordinate the quantity and location of bus shelters with the base transportation manager.

Pedestrian Circulation Systems

Walkways to building entrances must be 8' wide. All other sidewalks are 6' wide. Design and grade sidewalks to provide barrier free access to the first floor of all dormitories and to any outdoor use areas associated with the dormitories. Provide corridor connections to other functional areas of the base with pedestrian circulation systems. Consider developing jogging/biking trails as part of the site development.

Passive Outdoor Areas

Plan all dormitory facility developments to provide outdoor passive and/or active use areas. Where appropriate, design pavilions to become an integral part of the dormitory complex. The pavilions must compliment the architectural style and materials of the dormitories. Compliment these use areas with additional facilities such as bar-be-que grills, tables, benches, lighting and landscape plant materials.

Service Entrances

Where possible, separate service entrances associated with mechanical rooms or mechanical enclosures from parking areas.

3. Parking

Vehicle parking areas consume more site space and impact more on the physical environment than any other site feature. The guideline to provide one parking spaces per dormitory resident results in a significant area of paving which, if not planned properly, will have a negative impact. This parking ratio applies to most dormitories, but may be modified based on the parking needs of the specific project. Paving increases stormwater runoff, results in increased reflected and absorbed radiation, and raises the ambient air temperature of the surrounding area. Parking areas also result in reflected sun glare off vehicles, increased air pollution, and concentrated contamination of runoff from leaking oil and antifreeze.

Grading can create a transition zone within parking areas, between parking and dormitories, and between multiple groups of dormitory facilities. For instance, terraced parking areas can break up the expanse of parking and reduce the visual impact.

Many of the negative impacts of parking areas can be mitigated or lessened by improved design techniques. Tree planting in islands between rows of parking intercept reflected radiation, visually breaks up the mass of paved surface, and provides shade for vehicles. Properly located, the traffic islands also can provide safer pedestrian circulation. Where topography allows, design parking areas in multiple levels with transition zones. This may reduce grading requirements and allow the designer to balance the volume of cut and fill. Design these transitions as landscape buffers much like traffic islands to soften the visual impacts.

Parking for the Persons with Disabilities

The parking requirement for dormitory facilities assumes all occupants are able-bodied enlisted personnel and does not provide for visitors with disabilities or temporarily disabled enlisted personnel. Provide additional handicap parking spaces in accordance with the Uniform Federal Accessibility Standards and the Americans with Disabilities Act Architectural Guidelines. Locate these parking spaces to provide the most convenient access to the building entry.

Motorcycle Parking

Construct areas designated for motorcycle parking of reinforced concrete to prevent motorcycle stands from sinking into the asphaltic concrete parking areas.

Bicycle Parking

Bicycles are frequently used by residents. Provide lockable bicycle parking facilities within the dormitory complex area. Provide all bicycle parking on concrete surfaces adjacent to sidewalks or first floor building corridors. Parking areas must be covered and screened from view of the general public. Consider enclosed bicycle lockers, which maximize security and minimize visual clutter. Such lockers can be purchased with equipment funds.

4. Grading

Grade the site to achieve an orderly transition from the point where enlisted personnel enter the site by automobile or on foot to the point where they are at the first floor elevation. Site grading must consider the impacts of the parking area, the dormitory, bus-stop shelters, sidewalks, outdoor passive use areas, mechanical equipment and trash dumpsters. Where appropriate, use grading to control the negative impacts these man-made facilities have on the visual environment, such as shielding trash dumpsters, etc. See the discussion of landforms below.

Dormitories tend to be linear and relatively narrow in their configuration; therefore, lending themselves to an orientation paralleling existing contours. Determine if storm water retention is required by local building codes. Where on-site retention is required, the location of retention areas must be carefully thought out in terms of the function as well as their visual impact. Use large retention sites for outdoor recreation areas.

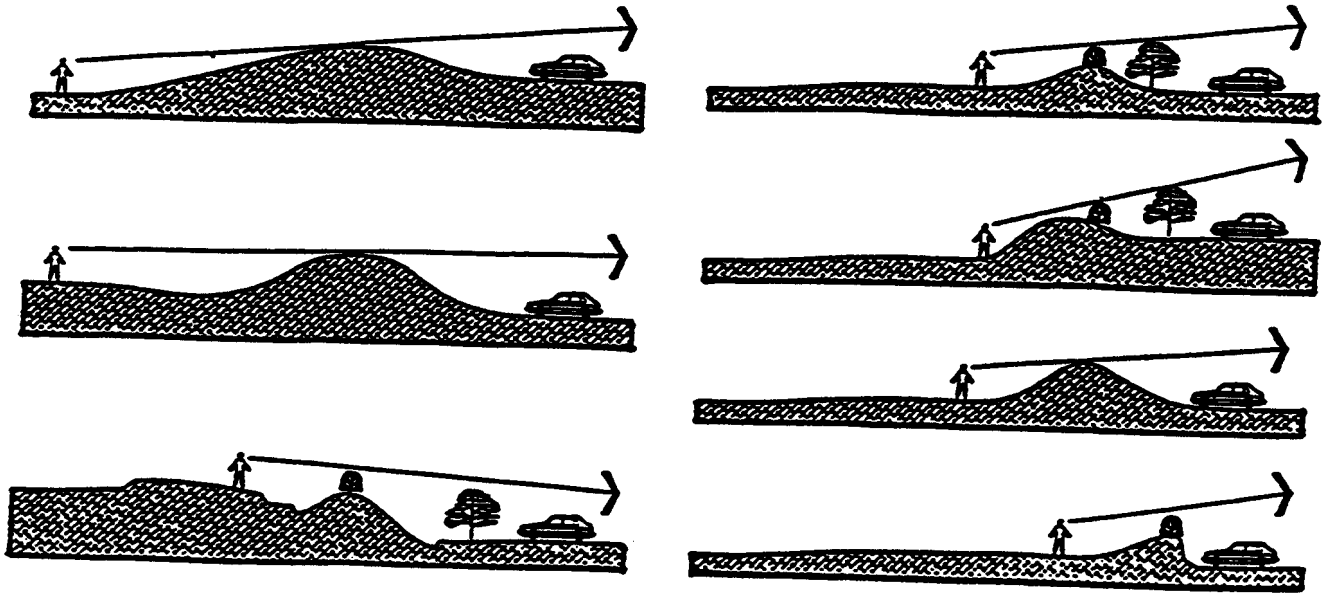


Figure 14. Landforms

Establishing the Finished Floor Elevation (FFE)

Establishing the finished floor elevation of enlisted dormitories is one of the more important aspects of site planning. The FFE affects grading, cut and fill, visual impact of the facility and interior-exterior transitions. In addition, the FFE has a significant impact on the landscape architect's ability to effectively introduce plant materials into the new environment. When the approach is to "level the site" without sensitivity to other demands, the results often are catastrophic, resulting in barren sites lacking visual interest. The landscape architect, architect and civil engineer must work closely together to achieve the most optimal design results.

Storm Drainage

The successes and failures of site planning rely heavily on the designer's ability to facilitate drainage. Depending on the geographic location and the availability of nearby subsurface storm drains, provide underground storm drainage for each enlisted dormitory complex. All site water must either be intercepted in drop inlet structures or be designed to drop directly into a subsurface system. If subsurface storm drains are not available at the proposed site, then program them as part of the dormitory project. As a minimum, divert surface water to an underground system to a point where it is discharged into above ground storm drains. Provide for retention and erosion prevention. Do not discharge water from downspouts onto splash blocks. Provide for drop inlets as necessary to intercept surface runoff and prevent walkways from being flooded.

Landforms

The landscape architect and the civil engineer must work together to use landforms to soften the impact of parking on the landscape. Use landforms such as mounds and swales in conjunction with landscape plant materials to soften or obscure the parking areas, provide spatial articulation, or enhance drainage structures or surface water retention areas. Use landforms to add interest and diversity to the project. In particular, landforms can perform an important function around outdoor activity areas by screening undesirable views. See Figure 14.

5. Utility Corridors

The site planner should develop underground utility corridors in coordination with the base community planner, electrical, mechanical, and civil engineers. Size corridors to accommodate future expansion. Locate utility corridors no closer than one and one-half times the crown width of mature trees or 10.7 m (35 feet), whichever is greater. Locate utility corridors to allow for future street tree plantings. Consider using pipe tunnels and trenches.

6. Site Amenities

Site Lighting

Site lighting is an integral part of any dormitory project. Provide lighting to ensure occupants have a means of safely moving between outdoor spaces. Consider base design standards, if available, in the selection of luminaries and poles. This selection must be a joint decision between the landscape architect and the electrical engineer. Energy-efficient, high-pressure sodium lamps with color correction ensure optimum visual acuity and are recommended for energy-conscious site lighting. Provide adequate site lighting at any point where there is a change in grade requiring steps, near handicapped and motorcycle parking areas, and near main entrances to buildings. A lighted sign may be appropriate for night visitors. Use the recommendations of the IES Lighting Handbook to establish illumination levels.

Site Furniture

The selection of site furniture and signage is similar to putting "icing on the cake". Along with the landscape development, it gives the project a finished appearance. Site furniture and signage that is in harmony with the architectural style of the dormitory facilities compliments the building, makes the outdoor spaces more usable, and appear more organized. Poorly selected and/or placed site furniture and signage can result in major disharmony, drawing attention away from otherwise superbly designed site and building features. The landscape architect must coordinate the selections with the architect and interior designer to ensure smooth transitions are made in the procession from within the building to the outdoors and vice versa. Effective transitions are achieved when building materials, colors, and design details from the building are incorporated into the paving materials, signage and site furnishings.

Trash Dumpsters

While trash dumpsters must have convenient access by the residents and by large trash handling trucks, they must be located in areas away from main entrances. Screen trash dumpster locations with any combination of hard wall materials, earth forms and landscaping to reduce their impact. Where hard wall materials are used, the materials must compliment the materials used in the dormitories and other outdoor facilities.

Mechanical Enclosures

Screen mechanical equipment such as chillers, evaporating condensers, switch gear, and electrical transformers. Architectural screening materials must compliment the architectural style and the materials used to construct the dormitory. Use landforms to screen objects in the landscape that do not require enclosures.

7. Landscape Design

Landscape plans developed for the Air Force require the services of a professional landscape architect working in conjunction with the other disciplines to achieve the total design intent for the project. In addition, the landscape architect must have an intimate knowledge of the plant materials for the region. Refer to the USAF Landscape Design Guide for further guidance.

The design intent should be creating an aesthetically pleasing landscape minimizing water usage, resources and maintenance requirements. Proper planning and design, plant selection, plant installation, and use of turf alternatives, use of mulch materials, zoning of plants as per water requirements, soil improvements, efficient irrigation and appropriate maintenance are the fundamentals of good landscape design.

Structure the landscape design program to satisfy the architectural, engineering, aesthetic, and environmental requirements of each project while minimizing maintenance needs. The following factors must be evaluated when performing a site analysis:

- Visual elements
- Climatic data
- Existing vegetation
- Soil quality
- Hydrology
- Topography
- Spatial and program analysis
- Circulation patterns
- Noise
- Security requirements
- Maintenance requirements

Analyze the following functional needs of each site:

Enframement

Identify appropriate views of the dormitory during the site analysis to emphasize with landscape design features. Focus attention to important features of the building by manipulating and placing tree masses and screening undesirable features.

Visual Enhancement

Plantings made for utilitarian purposes, such as screening service areas or shading, will simultaneously improve the attractiveness and enhance the livability of an area. Variety is introduced, vistas may be created and bareness relieved. The oppressive feeling of monumental scale is relieved by proper planting. Visually separate multiple buildings into several pleasant framed units, and enhance individual buildings within a group. The use of shrubs and small trees arranged in strategic groups around a building improves the appearance by softening structural lines. This also helps in integrating the building with its site and diverting attention from unattractive structural features.

Spatial Articulation

Use plant material to create enclosed spaces and to separate spaces one from another. Also use plant material to direct people through outdoor spaces by visually defining and reinforcing patterns of movement. The degree of enclosure, separation, or movement depends upon the density, form, and type of plant material used. Keep in mind deciduous plants vary with the season, and that most evergreens do not.

Visual Screening

Screen unattractive views or objects identified by the site analysis with appropriate plant material to obscure their negative impacts. Examples of screening needs include trash dumpster areas, pad mounted electrical transformers, parking areas, and mechanical yards. While plant materials can be used solely for screening purposes, a combination of plant and architectural materials offers an ideal solution to screening needs. Landforms coupled with plant materials will provide an immediate effect while waiting for the plant materials to mature.

Wind Control

Wind is either a pleasant or unpleasant climatic factor depending upon air temperatures, relative humidity, and air velocities. Use plants as wind control devices by breaking, guiding, deflecting or filtering the wind. Knowledge of the direction and speed of prevailing winds at different seasons of the year is necessary. When plants are used as a wind barrier, wind is generally affected for a distance of 2 to 5 times the height of the barrier to the windward side and 10 to 15 times the height of the barrier to the leeward side. Plants are better screens than fences or walls for windbreaks because they permit some degree of wind penetration. The most effective density is a screen of about 60%. Irregular forms provide a more effective windbreak than evenly spaced plants. A variety of plant species and sizes also provides a better windbreak than one consisting of one species. For climates where occasional to frequent snows occur, consideration must be given to how wind will drift snow

Interception of Direct and Reflected Radiation

The skillful use of plant materials around buildings, along walkways, and around parking areas significantly increases the energy efficiency of buildings and reduces the ambient air temperature around the dormitory project. By intercepting the direct and reflected radiation, plant materials control the absorption of heat energy by the building and parking areas, thus reducing energy costs.

Landscape Maintenance

Provide landscape establishment and maintenance within the initial contract for installation of plant materials. The duration of the establishment period must be for a period of one year in all cases and must not be included as a contract option. The establishment requirements must include:

- Irrigation
- Mowing and edging
- Replacing mulch
- Inspection/control of pests and weed control
- Tightening staking/guying materials
- Pruning
- Fertilization
- Maintaining watering saucers

Irrigation Development

Provide dormitory projects developed in arid and semi-arid climatic regions with irrigation systems. Use bubbler or drip irrigation systems adjacent to building facades to minimize impact of overspray. Provide all irrigation systems with solid-state automatic multi-station controllers, state-of-the-art control valves, and backflow preventers in accordance with building codes. In cold climates, locate backflow preventers in the mechanical room. Where freezing is not a problem, locate backflow preventers within screened mechanical enclosures. Include adjusting turf spray coverage, duration of watering cycles, repairing leaks, and general maintenance to ensure proper functioning during the maintenance period for all irrigation systems. Water conservation is a high-priority factor in development of the irrigation design. Take advantage of non-potable water if possible.

B. Building Design

1. Organization and Circulation

Enlisted dormitories consist of three basic functional areas:

- Residential
- Recreation
- Service

These three basic areas are linked together by circulation spaces. The basic areas typically are arranged in one of three configurations:

- The three basic functional areas are undistinguished within a major form.
- The areas are configured as connected components.
- The areas are contained in separate structures.

Give special attention separating noisy areas such as game rooms, television rooms, outdoor recreation areas, and laundry rooms from quieter spaces such as residential rooms and study rooms.

Design non-public support areas such as utility spaces, trash collection and mail service access to avoid conflict with public residential functions.

Privacy for residents is of utmost importance. Recognize that dormitories serve as homes for the residents, and design accordingly. Type B dormitories with direct exterior access for each resident provide a greater sense of privacy by minimizing corridor noise. However, Type B dormitories allow pedestrian traffic to occur directly outside living/bedroom area windows. Type C (garden apartment style) dormitories provide the greatest sense of privacy by limiting the number of modules accessed by a single stair, thus reducing noise and pedestrian traffic.

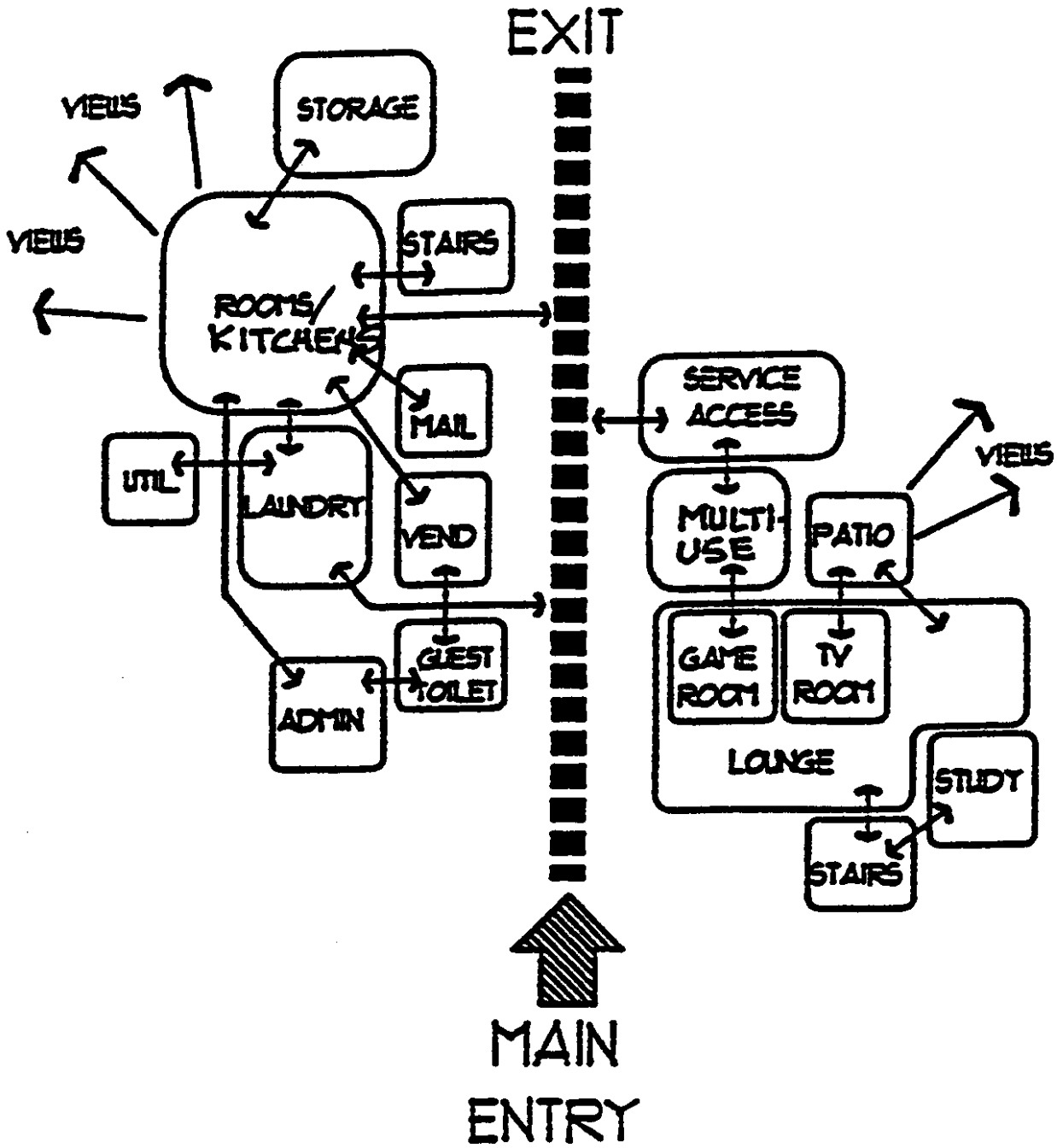


Figure 15. Functional Relationship Diagram

Dormitory design must take advantage of local climate conditions. Type B dormitories with exterior balconies lend well to solar shading in warm and temperate climates where heat gain through windows is a concern. Type A dormitories with central hallways are more energy efficient due to their limited number of openings to the outdoors. Where practical, use passive solar construction techniques to reduce energy consumption. Designing to meet local climate conditions can often be overridden by other site organization issues such as the creation of outdoor space, building scale or orientation to other facilities.

See Figure 15 for functional area relationships.

2. Architectural Character and Scale

The architectural character of the facility must be in context with its surroundings. It must relate not only to the immediate site and adjacent buildings, but also to the base itself. The desired architectural character is usually defined in the base architectural compatibility standards which most installations have published. These standards provide a basis for compatibility and order within the built environment. The intent of these standards is not to create "sameness", but to promote a sense of harmony and a respect for local and regional design and architectural characteristics. The following elements are part of a successful design solution:

Regional Character

Well-designed dormitories respect the characteristics of the built environment in the local region through architectural style, choice of construction techniques and materials, and form. Some of the local influences that affect regional character fall in these categories:

- Historic
- Ethnic
- Cultural/Traditional
- Topographic
- Climatic

Compatibility

Achieve architectural compatibility and appropriate proportions by integrating a vocabulary of scales, forms, color palettes and materials that blend with and respect the built and natural environments. The result is a combination of facilities that compliment each other and create balance and harmony. Architectural compatibility guidelines are not intended to compromise design expression, but rather to provide a framework for the development of quality design.

Architectural Scale and Mass

Architectural scale is defined as the comparative relationship of a structure or space to the human form. Individuals perceive a sense of personal comfort based on influences from their physical environment. Those environments that enable a person to feel comfortable and accepted as a part of the environment are considered to possess a "human" scale. The relative proportions, height, form and bulk of a building or space, as well as its formal relationship to other buildings or spaces contribute to achieving this sense of scale. Dormitories should provide a "residential" environment with an architectural scale that imparts a clear sense of relative comfort, ease, and satisfaction. This can be achieved by using standard residential ceiling and window sill heights, avoiding oversized entrance canopies, structural elements, and other artificially oversized building elements.

Building mass is defined as the overall bulk or total volume of space a building occupies. Large buildings such as dormitories, aircraft hangars, and maintenance facilities often have a greater mass than other buildings on a base. Modulating the form and facade of these buildings with setbacks, repetitive details, and less dominant colors softens their physical appearance and enables a blending of facilities in terms of their form, proportion, and perceived size. The size, shape, proportion, repetition, and placement of design features such as fenestrations, roofs, columns, etc., are elements that combine to project the architectural character of a building.

3. Management

Most dormitory programs require an office for the dormitory manager. Locate this office near the main entrance for convenient access by the residents. Consider use of electronic key card systems restricting access to dormitories for authorized residents only.

4. Privacy

An overwhelming percentage of respondents in the Enlisted Personnel Community Focus Groups asked for a "private home away from their work environment" and cited this as a major impetus for living off base. Refer to page 31 for a comparison between the three types of dormitories in relation to privacy.

5. Flexibility and Expansion Potential

Design enlisted dormitories with the flexibility to accommodate enlisted personnel in all grades. This requires designing the room-bath-room modules to facilitate easy, economical conversion from a module housing two residents to a module occupied by just one resident. Living modules should also be designed for conversion to private apartments as proposed by Vision 2020. See Chapter 5. Allow for such conversions with minimal demolition or relocation of building systems. Expansion potential for dormitories usually involves the addition of more living units. It is generally impractical to build an addition onto an existing dormitory building. If the potential for adding additional living units to a dormitory project is identified during the initial programming stage, allow space in the site development plan for additional structures and size site utilities accordingly.

6. Interior Design

See Table 4. Suggested Surface Finish schedule.

Comprehensive Interior Design

The goal of the designer is to provide a total quality residential facility. This residence will be occupied by either gender and by a diverse age group.

The interior design and architectural design of the facility must be integral and related. All dormitory design projects shall include Comprehensive Interior Design (CID) services. CID services may be provided as part of the A/E's design service, commercial design service, or by in-house Air Force interior designers. CIDs should reference base quarters improvement plan (QIP) for base-specific information on furniture styles, color schemes, and project specific guidance.

Quality of Life

The interior design has a direct impact on the quality of life for the occupants. Interview typical dormitory residents in the location of the facility for invaluable feedback. Consider including the residents in design reviews.

Allow flexibility for the facility occupants to personalize their units. This includes freedom in furniture arrangement, choice of window and bed coverings, and display of artwork and hobbies. Give increased attention to the high-tech personal environment that characterizes today's life-styles, such as computers, audio-visual equipment, cable television, etc.

Finish Materials and Colors

Select neutral colors for surfaces that will have a long life, such as ceramic tile, laminates, window blinds, etc., to facilitate future finish material upgrades. Provide a pleasing color scheme in durable finish materials. Use color in non-permanent finishes to add interest and vitality, but do not allow color to dominate the environment. Coordinate materials, finishes, color, and texture selection to complement the overall building design and image.

Carpet

Carpet with a small pattern, tweeded design or random design is preferred for its appearance retention. Solid color carpet is not authorized. Level loop or a combination or loop and cut pile carpet is recommended for corridors. Select a pattern that will not accentuate the length of the corridor. A cut pile is recommended for the living unit. Provide a soil walk-off area if the living unit opens to the exterior. Heavy-duty commercial quality carpet cushion may be used in the living units, but cannot be used in the corridors. Carpet over cushion should be applied with the "double stick" method.

Living/bedroom areas have a heavy wear classification for carpet, and public areas (corridors, television and game rooms, etc.) have a severe wear classification.

The following minimum weights are recommended for dormitories:

- Cut pile: 1017 grams/m^2 (30 ounces/SY)
- Bonded: 949 grams/m^2 (28 ounces/SY)
- Loop pile: 814 grams/m^2 (24 ounces/SY)

Provide hard surface walk-off areas at exterior entrances, whether at public entrances or private entrances to Type B or C modules.

Hard Surface Flooring

Use commercial quality sheet vinyl or vinyl composition tile (VCT) with a full-depth pattern in the walkoff area, vanity area, and the kitchen. Avoid white as a predominant color. “No wax” surfaces are not recommended, due to low durability.

Walls

Exposed concrete masonry units (CMU) is unacceptable as an interior wall finish. Use vinyl wall covering over smooth walls. Accent walls are optional, but must not be so bright or so dark as to shorten the room or negatively effect the interior lighting. Consider a texture wall covering as an accent instead of dramatic contrasting colors. Accent colors can also be used in textiles such as draperies and upholstery fabrics. Paint may be substituted for vinyl wall covering (VWC), but VWC is preferred. Where paint is used, multi-colored, speckled paint systems are preferred.

Ceilings

Paint ceilings off-white or provide a light colored acoustical textured treatment. Avoid suspended acoustical tile ceilings, as they tend to convey a non-residential quality and are easily damaged.

Cabinets and Millwork

Built-in cabinets must be well constructed with sturdy hardware. Recessed pulls are preferred, but may not comply with ADA requirements. Such requirements apply to some overseas locations where civilians occupy dormitories. Finishes must be able to withstand frequent cleaning and coordinate with the other finish materials. Neutral colors are required for cabinets and millwork to facilitate future color scheme changes.

Bathrooms

Use slip resistant ceramic floor tiles in bathrooms. Specify a mottled or shaded tile to hide discoloration from detergents, etc. Use ceramic wall tile from floor to ceiling around bathtubs and showers. Colored grout matching the ceramic tile is recommended for low maintenance and good appearance. Other areas may be at wainscot height. Install shower curtain rod instead of glass shower doors for ease in maintenance. Specify rod at proper height for conventional shower curtains 1800 mm x 1800 mm (72" x 72").

Lighting

Use a combination of ambient, task, and ambient lighting in living units. Limiting fluorescent lighting to utility areas such as laundry rooms and vending/kitchen areas is preferred. Fluorescent tubes should be color-corrected. The designer must be cognizant of lighting for both day and night situations. Dormitories have historically suffered from poor lighting. Designers should provide the highest quality illumination within budget and life-cycle cost limitations.

Window Treatment

Mini blinds, vertical blinds, draperies or a combination are authorized. Consider solar conditions when selecting a window treatment. All window treatments must pass NFPA 701-1/702-2 Standard Method of Fire Test for Flame Resistant Textiles and Films. For ease of cleaning, drapery pleats that are either stack pleated, roll pleated, or accordion-type pleated are preferred instead of pinch pleated. The drapery lining must hang independently from the finished drapery treatment. Installation of blackout linings is recommended for all dormitories, but is optional, depending on local conditions. Traverse rods and blinds must be of commercial quality. Bedspreads must compliment the window treatments and carpet color, but need not match exactly since bedspreads are laundered more frequently.

Furniture Considerations

All furniture should match in style and finish. Furniture must be well constructed of solid hardwoods and veneers with steel frames where necessary and with plastic laminate top surfaces. Wood grain laminates are discouraged in favor of lighter shade laminates in patterns or solids. Recessed pulls are preferred, but may not comply with ADA requirements. Such requirements apply to some overseas locations where civilians occupy dormitories. Maximize storage capabilities. Provide a study area and a lounge chair for each occupant. Beds must be 2030mm (80 inches) long. Consider providing under-bed storage. While under-bed storage units enhance in-room storage capacity, they preclude use of box springs. Double beds are recommended where space permits. Lounge furniture must be extremely sturdy and is generally used for reading or watching television. Use individual lounge chairs and love seats instead of sofas to maximize placement flexibility.

Artwork and Accessories

Provide artwork for all public areas. Graphics and signage must be well-designed and coordinated with the architectural style and finish materials. Silk plants are authorized for public areas. Install chair rails where needed. Provide wall protection for recreational games such as dart boards and billiards. Provide nameplate signage with removable inserts to identify the occupants of each dormitory room, and provide an insert to allow a sign that indicates "day sleeper".

Space	Floor	Wall	Ceiling
Living Units			
Living/bedroom	Ca	WC, Pa	Pa, Ac
Bathroom	CT	CT, Pa	Pa
Vanity Area	VT, SV	WC, Pa	Pa, Ac
Entry	VT, SV, CT	WC, Pa	Pa, Ac
Kitchen	VT, SV	WC, Pa	Pa, Ac
Common Areas			
Entries	CT, SV, RT, VT, QT	WC, Pa, CT	Pa, Ac, Su
Corridors	Ca	WC, Pa	Pa, Ac, Su
TV, Game Room	Ca	WC, Pa	Pa, Ac, Su
Laundry Rooms	QT, VT, CT, RT, SV	Pa, LA	Pa, Ac, Su
Vending/Kitch.	QT, VT, CT, RT, SV	Pa, LA	Pa, Ac, Su
Storage rooms	VT, SC	Pa	Pa
Toilets	CT, VT, SV	Pa, WC, CT	Pa
Admin. Areas	Ca	WC, Pa	Pa, Ac, Su

Legend:

Floors:

VT Vinyl Composition Tile
SV Sheet Vinyl
CT Ceramic Tile(sealed grout/slip resistant)
Ca Carpet
SC Sealed Concrete
RT Rubber Tile
QT Quarry Tile

Walls:

WC Vinyl Wall Covering
CT Ceramic Tile
LA Liquid Applied Coating
Pa Painted Drywall or Plaster

Ceiling

Ac Acoustical
Pa Painted
Su Suspended

Table 4. Suggested Surface Finish Schedule (Options or Combinations)

7. Access for Persons with Disabilities

Design enlisted dormitories to accommodate the needs of able-bodied military residents. Provisions for persons with disabilities are not required in any of the living units. Provide access by persons with disabilities to all public spaces on the first floor of a dormitory building. Provisions to accommodate such access include:

- Access ramps
- Sufficient door widths
- Proper fixtures and clearances in the public toilets
- Drinking fountains and public telephones mounted at the correct height
- Designated parking spaces with convenient access to the main entry of the building.

The specific requirements for providing access and accommodating the special needs of persons with disabilities are published in the Uniform Federal Accessibility Standards. and the Americans with Disabilities Act Architectural Guidelines.

8. Special Considerations for Renovations

Renovations of dormitories range from relatively simple interior finish upgrades to complete demolition and reconfiguration of an existing dormitory. The requirements and recommendations set forth in this design guide apply to renovations wherever possible.

A common type of wholesale renovation project is to convert an existing Type A dormitory to a Type B facility. This involves replacing the gang bathrooms and the double-loaded interior corridors with semi-private baths. Access to the living units is provided by new exterior balconies and exterior stairways. This concept requires some flexibility in the construction standards due to existing column locations, limited building widths, small mechanical rooms, etc. Although some flexibility is allowed due to these constraints, renovation projects must as a minimum, provide the authorized net living area applicable to new dormitories. The net living area may **exceed** 11 m^2 per living/bedroom area provided such an increase in net living area allows reuse of more existing walls, doors, and other building elements than would occur if the 11 m^2 requirement was met exactly. In no case should the net living area per living/bedroom area be less than 11 m^2. This increase in net living area should not exceed five percent (11.55 m^2 or 124.3 SF.)

In some cases, criteria waivers are necessary due to existing conditions which cannot be altered. Such conditions should be brought to the attention of the responsible MAJCOM to request waivers from HQ USAF/ILEH.

The use of a dormitory, as well as the authorized net living area for the residents may change over time. Designers must take this into account, and design new facilities to allow easy conversion to another use, such as from an enlisted dormitory to visiting airman quarters or to a private efficiency apartment in accordance with Vision 2020 (see Chapter 5). This includes providing rough framing within a wall for a future door between two living/bedroom areas and configuring the plan for minimal demolition if the conversion is required.

C. Building Systems

1. Structural

Select an economical structural system based on:

- Facility size
- Projected load requirements
- Subsoil conditions
- Local availability of materials and labor
- Feasibility of prefabrication
- Local construction practices
- Resistance to fire, and wind, snow, seismic, geologic, and permafrost conditions

Recognize that dormitories are very modular and repetitive in nature; therefore, decisions concerning the structural system have substantial effect on construction costs. Coordinate column spacing and layout with the building's floor plan so that columns occur within or in alignment with walls. Keep columns within spaces to a minimum, and limit them to larger public spaces such as laundry rooms, etc.

Consider using bearing walls since past designs validate their economic advantages. Analyze the proposed structural system to determine if it is the most economical method of realizing the architectural design intent.

The design live load criteria for the design of dormitories should be as shown in Table 5.

Area	Kilograms per Square Meter	Pounds per Square Foot
Room-Bath-Room Modules	195	40
Television and Game Rooms over 55 m2 (600 SF)	488	100
Television and Game Rooms under 55 m2 (600 SF)	293	60
Corridors and Balconies	293	60
Offices	244	50
All other areas	488	100

Table 5. Design Live Load Criteria

2. Heating, Ventilation and Air Conditioning (HVAC)

The design of the HVAC system must comply with the criteria set forth in MIL-HDBK-1190, Facility Planning and Design Guide (Sept. 1987), Chapter 10, Air Conditioning, Dehumidification, Evaporative Cooling, Heating, Mechanical Ventilation, and Refrigeration. The following is provided in addition to and in cases of conflict takes precedence over the above guidance.

In humid areas special design and construction considerations are required. These considerations are not limited to HVAC systems. Refer to Engineering Technical Letter (ETL) 93-2: Dormitory Criteria for Humid Areas for specific guidance. Humid areas are defined as having over 3000 hours of 19^0C (67^0F). F or higher wet bulb temperatures in combination with an outside design condition of 50 percent relative humidity or higher, or over 1500 hours of 23^0C (73^0F) or higher wet bulb temperature in combination with an outside design condition of 50 percent relative humidity or higher, based on 2.5 percent dry bulb and 5 per cent wet bulb temperatures.

System Selection

The selection of HVAC system is to be based upon the lowest total life cycle costs: include initial costs, operating costs, energy costs, system maintenance, repair and component replacement if not expected to achieve the same life cycle of the systems under considerations. The HVAC system must be designed to ensure that building energy consumption does not exceed DoD energy budget figures Use of a central plant should be considered for dormitory complexes. A central facility housing heating and cooling equipment reduces maintenance and capitalizes on the higher efficiency of larger capacity commercial equipment.

Maintenance

Maintainability of the system is critical to the continued quality of life of the occupants. Access to the systems must minimize disruption to the occupants and maximize servicing efficiency. The mechanical systems must comply with ETL 88-4: Reliability and Maintainability (R&M) Design Checklist. HVAC units will be located within the mechanical closet/space to ensure that filters, controls, drain pans and condensate piping, control valves and coils are easily accessible for servicing and cleaning. Condensate piping will be equipped with traps and threaded clean outs at the unit. Design drawings must detail these features including minimum clearances for maintenance.

Ventilation Air

Provide a central ventilation system to supply conditioned outside air to each room or each module's HVAC unit. Equip all branch ducts with accessible volume control dampers. Each module will be supplied continuously with conditioned outside air to meet the current ASHRAE Standard 62 or as required for building pressurization, which ever is larger. If provided to each module's HVAC unit, the module's HVAC unit's fan must run continuously.

Bathroom exhaust

Bathrooms maybe equipped with a central exhaust system or individual, directly vented, switched, bath exhaust fans. System selection shall be based upon a life cycle cost analysis. If a central ducted bath exhaust system is utilized, the exhaust system shall:

- Run continuously and be interlocked with the building supply air system.
- The exhaust duct for each space shall have a manual volume damper accessible from the space for proper balancing.
- Be evaluated for utilizing heat recovery from the exhaust system to precondition ventilation air.

Module HVAC Units

When room modules are equipped with individual HVAC units, they shall be ducted vertical fan units placed within designated mechanical closets or mechanical rooms equipped with lockable doors. Through-the-wall units and units located in the ceiling space are discouraged for maintenance reasons.

- Supply air: Supply air shall be ducted to the sleeping rooms and common area. Branch ducts shall be equipped with balancing dampers.

- Control: Control shall be provided by a single thermostat located in the common area.

- Return Air: Provide ducted return or transfer from sleeping areas, do not use ceiling space as return air plenums. Return air through closet and storage areas. Provide closet and bathroom doors with louvers sized for volume of transfer/return air. Evaluate need for transfer/return air sound attenuation between sleeping room and common areas.

Piping System

Where air conditioning is authorized and centralized hot and chilled water utilized, individual HVAC units should be connected to a centralized mechanical system by a 4-pipe hot water and chilled water distribution system to provide positive space control.

Perimeter Fin Tube Heating

In areas where perimeter fin tube heating is utilized, provide temperature control for each zone.

Kitchen Area

Provide kitchen area with a minimum of 2.54 L/s per m^2 (0.5 cfm/SF) of supply or transfer air continuously. Equip all kitchens with a range hood that exhausts directly to the outdoors. Recirculating exhaust hoods are not allowed for new dormitories, but are allowed for major renovation projects where running ductwork from the kitchen to the outside of the building is difficult. Where practicable, use direct exhaust systems for renovation projects as well.

3. Plumbing

Provide the following as required:

- Domestic hot and cold water
- Sanitary and storm drainage
- Propane or natural gas
- Steam or hot water
- Chilled water

Provide hot and cold water to all public toilets, bathrooms, kitchens, sinks, janitor closets and laundry rooms. Provide shut-off valves at all fixtures. Tank type, low water volume toilets are required in all bathrooms. Provide elongated bowl toilets with a closed-front seat and a lid. Toilets and bath fixtures must match and be neutral in color.

Provide hose bibbs on all exterior walls of each building at 50-foot intervals, freeze proof as dictated by climatic conditions. Provide floor drains in all toilets, bathrooms, janitor closets, and laundry rooms.

Provide a separate water heating system for centralized laundry rooms. In designs where multiple small laundry rooms are provided, separate hot water systems are not required.

Provide at least one drinking fountain on each floor of the dormitory.

Plan plumbing systems for dormitories to take advantage of stacking bathrooms and placing fixtures back-to-back. Mechanical engineers, architects, and structural engineers must work together to carefully plan the size and location of plumbing chases with minimal impact on usable living space. Consider collocating plumbing chases with exhaust risers serving each room.

4. Electrical/Communications

Provide the following as required:

- Distribution equipment
- Electric, telephone, and local area network wiring
- Receptacles and grounding
- Interior and exterior lighting
- Emergency lighting
- Fire detection and enunciation
- Cable television
- Intrusion detection systems.

Base electrical system design calculations on multi-family occupancy rather than a hotel occupancy since the dormitory is the full-time home of the residents, and therefore has a higher demand factor.

Provide metering for electric power. Provide a minimum of five quadraplex outlets per living/bedroom area, mounted 300 mm (12 inches) above the floor. Provide three-way switches at the entrance door and in the vanity area so that the living/bedroom area lighting is controlled at either location. Likewise, provide three-way switches at each bathroom door to control the bathroom light fixture.

Prewire and provide one cable television outlet and one telephone jack in each living/bedroom area. Locate jacks for maximum furniture placement flexibility. Provide one wall-mounted public telephone per each 20 modules.

Provide one dedicated communication/data connection in each living/bedroom area. Prewire the connection if specific communication/data requirements are known.

Provide incandescent or fluorescent ambient lighting in each dormitory room. Incandescent fixtures with dimmer switches are recommended for the living/bedroom area. Fluorescent fixtures on the underside of kitchen wall cabinets are recommended to provide task lighting and supplement ambient lighting. The use of fluorescent fixtures in dormitory rooms is allowed, but must be carefully selected to fit into the residential environment. Fixtures in dormitory rooms must not appear "institutional". Do not rely solely on table lamps for room lighting. Ambient light level at desk height must average 50 foot candles in each dormitory room. Provide overall ambient lighting in addition to task lighting. Conceal all wiring; exposed wire mold or conduit is not allowed.

Provide exterior lighting of parking areas, building entrances, and walkways. See Chapter 2 for more information concerning exterior lighting. Use the National Electrical Code, the IES Lighting Handbook, and NFPA 101 Life Safety Code for lighting calculations. Provide one exterior light fixture outside each room entrance door for Type B dormitories.

5. Fire Protection/Life Safety

Fire protection systems must conform to MIL-HDBK-1008, Fire Protection for Facilities Engineering, Design and Construction, and to National Fire Protection Association (NFPA) fire codes. Based on the Uniform Building Code, the 1+1 module dormitory is classified as an efficiency apartment with an R-1 occupancy. Based on the Life Safety Code, this occupancy is classified as an apartment building. Modules must have smoke alarms and each module requires a sprinkler system due to kitchen cooking equipment. This sprinkler system reduces fire separation requirements to three-quarter hour fire rated corridor walls and no required fire rated separation between living/bedroom areas or modules. Facilities will be of Type II, noncombustible construction as defined by NFPA 220 Standard of Types of Building Construction.

All new dormitories and major dormitory renovation projects must be protected throughout by an approved supervised automatic sprinkler system installed in accordance with the requirements specified in NFPA 13 or 13R as appropriate and other fire codes referenced therein.

Each new dormitory kitchen, living/bedroom area (and living area in the case of a suite) must be provided with an approved single station smoke detector and heat detector powered from the building electrical system. Existing one and two-story Type B dormitories without sprinkler protection must have heat detectors installed in addition to smoke detectors.

Ensure that audible fire alarms are easily heard within the living units. This may require more or louder audible alarms than normal because of the sound attenuating construction found in dormitories.

Provide a Class I standpipe system at stairwells of dormitories 4 stories or greater in accordance with NFPA 14. Standpipes consist of a 63mm (2.5 inch) outlet at the first floor and two 38mm (1.5 inch) outlets at the other floors. The outlet must have national standard threads.

Provisions for life safety must conform to the requirements found in NFPA 101, Life Safety Code, latest edition.

Travel distance to exits is of particular concern in designing dormitories. The placement of stair towers or stair wells must be part of the preliminary building planning process. Minimizing the number of stairs required can be achieved by maximizing allowable travel distance in the design. This requires determining the maximum number of living units which can be served by one stair while still conforming to the maximum allowable travel distance. The elimination of stairs must be tempered with the need for privacy. Fewer stairs can result in more traffic being funneled past module entrances in a Type B dormitory.

The construction of fire walls, ceiling and floor assemblies around each living unit is another issue of paramount importance to dormitory design. The construction of such assemblies as required by NFPA 101 must be closely coordinated with the sound attenuating techniques used.

The 1+1 module occupancy is classified by the Uniform Building Code as an efficiency apartment with an R-1 occupancy. This occupancy is classified as an apartment building. Living/bedroom areas must have smaoke alarms, and modules require sprinkler systems due to the cooking equipment. The sprinkler system reduces fire separation requirements to three-quarter hour fire rated corridor walls and no fire rated walls between living/bedroom areas or modules. In most cases, however, the fire rating of such walls will be enhanced by virtue of noise isolation requirements.

6. Acoustics

Careful attention to acoustic design is required for dormitories to ensure a high degree of privacy for residents within their living units and study areas. Designers must address isolation of noise from a variety of sources, including:

- Adjacent living units
- Units on a floor level above or below
- Hallways and balconies
- Mechanical rooms and systems
- Exterior-generated sound such as aircraft and automobile noise

Walls between living units and between living units and corridors, and exterior walls of living units must have a Sound Transmission Class (STC) of at least 50. Floor and ceiling assemblies must have an STC of at least 55 and an Impact Insulation Class (IIC) of at least 60.

Telephone, cable television, convenience outlets, and mechanical ducts must not compromise the acoustical integrity of wall, floor, or ceiling assemblies. Fluorescent lamp ballasts must be selected to minimize noise generation.

7. Architectural Systems

Select reliable, conventional building systems for dormitories, and use building materials and finishes that are durable and easy to maintain. Architectural systems must be selected based on their aesthetics, simplicity, and economic characteristics.

Windows

All living areas and places of assembly must have operable windows to provide natural ventillation. Use tight-fitting, insulating, commercial grade windows for dormitories. Light-duty residential grade windows are not acceptable. Low emmisivity (Low E) glazing is recommended for increases thermal performance, ultraviolet retardation, and maximum light transmission. Install heavy-duty insect screens on all operable windows. Size windows at between 10 and 15 percent of the floor area they serve. Windows serving residential units must be operable and sized for emergency egress. Consider installing European style rolladens (roll-up shutters) to provide more privacy, security, and noise reduction. All windows must be compatible with the type of window coverings to be used. In Type B dormitories, provide sufficient mullion width between the door and window jambs to install light switches.

Doors

All exterior doors must be fully weather-stripped and include a heavy-duty metal threshold which prevents drafts, dirt, water, and insect entry. Exterior doors must be thermally insulated. Entry doors for Type A dormitory modules should be sound-insulated and must have a peephole for viewing visitors. Provide keyless (credit card type) locksets for all module entry doors. Entry doors should be 900 mm (3'-0") wide, closet and bath doors should be 600 mm (2'-0") wide, and doors between living/sleeping areas and kitchens should be 750 mm (2'-6") wide. Do not use hollow core wood doors in dormitory construction.

Moisture Control

Special construction considerations, not limited to HVAC systems, are required for dormitories in humid areas. Refer to Engineering Technical Letter (ETL) 93-2: Dormitory Criteria for Humid Areas for specific guidance.

Exterior Finish Materials

Designers must consider durability, functionality, economy, low maintenance requriements, and architectural compatibility when selecting exterior finish materials. Many dormitories are constructed of load-bearing CMU exterior walls with a brick veneer finish. Other dormitories are built with single wythe split faced or ribbed CMU. In both cases, the CMU wall is furred with gypsum board on the interior of the modules. Some dormitories have successfully utilized exterior insulation finish systems (EIFS) as the primary exterior wall finish. While this is a good system in terms of thermal performance, integral color, and moisture penetration, designers must specify heavy-duty reinforcing mesh at all areas subject to impact damage.

Roofing

Unless the installation's architectural compatibility standards state otherwise, all dormitories should have sloped roofs. Not only does this ensure positive drainage, sloped roofs impart a more residential image than do flat roofs. Standing seam metal roof systems have excellent performance characteristics, but must be in context with the architectural compatibility standards. Composition shingles and clay tile roofing may also be appropriate. Avoid using tapered roof insulation to achieve slope.

Chapter 4 - Functional Area & Space Criteria

A. General

1. Functional Areas

This chapter presents criteria applicable to the design of each function area of an enlisted dormitory. These include:

Required Areas

- Living/Bedroom Area
- Vanity
- Bath
- In-room Storage
- Kitchen
- Laundry
- Utility Space
- Mail Service*
- Bulk Storage
- Circulation Space

* Required in locations where USPS delivers to base housing

Optional Areas

- Multi-purpose Space
- Game Rooms
- Fitness/workout rooms
- Vending Areas
- Guest Toilets
- Vending/Kitchenette Area
- Guest Toilets
- Supply Storage
- Administration Area

2. Basic Requirements

Primary design considerations are presented for each functional area indicating the anticipated use, performance, organization, character, and relationships of specific areas. Criteria are included herein for size and critical dimensions, storage requirements, furnishings and equipment, and technical requirements.

3. Basic Configurations

Type B dormitories with private access to individual living units from exterior balconies or sidewalks may give the perception of increased privacy. They convey a feeling of an individual apartment rather than the hotel-like feeling presented by a Type A dormitory with interior corridors. Type B dormitories can benefit aesthetically from the articulated facades created by balconies. Type A dormitories usually present a greater challenge to the architect due to their typically flat facades. It is important to note, however, that residents in Type B dormitories tend to close their window coverings to gain privacy from outside walkways. This results in less use of natural light. Type B dormitories have the additional advantage of more centrally located plumbing systems where toilets are grouped back-to-back down the center of the building without being interrupted by a corridor. In Type A dormitories, the view from living unit windows can be directly to the exterior without having to look across a balcony. Type A configurations generally support interior socialization, while Type B configurations support outside social interaction and interior separation. Type C garden apartment style dormitories offer the greatest degree of privacy, since stairways access a limited number of modules. In most configurations, Type C dormitories have only four modules per floor accesses by each stairway.

Most Air Force enlisted dormitories are three stories in height. This configuration maximizes the efficient use of available real estate and avoid the additional fire protection, inconvenience to occupants, and structural and life safety cost associated with buildings over four stories in height.

Designers should recognize the importance of minimizing the exterior wall area of the dormitory. This practice not only reduces construction costs, but reduces life-cycle energy costs as well. The examples shown in Figures 1, 3, 5, and 7 are all fairly deep modules with minimal exterior wall area. Figures 2, 4, and 8 are wider and less efficient with more exterior wall area. The example shown in Figure 8 is the most efficient of all due to the back-to-back configuration of the living/sleeping areas. The other examples have the living/sleeping areas arranged side-by-side.

4. Applicability

The design criteria that follows applies to Type A, Type B and Type C dormitories unless noted otherwise.

B. Residential Areas

1. Living/Bedroom Area

This area is the net living space for one E1 through E4 is shown graphically by the shaded areas in Figures 2 through 10. Consider the following:

- Ceiling height must be at least 2440 mm (8-0"). Do not use lay-in acoustical tile ceiling systems.

- If CMU construction is used for exterior walls or interior partitions, it must be furred with 13mm (1/2") or thicker gypsum wall board.

- Provide wide-angle peepholes and deadbolts on all module entrance doors. Provide automatic door closers on entrance doors for Type A dormitories. Type B and C entrance doors do not require automatic closers. Provide a keyless (credit card type) entry door lockset with an intregal deadbolt and master entry cabability (either by key or card). Type A dormitory entrance doors require sound insulation. Exterior doors require thermal insulation.

- The minimum dimension of the living/bedroom area should not be less than2840 mm (9'-4"). Minimize doorways or openings in perimeter walls in order to enhance flexibility in furniture arrangement. See Figures16 through 19 for typical living/bedroom layouts.

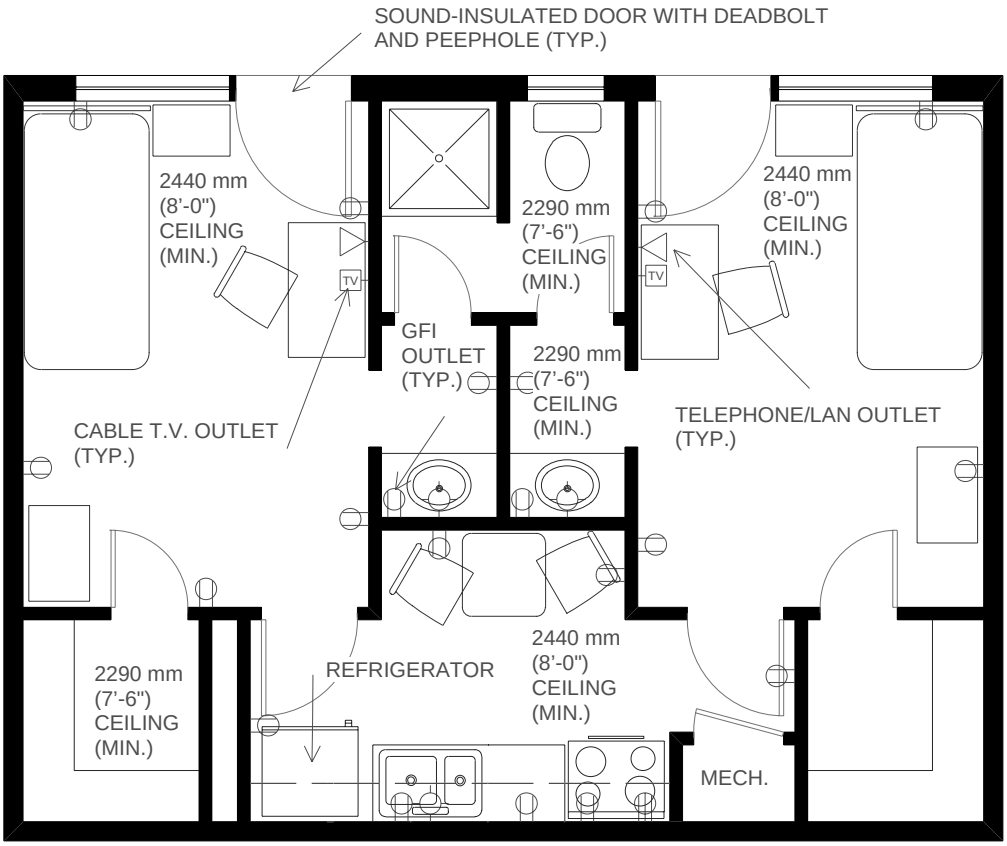


Figure 16. Typical Type B Module Furnishings/Outlets

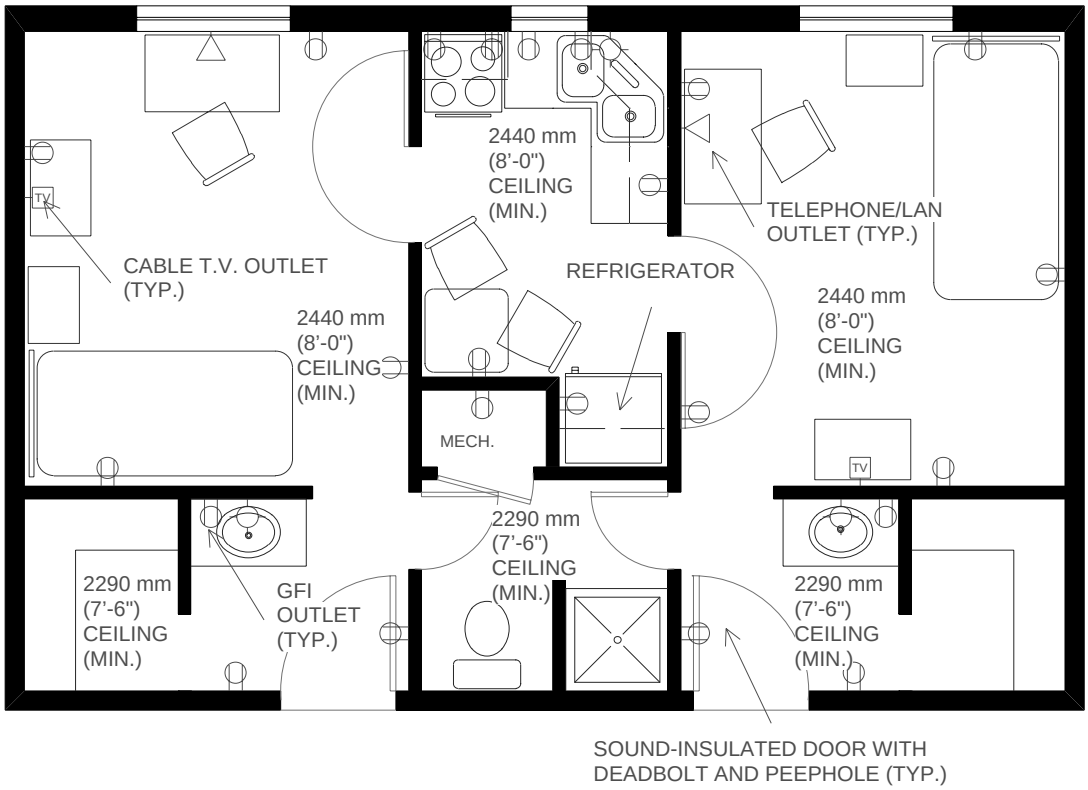


Figure 17. Typical Type A Module Furnishings/Outlets

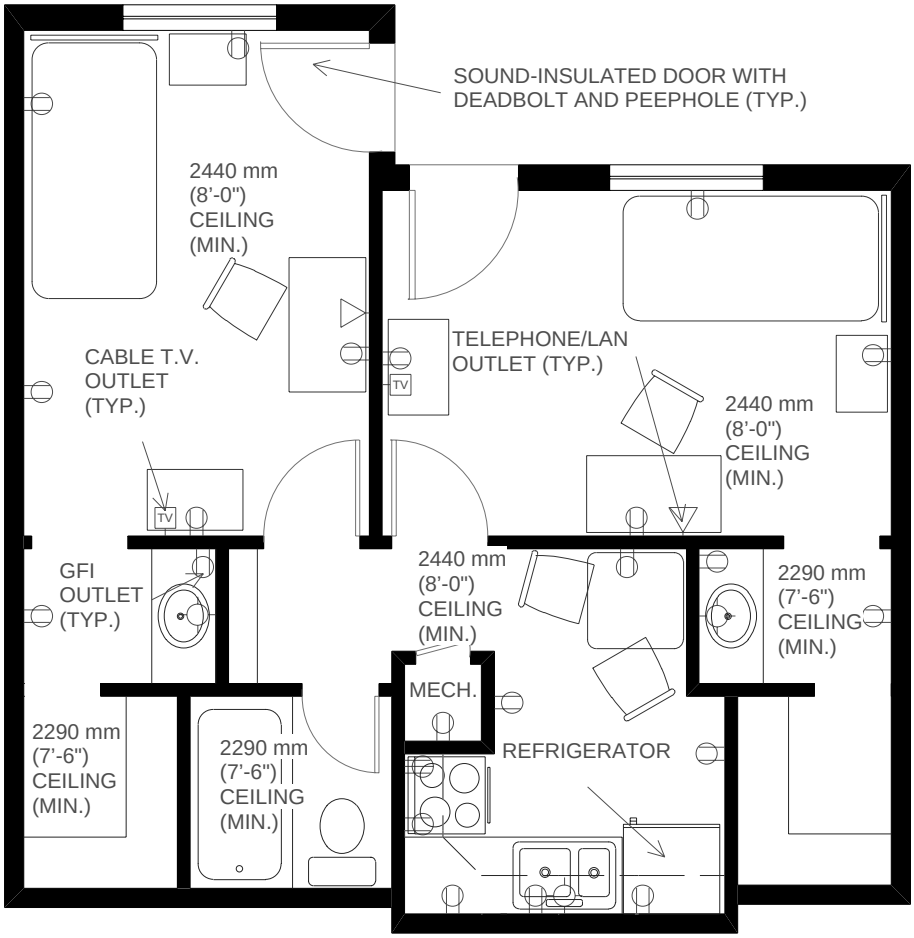


Figure 18. Typical Type C Module Furnishings/Outlets

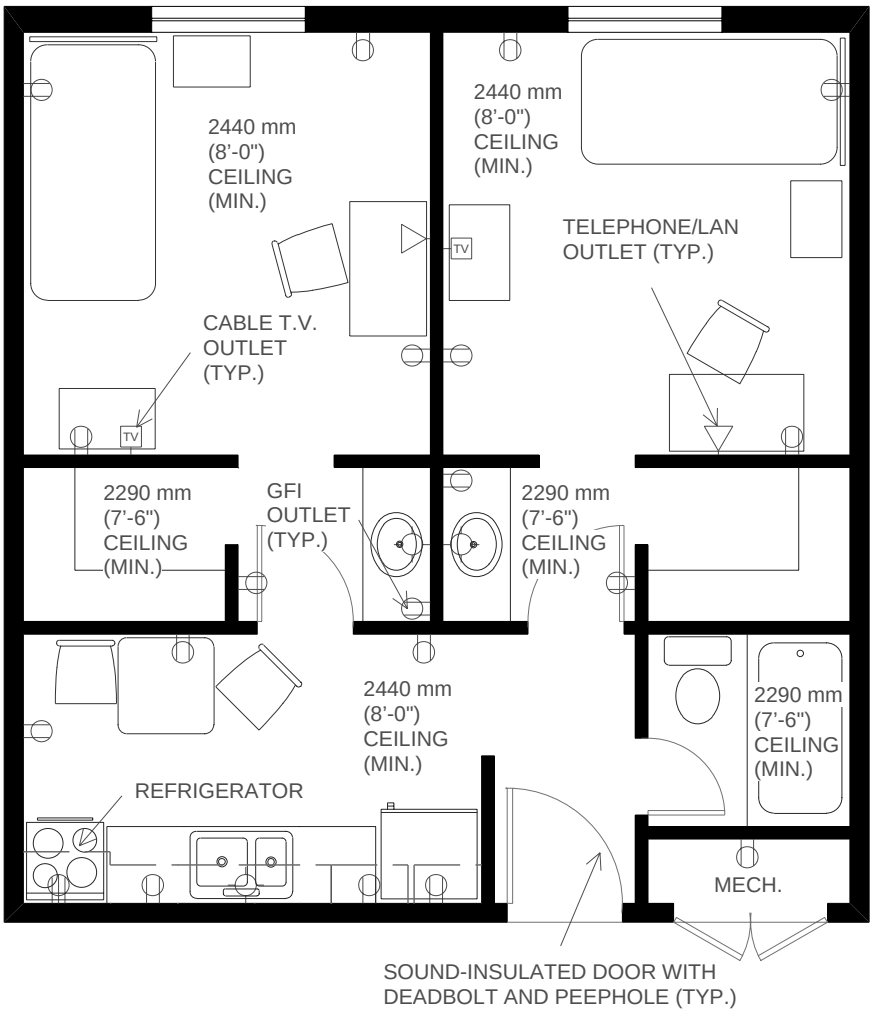


Figure 19. Typical Type A Module Furnishings/Outlets

2. Vanity Area

The occupant of each living/bedroom area shall have a private vanity. This may be located within the living bedroom area or off the common space, but must be separate from the bathroom. Plan this area to make the most efficient use of very limited space. Include the following:

- Provide a full-length mirror on the vanity side of the door leading to the closet.

- The vanity must be at least 1050 mm to 1200 mm (42" to 48") wide and must have a plastic laminate top with either an enameled cast iron drop-in lavatory or an integral cultured marble bowl and countertop. Provide an integral backsplash. The vanity counter top should be775 mm to 900 mm (31" to 36") above the floor.

- Vanity base cabinets must contain a minimum of two 200 mm wide by 75 mm high(8" x 3") high drawers with the remaining area under the vanity given to storage accessed by cabinet doors.

- Provide a full width mirror above the vanity. Provide overhead built in storage cabinets which match the vanity base. Mount a residential incandescent or fluorescent light fixture providing at least 75 footcandles illumination on the underside of the storage cabinets. This fixture may have single or multiple lamps.

- Install one medicine cabinet with at least 39, 329 cm^3 (2400 cubic inches) of interior area to the side of the mirror. At least three adjustable interior shelves are required. The medicine cabinet doors must be finished to match the vanity base.

- Provide a duplex GFI convenience outlet near the mirror. Size circuits to accommodate 1200 Watt hair dryers, etc.
- Provide one wall-mounted towel bar in each vanity area. Each bar must be at least 600 mm (24") long.

- Provide a single-lever ceramic cartridge washerless faucet at each lavatory.

See Figure 20 for a typical vanity/bath area layout. See Figure 21 for a typical vanity area interior elevation.

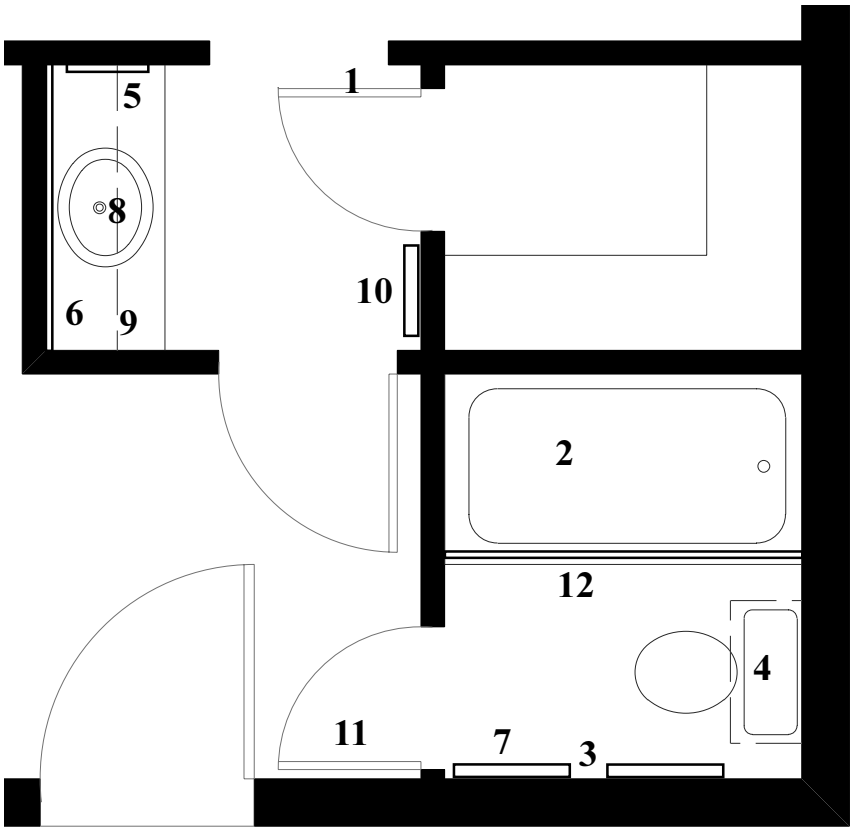
3. Bathroom

- For modules with two doors into the bathroom, the selection of the locksets is critical. Residents must be able to lock their bathroom door from inside their room. To avoid lockout problems while still maintaining security of the living/bedroom areas, both locksets should be key lockable from the living/sleeping area side only. Do not provide a push-button or latch lock on the bathroom side. To give residents a limited measure of privacy when in a bathroom having two doors, provide a deadbolt above the lockset which has thumb-latches on both sides. With this configuration, a suitemate cannot walk in on someone in the bathroom without at least turning the thumblatch from the living/bedroom side. This confusing lockset/deadbolt arrangement can be avoided altogether by having only one door to the bathroom accessed from a common area. This configuration requires only a privacy lockset which is locked by a push-button or latch from the bathroom side. Where only one door to the bathroom is provided, this door should be isolated from the kitchen to the greatest extent possible.

- A shower/tub combination is preferred in all bathrooms. Major Commands may elect to specify combination showers only. Use enameled cast iron tubs mounted with tub hangars. Glass fiber reinforced tubs are not allowed. Glass shower doors mounted on tubs are not encouraged due to increased maintenance and cleaning requirements. Provide a heavy-duty shower curtain rod.

- Provide a pulsating shower head connected to a flexible hose in each tub/shower. The shower head must fit into an adjustable-height holder mounted on a vertical rod to allow height adjustment over a wide range.

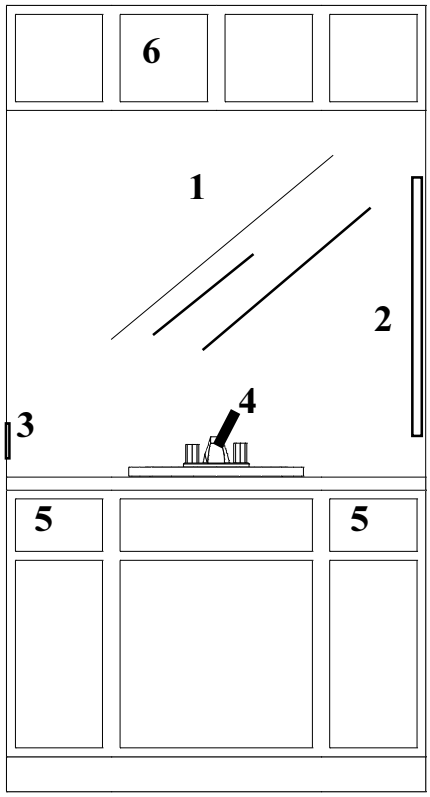
- Provide two towel bars. Each bar must be at least 600 mm (24") long.



Legend:

1. Full length mirror on outside of closet door
2. Enameled cast iron tub or shower with pulsating adjustable height shower head on vertical rod
3. Recessed ceramic toilet tissue holder
4. Storage cabinet above toilet
5. Recessed medicine cabinet with 3 adjustable shelves
6. Full width mirror
7. 2 towel bars
8. Sink with single lever faucet
9. Ground fault interupt (GFI) outlet
10. 1 towel bar
11. Robe hook on inside of bath door

Figure 20. Typical Vanity/Bath Area



Legend:

1. Full width mirror
2. Recessed medicine cabinet with 3 adjustable shelves
3. Group fault interrupt (GFI) outlet
4. Sink with single lever faucet having ceramic valves
5. Drawers
6. Storage cabinets above mirror with light fixture beneath, either fluorescent or incandescent

Figure 21. Typical Vanity Area Elevation

- Provide one robe hook on the bathroom side of the bathroom door.

- Provide replacable plastic shower caddies for the tub/shower area. Built-in soap dishes or storage recesses are discouraged because they are difficult to clean.

- Provide a wall mounted storage cabinet with doors above the wainscot over the water closet. The finish of this cabinet must match the vanities.

- Provide a heavy-duty, recessed ceramic, wall mounted toilet tissue holder near the toilet.

- Allow space beside the toilet for a standard-size plastic trash can.

4. In-Room Storage

Recent surveys indicate that a very high percentage of dormitory residents would like additional storage space, expecially within their room.

Each living/bedroom area must have a minimum of 1.86 m^2 (20 SF) of closet space. This requirement is met for new dormitories with a single walk-in closet measuring 1200 mm by 1500 mm (4' x 5'). Designers have the option of splitting the minimum area among two or more smaller closets for major renovation projects. Provide at least one closet convenient to each living/bedroom area. They are normally accessed from the vanity area.

Closets must have minimum interior dimensions of 600 mm deep by 1050 mm wide by 2250 mm tall (24" x 42" x 90"). Where doors are provided, provide solid core wood doors with heavy duty hardware. Use standard builders hardware. Where closets are accessible only from the living/bedroom area, only a passage set is needed. Closet doors are optional, but are recommended when the closet contents would be readily visible. Plrovide at least one clothes rod with a shelf above in each closet. The total length of hanging space must not be less than 2400 mm (8 feet). Closet organizer systems which have double clothes rods and shelves are highly recommended to maximize the efficiency of closets. Space may be provided in the lower part of the closet for movable drawer units which are moved out of the closet into the living area at the resident's option.

5. Kitchen

The kitchen provides residents with a quality of life similar to enlisted personnel occupying military family housing or living off base. Two E-1 through E-4's will share the kitchen. All built-in equipment must be purchased with MILCON funds. Free-standing equipment is purchased from other appropriations. As a general rule of thumb, appliances that are simply set in place and plugged in are purchased with equipment funds, whereas "built-in" appliances are purchased as part of the construction with MILCON funds. See Figure 22 for a typical shared kitchen.

The use of pre-manufactured unit kitchens is not encouraged unless substantial warranties are included. While they save space, they are often much more expensive to maintain than conventional appliances.

The following requirements must be met in the design of the kitchen:

- Provide a frost-free refrigerator with a separate freezer compartment. Minimum size is 0.31 m^3 (11 cubic feet). (Equipment)

- Provide a double bowl stainless steel sink. Consider using a "sink-and-a-half" design having one large bowl with a smaller bowl connected to a disposer. A disposer is recommeded but optional. Provide a gooseneck type single lever faucet. (MILCON)

- Dishwashers are not recommended but are optional if funding allows (MILCON)

- Provide at least two duplex outlets above the backspash. These outlets must be GFI if they occur within the specified distance from the sink as defined in the latest addition of the National Electric Code. These oulets are in additon to those required for the range, refrigerator, range hood, oven, microwave, or disposer.

The minimum requirement for cooking are to provide a two-burner cooktop, conventional oven, plus a wall-mounted shelf and outlet for a standard microwave oven. A self-cleaning oven is recommended. As an option, a combination microwave/ convection oven may be substituted for the standard oven and microwave. This type oven may be built-in or placed on the wall-mounted microwave shelf. (MILCON if built-in, Equipment if free standing)

- Provide a range hood with a light and fan. Positive ventilation to the exterior is required for all new construction as well as Type A (central corridor) dormitory renovation projects. Ducted exhaust hoods are recommended for Type B (balcony access) renovation projects, but ductless fans with recirculating fans and proper filters are acceptable when warranted by existing building conditions. (MILCON)

- Provide dining space for two persons in the kitchen, either at a separate table or a barstool-height counter. Configurations which force the user to face the wall are discouraged. (built-in counter would be MILCON)

- An operable window is desirable but not mandatory in kitchens.

- Provide at least 900 linear millimeters (3 linear feet) of wall cabinets in the kitchen. Also provide 900 linear millimeters (3 linear feet) of base cabinets. Provide at least 600 linear millimeters (2 linear feet) of counterspace adjacent to the sink. The countertop should have an integral backsplash. These requirements for wall and base cabinets are in addition to the microwave shelf. (MILCON)

- Provide fluorescent task lighting providing at least 75 footcandles under wall cabinets, and provide either an incandescent or fluorescent ceiling light fixture(s) on the ceiling of the kitchen area, providing between 50 and 100 footcandles ambient illumination.

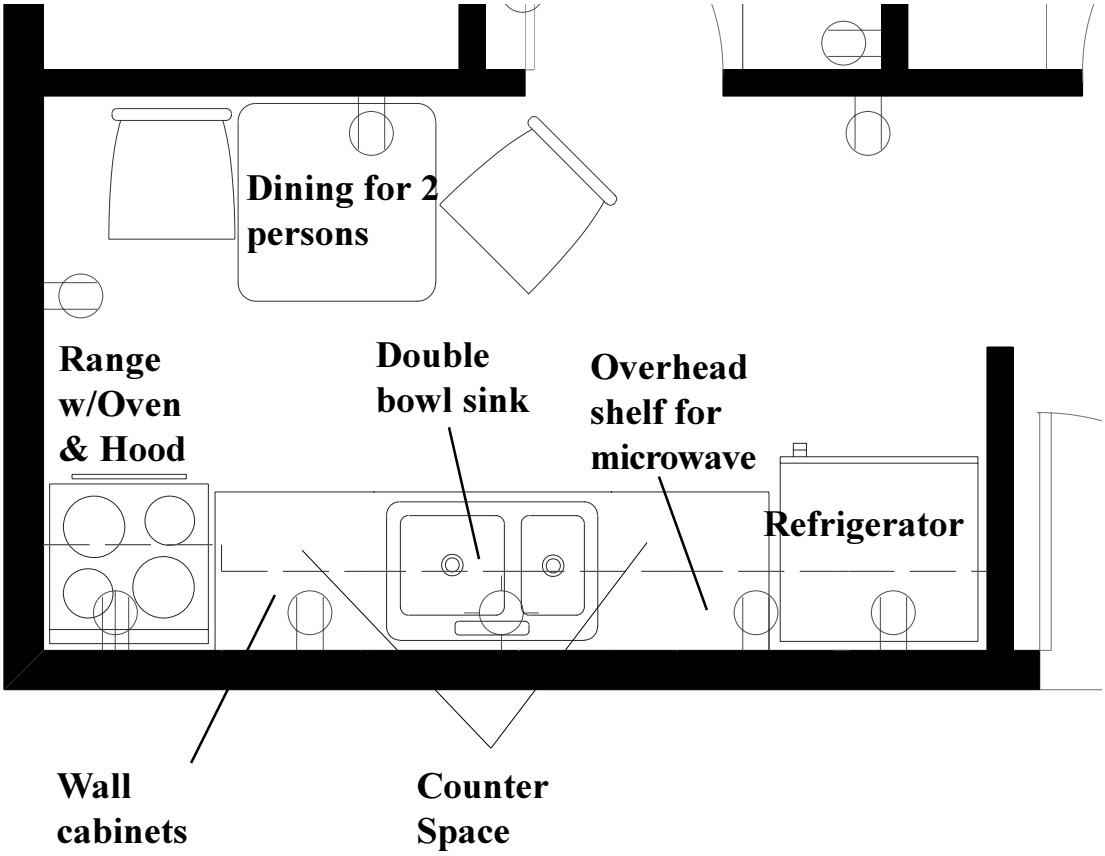


Figure 22. Typical Shared Kitchen

C. Recreation/ Community Areas

1. Consolidated Support Facilities

See Figure 23 for a typical support facility containing study/meeting room, centralized laundry, kitchenette/vending area, administration office, game room, television room, and guest toilets.

Figure 23. Typical Consolidated Support Facility

2. Multi-purpose Space and Gamerooms

Multi-purpose space includes study/meeting rooms, television rooms, workout rooms, etc. Distribute multi-purpose spaces throughout the dormitory, or consolidate them into one larger space on the first floor that allows for several uses. Consideration must be given to the location of the area to avoid undesirable noise and traffic. Plan acoustics, lighting, and furnishings to create an environment conducive to the intended activity.

Many residents own televisions; therefore, the need for a television room must be evaluated on a case-by-case basis. Provide dimmable lighting and window treatments to control glare in television rooms.

Unit commanders designing and equipping fitness rooms in their squadrons will be responsible for maintaining accountability controls, establishing use priorities, providing maintenance, and monitoring safety, security, and sanitation. Contact the Services Squadron for assistance.

Anticipate the type of activities provided in the design of game rooms. . Most game rooms are designed to accommodate pool tables and/or ping-pong tables. Some dormitories also have video arcade games located in the game room. Acoustically isolate game rooms from television rooms, residential and study areas because of the typically high noise level. Locate the game room and television room near the centralized laundry facility, the public phone alcove, and the kitchenette/vending area.

Television, workout and game rooms are often subject to hard use. Select finish materials accordingly. Provide a durable wainscot topped by a hardwood chair rail on the walls of these rooms. Avoid the use of suspended acoustical ceiling systems in game rooms as they have a tendency to be damaged by pool cues.

D. Service Areas

1. Laundry Rooms

This design guide does not dictate the distribution of laundry appliances, but does address the total number of washers and dryers to be provided. Allow one set per 12 residents. Provide one appliance, either a washer or dryer, for each six residents. This factor should be used where space permits in existing dormitories. It is mandatory for new construction. A ratio of two dryers for each washer is suggested. Additional washers and/or dryers may be provided with MAJCOM approval.

Laundry facilities may be distributed on each floor of the dormitory or consolidated in one central location. When smaller laundry rooms are located on each floor, residents feel they are more convenient, and the travel distance required to carry laundry is reduced. This arrangement, however, has some drawbacks in that noise isolation, utility service, and ease of maintenance become more difficult and typically more expensive to address. Also, residents may find themselves running back and forth between several small laundry rooms searching for an available machine, only to have one become available without their knowledge.

Centralized laundry rooms have advantages concerning easier maintenance, greater energy efficiency, easier noise isolation, and the ability for residents to quickly ascertain the availability of washers and dryers. The main drawbacks for centralization are the increased travel distance for some residents and lack of convenience.

Designers must carefully address noise isolation, acoustics, humidity, ventilation, and temperature control.

- Conceal all utilities from view, yet provide easy access. Mount utility connections 900 mm (36 inches) above the floor. Design straight-run venting of dryers to avoid lint clogs.

- Provide a minimum of two floor drains in each laundry room and at least one drain per each six washers in large centralized facilities.

- Provide at least one fold-down heavy duty ironing board in each laundry room.

- Where possible, locate laundry facilities near television and game rooms.

- For centralized laundry rooms, provide a glass storefront entry to the laundry room so that residents can view the room without entering.

- Provide dedicated space for wall-mounted laundry product vending machines.
- Provide adequate built-in folding tables and clothes hanging rods.

- Avoid an interior design scheme that creates a “sterile” look for laundry rooms. Use heavy-duty sound-absorbing finishes such as "tectum" panels and ceramic coated suspended acoustical tile.

- Provide a stainless steel deep service sink with a gooseneck fixture in the laundry room.

See Figure 24 for a typical centralized laundry facility layout.

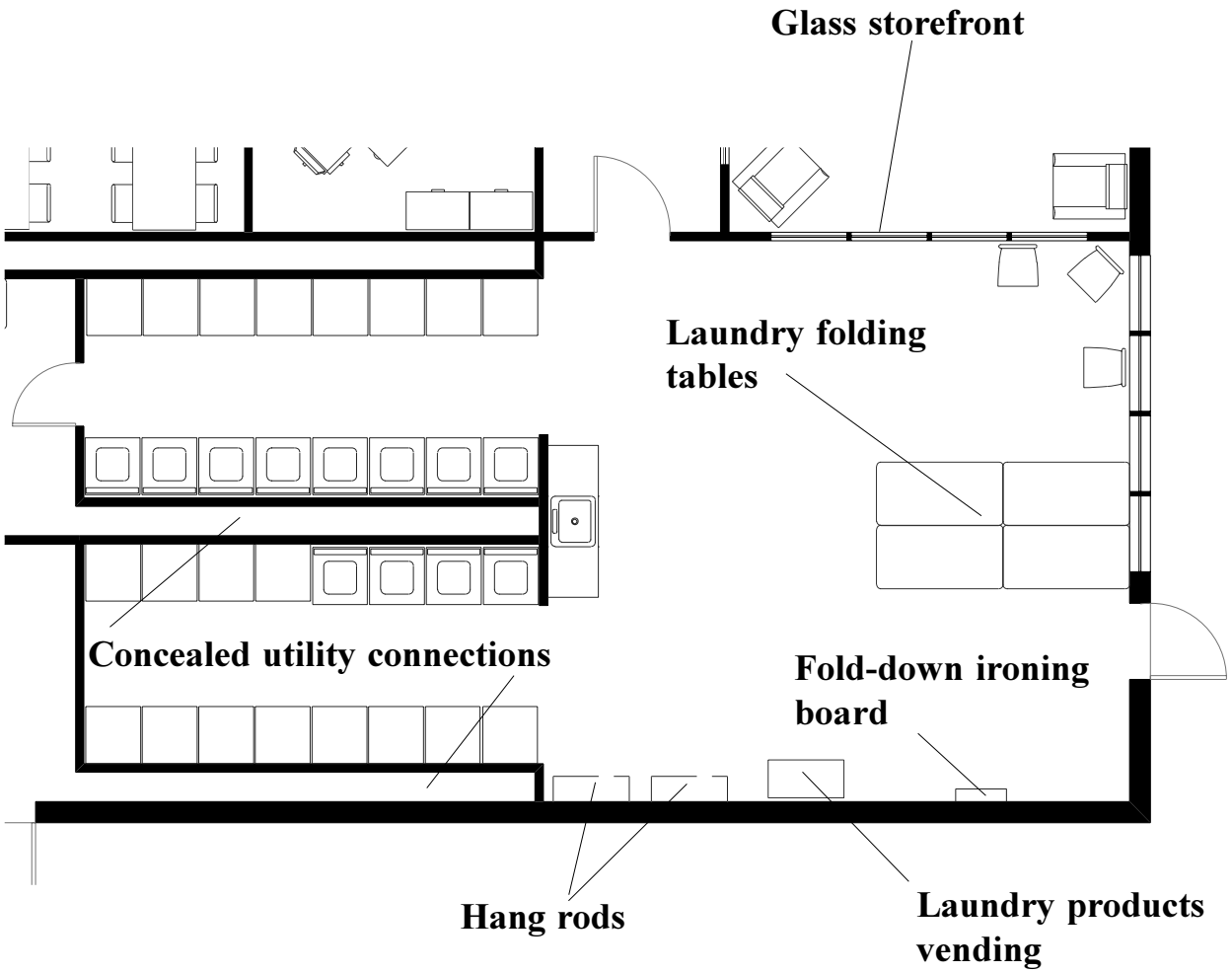


Figure 24. Typical Centralized Laundry Facility

2. Mail Service

Provide one United States Postal Service approved tamper-resistant mailbox per resident. Each mailbox must have minimum dimensions of 150 mm wide by 125 mm tall by 390 mm deep (6" x 5" x 15-1/2") and must be key lockable. Consider the likelihood of vandalism in proposed mailbox locations and design accordingly. Do not provide mail slots in individual dormitory rooms. Group the mailboxes together into one consolidated unit where space permits. The mail service may be located indoors on the first floor of a dormitory building or in an outdoor covered area, gazebo, or where quantity warrants, even a separate enclosed building.

Coordinate proposed location for mailboxes closely with base information managers, who, in turn, should coordinate with the local United States Postal Service and/or mail delivery contractors. The locaiton of mailboxes may be driven by traffic flow, building configuration, security requirements, and agreements with the USPS and/or contracted delivery services. Landscaping considerations are required for mailboxes located outside of a building.

While mail service must be relatively convenient to the residents, major emphasis must be placed on providing convenient and efficient delivery and pick up. Avoid locating boxes where residents retrieving their mail will become an annoyance to other residents. In large dormitory complexes, it may be desirable to locate several groupings of mailboxes in a number of buildings or outdoor structures. Provide overhead protection when locating boxes outdoors, and consider the impact of adverse weather on mail delivery and pick up. Provide a standard letter drop at each mailbox cluster. Parcel lockers are not required. Residents will pick up large packages at the Base Post Office.

Mailboxes added to an existing dormitory should be well-integrated into the design to appear as an original feature rather than an afterthought.

Programmers and designers should refer to HQ USAF letter, Mail Delivery Service for Unaccompanied Personnel Housing, dated 13 October 1995 for more information.

3. Vending Area

Provide a vending area near the multi-purpose spaces and/or game room on the first floor of the dormitory building or in the consolidated support facility. Provide space and utility connections for one ice machine and four vending machines. Space for additional vending machines may be provided. Size the ice machine based on 136 kg (300 pounds) for each 200 residents. For larger dormitories, vending areas may be distributed throughout the facility.

4. Bulk Storage

Bulk storage areas provide dormitory residents with additional storage space for personal items. Items typically stored in bulk storage areas include luggage, original stereo system cartons, snow tires, and bicycles. As a general rule of thumb, allow two storage cubicles for each three residents. This ratio can be changed to meet the needs of each dormitory. Each storage cubicle must have minimum dimensions of 900 mm wide by 1200 mm deep by 2100 mm tall. Construct storage cubicles of plywood or heavy duty wire mesh. Each cubicle must have a heavy-duty padlock hasp. Residents will furnish their own padlocks.

Locating the bulk storage area on the same floor as the living units they serve enhances convience, but uses expensive space for an infrequently used purpose. Consider consolidating bulk storage in less expensive construction. One large centralized bulk storage room may be provided, but it requires more attention to security and is generally less convenient to the residents. The room must have a door, but it must have 24-hour access by the residents. One large centralized bulk storage room may be provided, but it requires more attention to security and is generally less convenient to the residents. Assess the need to store special items such as chemical warfare or mobility gear, and design accordingly.

5. Administration Area

For most enlisted dormitories, the administration area consists of a single office for the facility manager. Locate this office on the first floor for the convenience of the residents and visitors. They are typically located near the main entrance to the building. Provide a recessed, wall mounted, lockable key storage box in this office for storage of spare room keys for each room.

6. Utility Space

Utility spaces include mechanical rooms, electrical and telephone closets, janitor closets, storage closets, outside storage, and supply storage rooms. Address the following:

- Locate mechanical rooms to control noise and vibration and allow for efficient utility distribution. Mechanical rooms are generally best located adjacent to laundry facilities Give special attention to the reduction of noise and vibration transfer.

- Electrical and communications rooms introduce little conflict with living units and should be located as required throughout the dormitory for efficient utility distribution.

- Plan access to mechanical, electrical, and communications rooms so that minimal disruption of residents occurs when these spaces require service. Provide access from the exterior of the dormitory whenever possible.

- Locate a janitor closet on the first floor of all dormitory buildings and on each floor of Type A dormitories. Type B dormitories require janitor closets on each floor only if public areas such as laundry rooms or television/game rooms are provided on that floor. Provide each janitor closet with a deep service sink, a mop strip, a floor drain, and wall-mounted shelves for storage of cleaning supplies.

- Provide storage closets where needed. They are most often required near public spaces such as television and game rooms for storage of game equipment, etc.

- An outside storage room is recommended for each dormitory building for storage of grounds and building maintenance equipment and supplies, such as lawn mowers, snow removal equipment, garden tools, gasoline, and paint. Determine the types of materials to be stored and design accordingly for the associated fire hazard classification and ventilation requirements.

- Provide each dormitory building with a supply storage room similar in size to one half of a room-bath-room module. This room will be used to store vacuum cleaners, linens, etc. Equip this room with a Dutch door to facilitate linen exchange. Ideally, locate this room on first floor.

7. Visitor Toilets

Provide toilet facilities on the first floor of each dormitory for use by visitors and residents. Provide convenient access to these toilets from television and game rooms and laundry facilities. Design these toilets to accommodate the needs of persons with disabilities. Provide one lavatory and one toilet in each visitor toilet. In smaller dormitories, this requirement is met with one room with a privacy lock on the door to allow use by both males and females. Use separate men's and women's toilets in larger facilities where higher use is anticipated. Provide commercial quality toilet accessories in the visitor toilets. These include a recessed paper towel dispenser/trash receptacle, toilet tissue holder, soap dispenser, grab bars, and soap dish.

8. Circulation Space

- Avoid an institutional appearance for interior corridors in Type A dormitories. This is accomplished by using wall-mounted light fixtures and wall and ceiling articulation to help alleviate the "tunnel effect" of a long corridor. Recess all wall-mounted accessories other than the light fixtures, such as fire extinguisher cabinets.

- Introduce natural light into interior circulation spaces where possible.

- Provide convenience outlets each 25 feet on center in interior corridors.

- Provide heavy-duty non-slip nosings on all stair treads to accommodate heavy pedestrian use as well as furniture movement.

- Carpet the main interior stairs. Install rubber or vinyl stair treads on other interior stairs. All stairs, including exterior stairs must have solid treads.

- Exposed duct work, conduit, etc., is not allowed. Provide utility access doors as required.

- Freight elevators may be provided if construction budget allows. Combination freight/passenger elevators are required for dormitories four stories in height or higher.

Chapter 5 - Vision 2020

A. Program Definition

Vision 2020 is an Air Force initiative that proposes new assignment and construction standards for unaccompanied personnel housing and offers investment strategies for the implementation of these new standards. The program looks toward the next century in light of changing housing expectations of our increasingly sophisticated and highly technical unaccompanied enlisted personnel.

1. Significant Changes

The Air Force is currently establishing policy to program on-base housing for all unaccompanied personnel in grades E-1 through E-4. Vision 2020 proposes that junior unaccompanied personnel would be housed on-base, and more senior unaccompanied personnel would be housed off-base when local community housing is adequate. Vision 2020 is a long-range goal intended to improve dormitory standards by first providing airmen with private rooms (1+1) on-base and eventually with private apartments by the year 2020.

2. Current Status

The Air Force emphasis is on accomplishing 1+1 standards before Vision 2020 apartments are pursued. The Vision 2020 apartment standard is not approved by the Secretary of Defense and is considered a long-range goal for unaccompanied housing well into the next century.

3. Basis of Report

The report recognizes the disparity between housing allowances provided for married versus unaccompanied personnel and cites the House of Representatives Armed Services Committee tasking DOD to "..give similar priority to barracks as it gives to family housing." Of particular note is the fact that unaccompanied members entertain and watch television in their bedroom or community area and use community laundry facilities. Married members entertain and watch television in their living room, and most have a washer and dryer elsewhere in their home.

B. The New Vision

1. Private Apartments

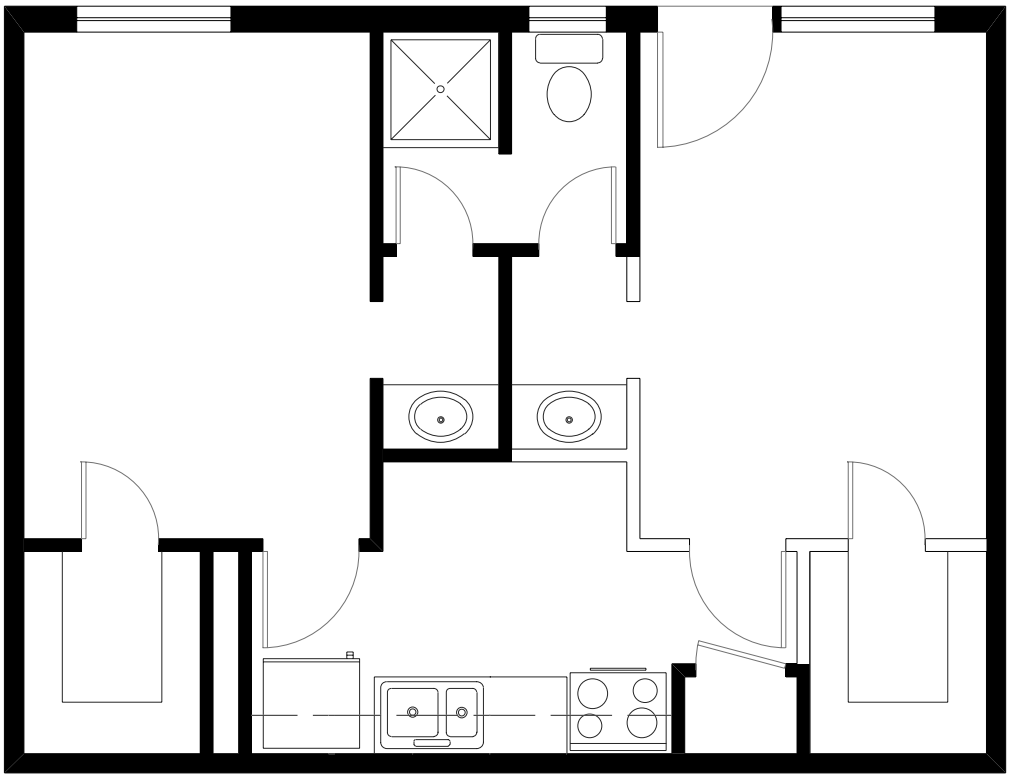
Every unaccompanied enlisted member living on-base would be provided a private efficiency apartment. This apartment would include a sleeping area, living area, a private bathroom, and in-room cooking and possibly laundry facilities.

2. Existing Inventory

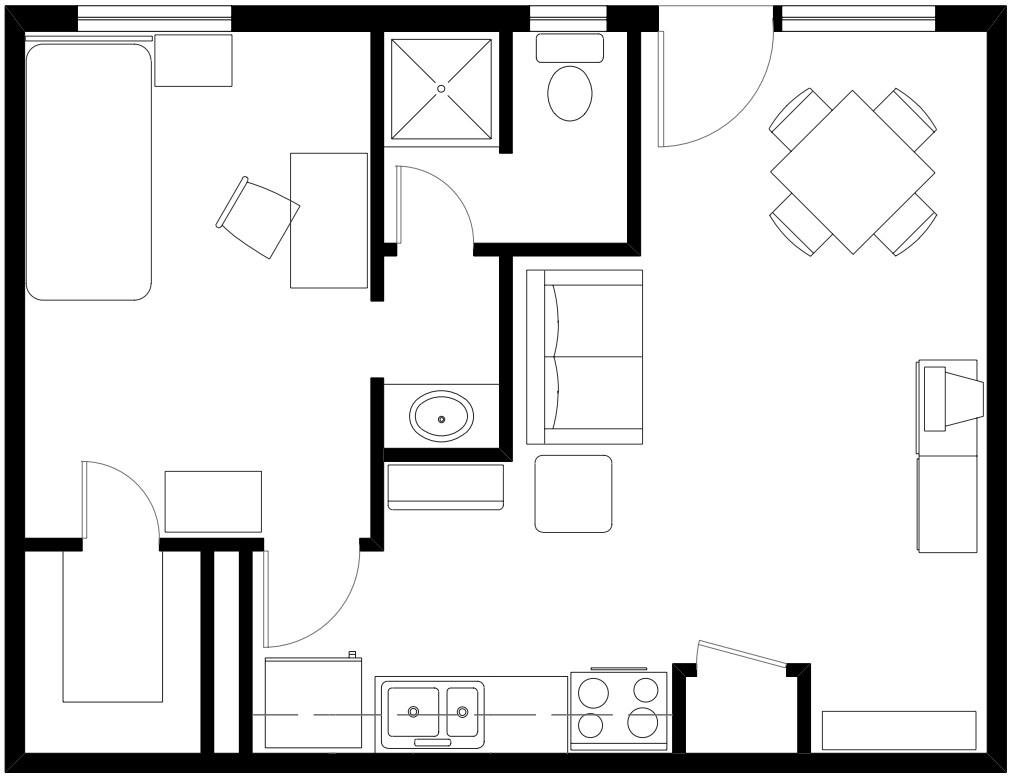
Vision 2020 recognizes the large investment the Air Force currently has in traditional 2 plus 2 room-bath-room modules. The design of the proposed apartment must allow these existing modules as well as new 1+1 modules to be easily converted into an efficiency apartment.

3. Planning for the Future

New dormitories and major dormitory renovation projects should allow for cost-effective conversion to private apartments. As an interim measure, the Air Force hopes to change the assignment standard for E-1s through E-4s to allow each member a private room with a bath shared by only one other person. See Figures 25 through 30 for typical plans to convert example room-bath-room modules to private apartments.

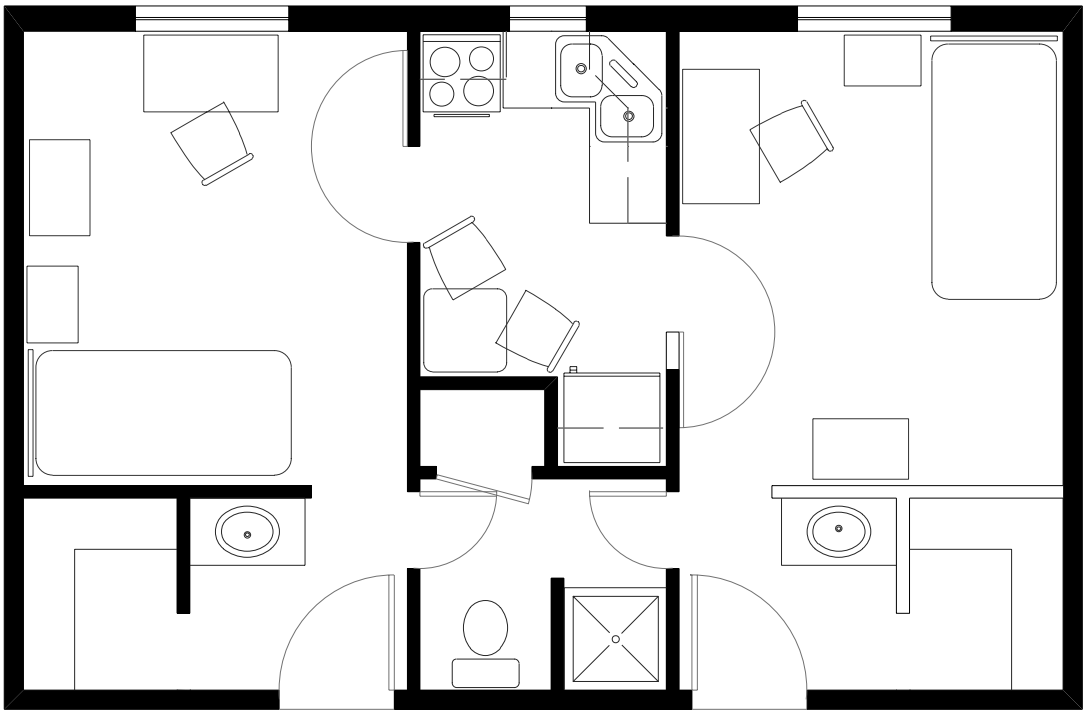


1+1 Module Demolition Plan

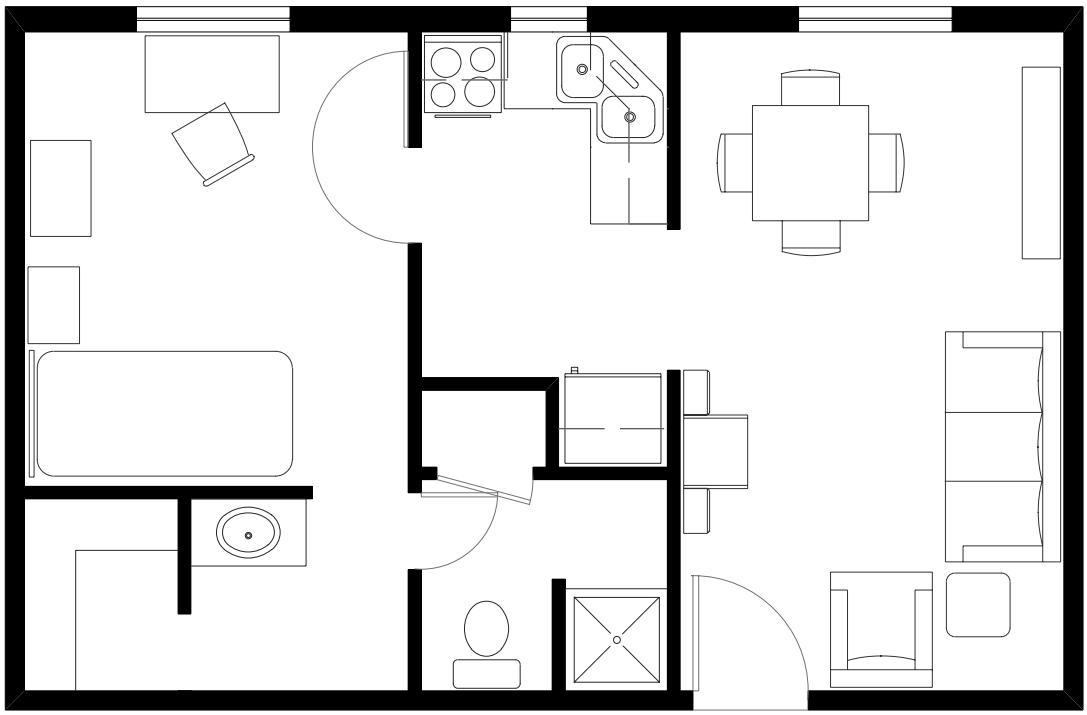


New Vision 2020 Apartment

Figure 25. Typical Private Apartment Conversion

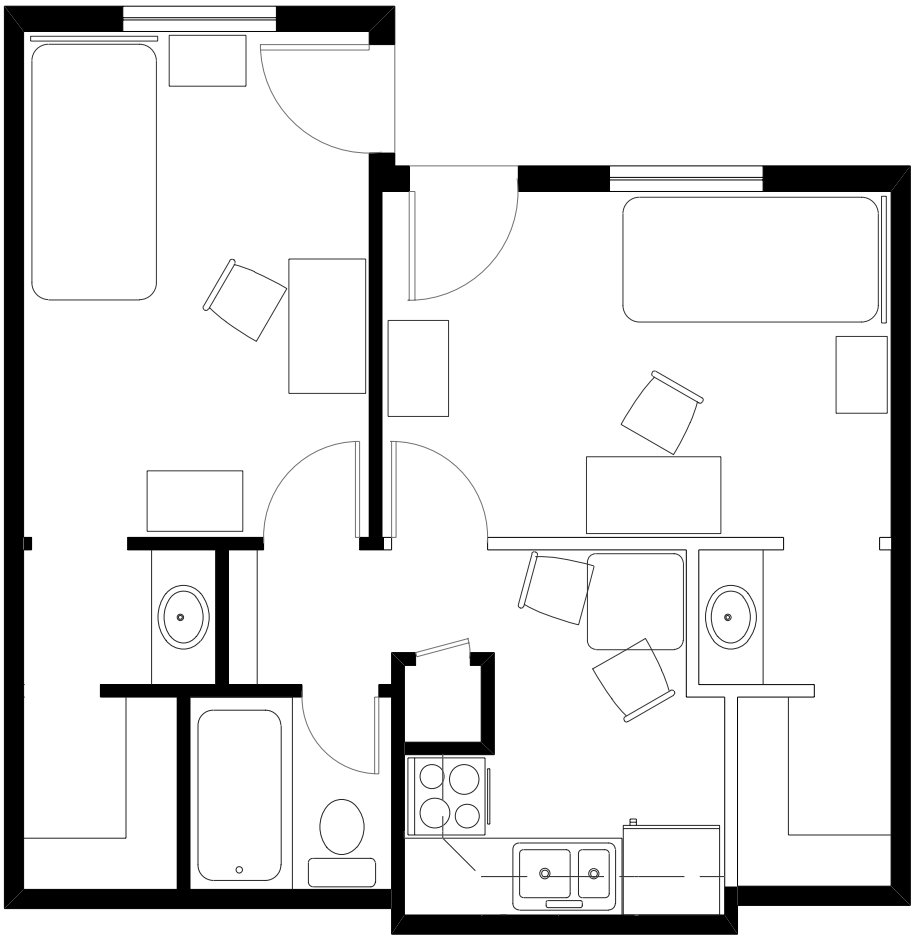


1+1 Module
Demolition Plan



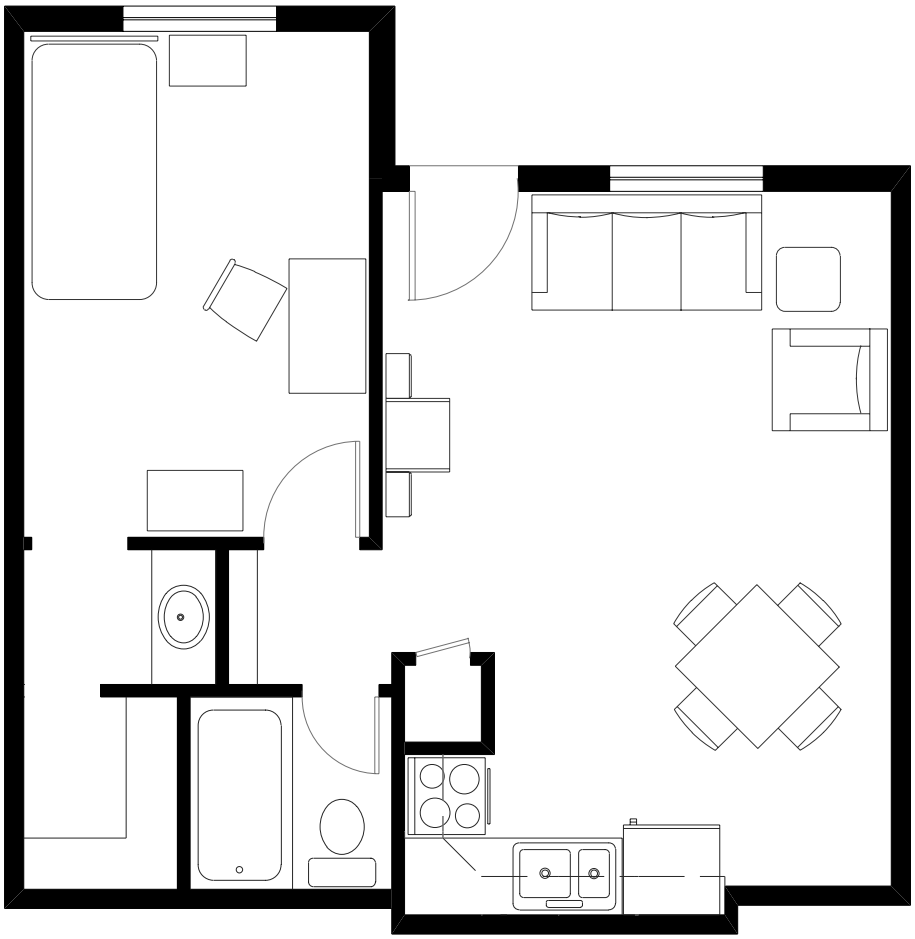
New Vision 2020 Apartment

Figure 26. Typical Private Apartment Conversion



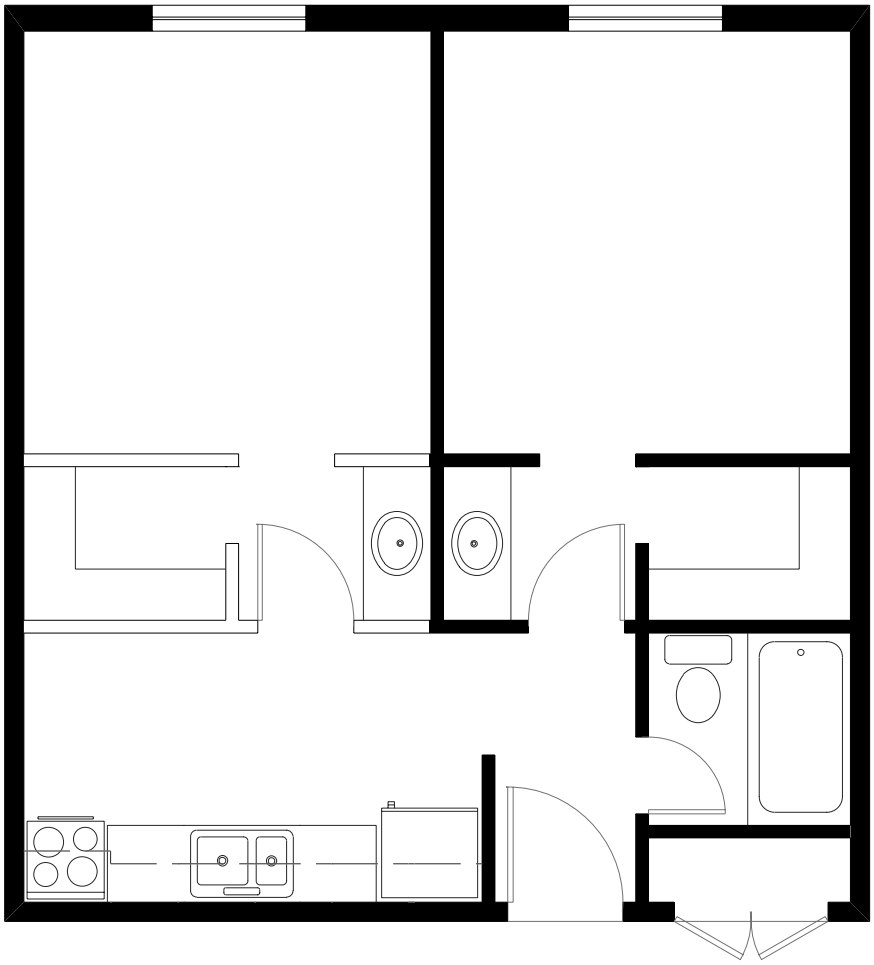
1+1 Module
Demolition Plan

Figure 27. Typical Private Apartment Conversion



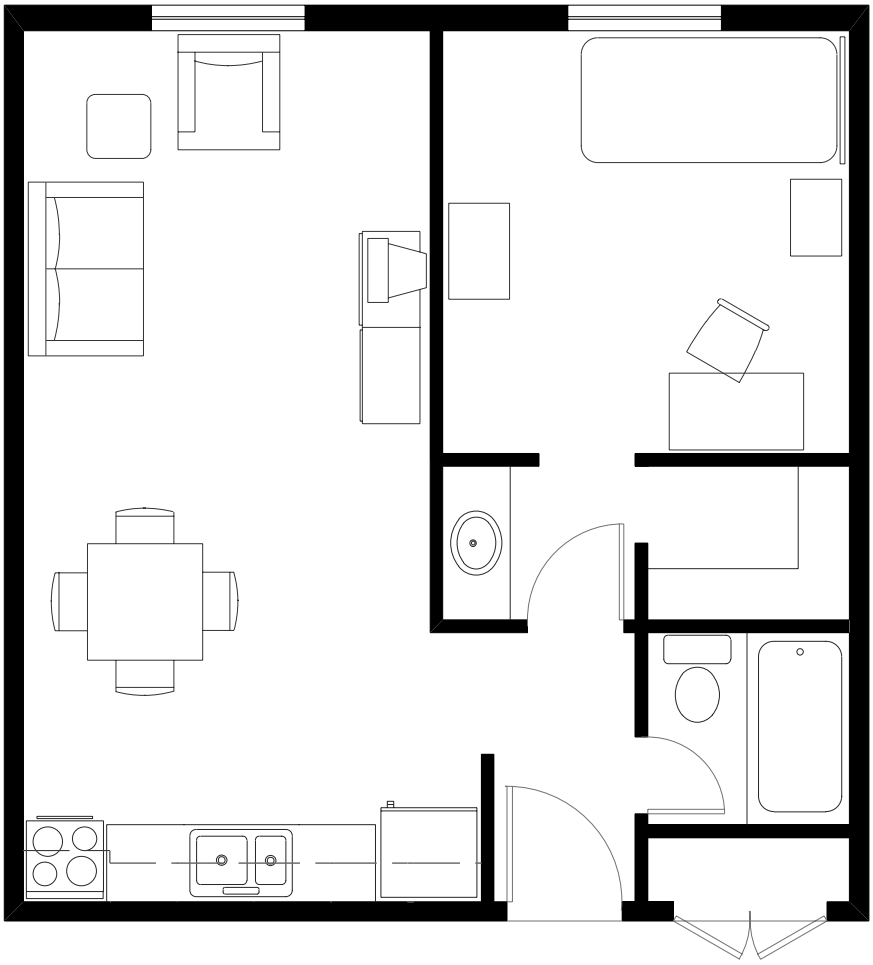
New Vision 2020 Apartment

Figure 28. Typical Private Apartment Conversion



1+1 Module
Demolition Plan

Figure 29. Typical Private Apartment Conversion



New Vision 2020 Apartment

Figure 30. Typical Private Apartment Conversion

This Guide was prepared for
HQ USAF/CEH
by the
Design Group Division,
Design & Construction Directorate
of the
Air Force Center for Environmental Excellence

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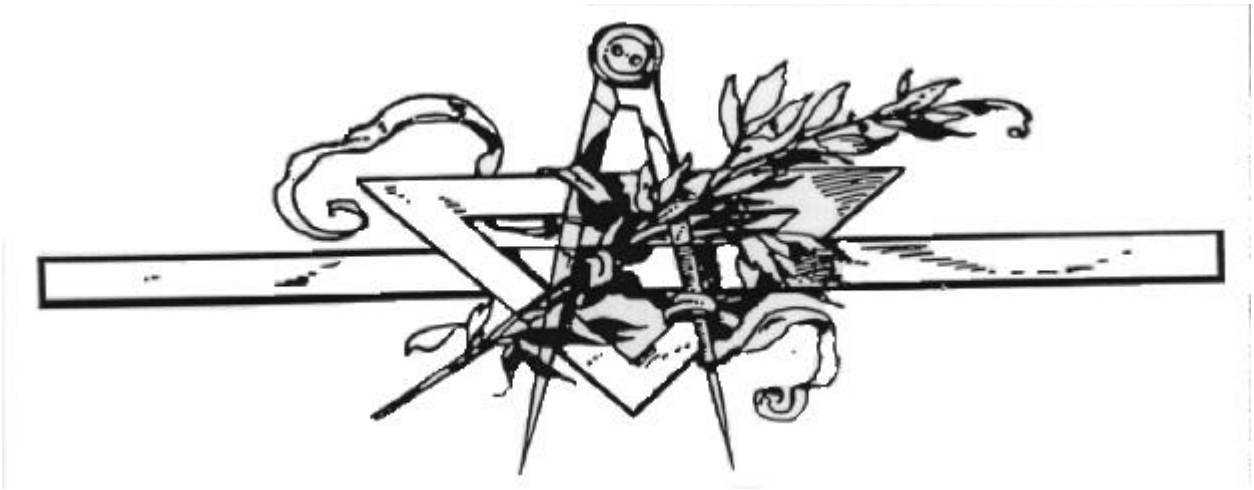
APPENDIX C

ARCHITECTURAL COMPATIBILITY PLAN

Architectural Compatibility Plan



Tinker Air Force Base Oklahoma

May 1997

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1.0 Executive Summary

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1.0 Executive Summary

> *"The intention is not to limit creativity, but to aid the designer in reading decisions consistent with the goal of this program and to create a unified AFMC image."*
>
> **AFMC Facility Quality Program**

1.1 Introduction

- In accordance with the goals of the Air Force Material Command (AFMC) Facility Quality Program, Tinker AFB has developed this Architectural Compatibility Plan to be used as a tool in aiding personnel responsible for planning and design of facilities on base. This plan shall ensure consistency in future design and construction projects.

- This plan is not intended to dictate design or stifle creativity. Rather, it sets forth guidelines and illustrates current design standards which will unify and strengthen the architectural program of Tinker AFB. Planning and design excellence establish pride of ownership and contribute to the quality of life within a base community. This package is applicable to all organizations assigned to Tinker AFB and the Oklahoma City Air Logistics Center (OC-ALC).

1.2 How to Use this Document

- Critical elements of this plan are identified in the table of contents (pages I and ii). Specific compatibility standards and illustrations are included on the pages that follow. Also, more detailed reference documents are listed at the end of this plan. This planning document is intended to be a useful reference tool to ensure architectural compatibility in all future maintenance, repair, and construction projects.

1.3 Architectural Compatibility Manager

- The 72 CEG/CE has assigned the Base Lead Architect to be the Architectural Compatibility Manager (ACM). The ACM is responsible for ensuring that standards set forth in this document are implemented in all facility projects and will act as a liaison to HQ FMC/SEC regarding compatibility issues. An Architectural Review Committee, chaired by the Compatibility Manager, will review all construction projects (at 35 percent and 95 percent stages). Projects under $100,000 are to be reviewed by an individual Architectural Review Committee member.

The Compatibility Manager for Tinker AFB and OC-ALC is:

MR. CARMIE ASHLEY
7535 5TH STREET, STE 119
TINKER AFB OK 73145-9054
(405) 734-2868

- All drawings will require signature by either the ACM or by his co-compatibility managers. All projects funded by Depot Maintenance (DMAG) including Military Construction Programs (MILCON), Operations and Maintenance (O&M), in-house SABER (Simplified Acquisition of Base Engineering Requirements), and self-help projects shall be signed by co-compatibility managers Ms. Dorann Nelson or Mr. Donald Wickett, 72 CEG/CECD, (405) 736-2945. Signature on all other projects (those funded with other than DMAG) shall be by Mr. Ashley.

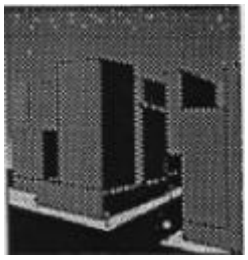
- The base Comprehensive Interior Design (CID) Manager will be responsible for the implementation of the base Comprehensive Interior Design Policy as set forth in this document. The CID manager will approve all Structural Interior Design (SID), CID, and systems furniture packages for design and construction submittals. The CID manager for all DMAG funded projects is Ms. Dorann Nelson, 72 CEG/CECD, (405) 736-2945. All other projects (funded with funds other than DMAG funds) shall be submitted for approval to the base CID Manager.

MS. DEBBIE FRIEDLANDER
72 CEG/CECE
7535 5TH STREET STE 119
TINKER AFB OK 73145-9054
(405) 734-5236

- The Base Carpet Monitor is responsible for implementation of the base carpet program in accordance with standards set forth in the CID policy. All carpet selections, flooring materials, and maintenance procedures must be approved by the base carpet monitor and reviewed by the CID manager. The carpet monitor for Tinker AFB and OC-ALC is located in the Civil Engineer Self-Help Store, (405) 734-5530.

- Programmers are responsible for incorporating CID Scope and Costs as determined by the CID manager for each project on its DD Form 1391, and for ensuring that no DD Form 1391 is forwarded from the base for processing without including the CID information along with coordination of the CID Manager.

- Each AFMC Agency Directorate or Product Center (User) is responsible for ensuring that the interior condition of its facilities meet this policy as well as AFMC standards and are properly maintained, and for providing information to the CID Managers to accomplish their CID Packages.



2.0 Architectural Districts

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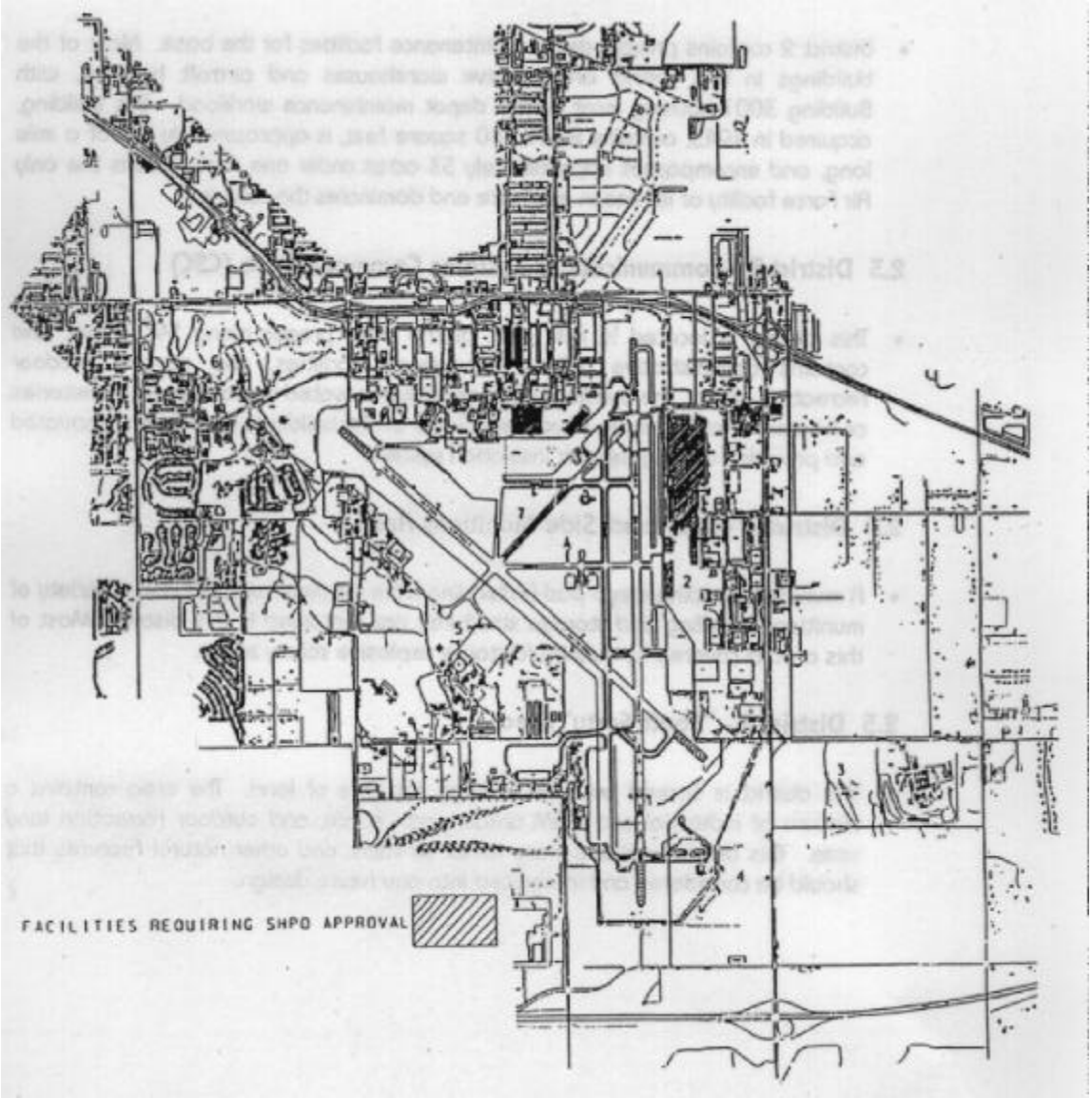
2.0 Architectural Districts

Tinker AFB is divided into seven Planning Districts each with its own distinctive architectural character. Some design criteria such as handicapped accessibility, outdoor spaces, landscaping, and signage are standard from district to district and become unifying elements in the Base Master Plan. The seven Planning Districts are summarized below and are described in further detail on the pages that follow.



2.1 District 1 - Northside Area

- This district contains a mixture of aircraft operation and maintenance uses, warehouse/industrial uses, administrative offices, community service and community/commercial land uses. The district is characterized by a variety of structure types due to the mixed development conditions.

2.2 District 2 - Eastside Depot Maintenance Area

- District 2 contains primary depot maintenance facilities for the base. Most of the buildings in this district are massive warehouses and aircraft hangars, with Building 3001 housing most of the depot maintenance workload. This building, acquired in 1943, contains 2,697,240 square feet, is approximately 5/8 of a mile long, and encompasses approximately 53 acres under one roof. This is the only Air Force facility of its size in existence and dominates the district.

2.3 District 3 - Communications Systems Command Area (CSC)

- This district is located ½ mile east of the base proper along 59th Street and contains administrative offices, educational facilities, and several outdoor recreation areas. The buildings are generally renovated wood-framed dormitories or board-formed concrete structures. Some of the buildings have been renovated and provided with an exterior insulation system.

2.4 District 4 - Southeast Side Munitions Area

- A munitions loading cargo pad (extending from the main runway) and a variety of munitions handling and storage structures are contained in this district. Most of this area is covered by quantity/distance explosive safety zones.

2.5 District 5 - “South Forty” Area

- This district is spread out over a large expanse of land. The area contains a mixture of industrial and O&M areas, open space, and outdoor recreation land uses. This district contains many lakes, streams, and other natural features that should be considered and integrated into any future design.

2.6 District 6 - Westside Military Family Housing (MFH)/Community/Morale, Welfare, and Recreation (MWR) Area

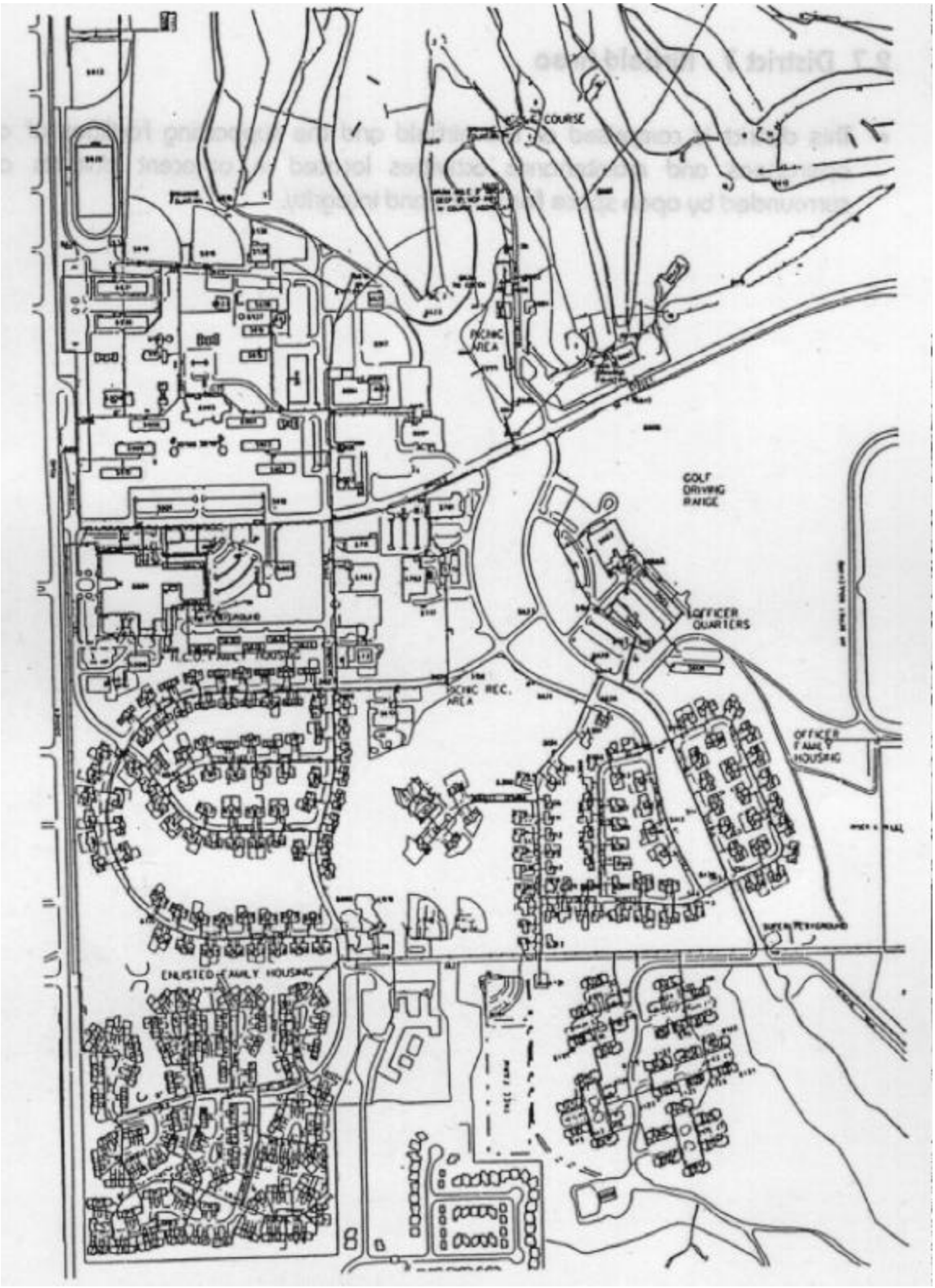
- The facility conditions in this area are generally good. This district contains a mixture of accompanied and unaccompanied personnel housing, indoor and outdoor recreation, community services, community commercial facilities, and medical facilities necessary to serve the base residents. Several facilities are located within the clear zone of the crosswind runway.

2.7 District 7 - Airfield Area

- This district is comprised of the airfield and the supporting facilities of airfield operations and maintenance activities located in adjacent districts and is surrounded by open space for safety and integrity.

District 6 - Westside Military Family Housing (MFH)/Community/Morale, Welfare and Recreation (MWR) Area

The facility conditions in this area are generally good. This district contains a mixture of accompanied and unaccompanied personnel housing, indoor and outdoor recreation, community services and community commercial facilities, and medical facilities necessary to serve the base residents.



2.6 West Side MFH/Community/MWR Area

- This planning district contains a mixture of accompanied and unaccompanied personnel housing, indoor and outdoor recreation, community services and community commercial facilities, and medical facilities necessary to serve the base residents. Specific uses include dormitories, officers' housing and MFH, dining halls, gym, library, movie theatre, bowling alley, chapel, temporary lodging facilities, billeting, golf course, riding stables, swimming pool, Non-commissioned Officers' club, Officers' club, and hospital.

- Several existing land use issues are found in this planning district. First, the majority of the community center facilities are well located in this area to serve the base residents, especially the nearby accompanied and unaccompanied base housing. However, the BX, commissary, post office, and credit union, all located in Planning District 1, are split from the population they serve by the clear zone for the crosswind runway. This location increases the difficulty of using these facilities. Second, facilities such as the Officers' club, visiting officers' quarters (VOQ), and portions of the golf course are currently located within the clear zone in violation of USAF airfield regulations.

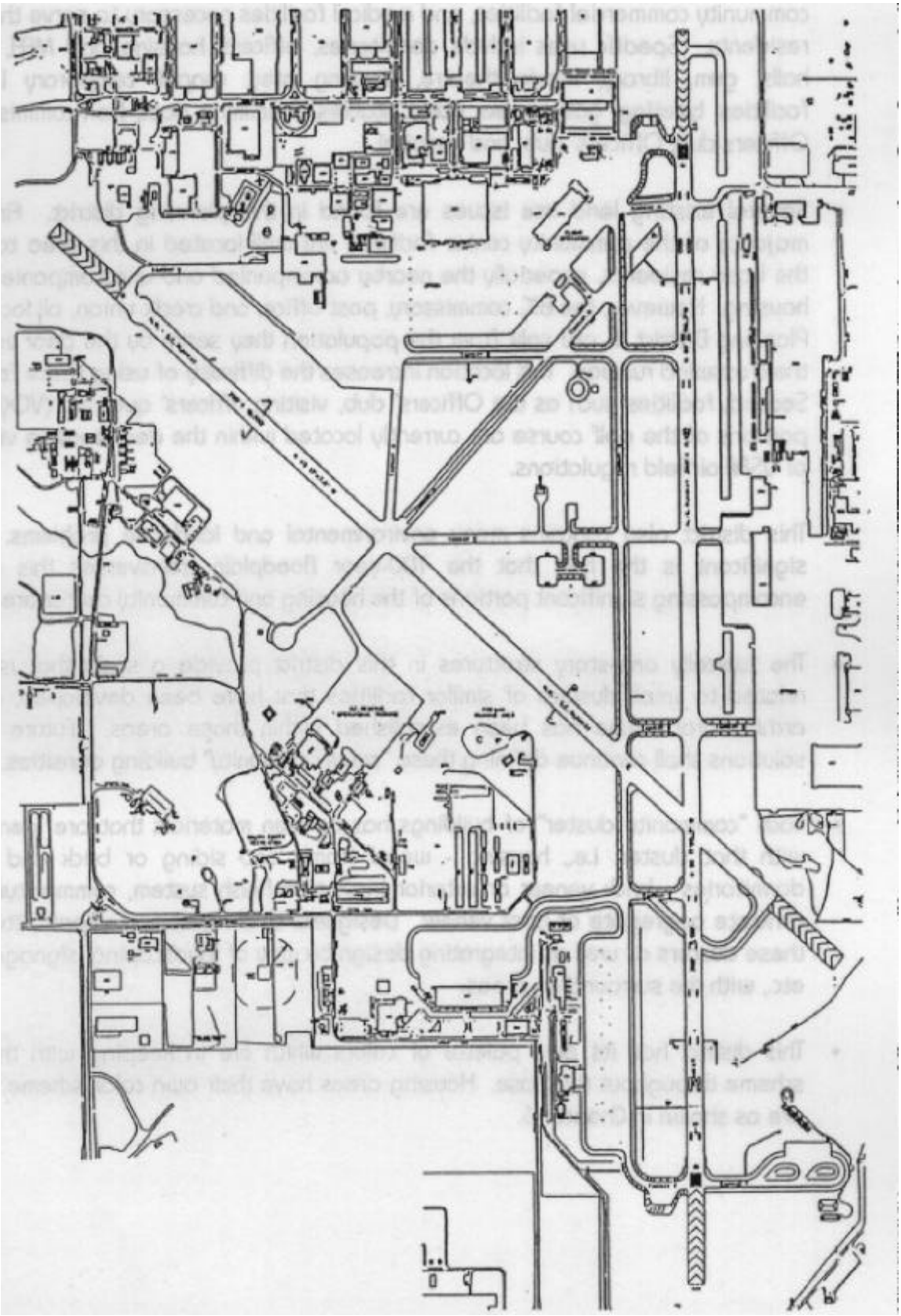
- This district also contains many environmental and land use problems. Most related to small clusters of similar facilities that have been developed, and on architectural theme has been established within those areas. Future design solutions shall continue defining these "small community" building densities.

- Each "community cluster" of buildings has its own materials that are identifiable with that cluster, i.e., housing - wood frame and siding or brick and siding, dormitories - brick veneer or exterior insulation finish system, community/MWR - concrete aggregate or brick veneer. Designers shall maintain compatibility within these clusters as well as integrating design by way of landscaping, signage, color, etc., with the surrounding areas.

- This district has its own palette of colors which are in keeping with the color scheme throughout the base. Housing areas have their own color scheme. Colors are as shown in Chapter 6.

District 7- Airfield Area

District 7 is comprised of the airfield and the supporting facilities of airfield operations and maintenance activities located in adjacent districts.



2.6 Airfield Area

- Airfield safety zones prohibit the development of residential land use in this district.

- Future construction or renovation of supporting facilities shall follow the recommendations for the individual district in which the facility is sited.

BASE STANDARDIZATION OF BUILDING/UTILITY ELECTRICAL DISTRIBUTION SYSTEMS

1. General:

1.1 All electrical work shall conform to the latest edition of National Electrical Code, Air Force regulations, and tinker AFB policies. Tinker AFB standard "Electrical General Notes" shall be shown on the drawings of each project, and shall have the non-applicable parts edited.

1.2 Only certified journeymen electricians or apprentices under the direct supervision of journeymen will be permitted to install, alter, ore repair electrical systems.

1.3 Existing as-built drawings may be used as guidelines (if available), but information must be verified by field investigations. The Designer shall be responsible for the verification of all dimensions, measurements, and location of existing facilities, utilities, equipment and other existing conditions which may affect the design.

1.4 Lighting Levels - General illuminations levels shall not exceed the intensities shown for Military Handbook 1190 dated 1 September 87.

1.5 The electrical contractor is responsible for the repair of existing structures (to match existing) after installation or removal of electrical equipment shown on drawings. This repair shall be done in neat manner, exhibiting professional workmanship acceptable to the Contracting Officer at no additional cost to the Government.

1.6 All conductors shall be color coded; colored tape may be used on conductors #6 and larger at all manholes, handholds, terminations, and junction boxes. A green equipment grounding conductor shall be installed in each receptacle circuit and where noted. All circuit conductors shall be factory color coded as follows:

a. 120 Volt, 2-wire circuit: Grounded Neutral, White: Ungrounded Leg, Black.

b. 240/120 Volt, Single Phase, 3 wire circuit: Grounded Neutral, White; One hot Leg, Black; One hot leg; Red.

c. 208Y/120 Volt, Three Phase, 4-wire circuit: Grounded Neutral, White; Phase A, Black; Phase B, Red; Phase C, Blue.

d. 240 Volt, 3 Phase, 3-wire circuit; Phase A, Black; Phase B, Red; Phase C, Blue.

e. 240/120 Volt, 3 Phase, 4-wire, High-Leg Delta Circuit; Grounded Neutral, White; High Leg (208 Volt to Neutral), Orange; Phase A, Black; Phase C, Red

f. 480/277 Volt, 3 Phase, 4-wire circuit: Grounded Neutral, Gray; Phase A, Brown; Phase B, Orange; Phase C, Yellow.

g. 480 Volt, 3 Phase, 3-wire circuit; Phase A, Brown; Phase B, Orange, Phase C, Yellow.

1.7 Major items of electrical equipment and major electrical components shall be permanently marked with an identification name to identify the equipment by type or function and specific unit number as indicated. Unless otherwise specified, all identification nameplates shall be made of laminated plastic with black outer layers and a white core. Edges shall be chamfered. Plates shall be fastened with black-finished round-head drive screws or approved nonadhesive metal fasteners. The following equipment, as a minimum, shall be provided with identification nameplates: Panelboards, safety switches, transformers, switchgears, major electrical equipment, and control devices. Letters shall be a minimum of ¼" in height.

1.8 Material and equipment shall be a standard product of a manufacturer regularly engaged in the manufacture of the product and shall essentially duplicate items that have been in satisfactory use for at least two (2) years prior to bid opening. All materials in the same category shall be by a single manufacturer.

1.9 No fire or lighting protection or registered professional engineer services shall be required in electrical specifications for construction contracts.

1.10 Emergency Lighting - Emergency lighting must be provided IAW NFPA 101, Chapter 5, Section 5-9. Normally, emergency lighting is required only for designated stairs, aisles, corridors, ramps, escalator, and passageways leading to an exit. Interior rooms and windowless rooms do not require emergency lighting unless they meet the definition of a “Windowless Structure” in NFPA 101, Chapter 30, Section 30-135. Mechanical rooms, telephone equipment rooms, and similar utility spaces do not require emergency lighting. Unit equipment must be circuited to comply with NEC 700-12 (F).

1.11 Each new facility shall be provided with KW/KWH meters. Metering systems for 480 volt services shall incorporate 480-120 volt PTs.

1.12 All new building wiring systems shall consider using 277/480 volts uneconomical to accomplish. A-E shall make recommendation at the design analysis phase of each project.

1.13 Warning Tape - A 5-mil brightly colored plastic tape (not less than 3 inches in width and suitably inscribed at not more than 10 feet on centers, with a continuous

metallic backing and a corrosion resistant 1-mil metallic foil core to permit easy location of duct line) shall be placed approximately 12 inches below finished grade levels of duct line) shall be placed approximately 12 inches below finished grade levels of conduit runs.

2. Exterior Electrical:

2.1 Primary Loop Feeder - Medium voltage cables shall be copper, 15 KV, XLPE or EPR 133% insulation, concentric neutral with PVC jacket (500 Kcmil, and a # 4/0 AWG, 600 V grounded conductor). Conductors shall be protected by a 5 inch diameter concrete encased type “EB” PVC conduit.

2.2 Primary Radial Feeder - Medium voltage cables shall be copper, 15 KV, XLPE or EPR 133% insulation, concentric neutral with PVC jacket (#2 (minimum size) AWG, and a #2 AWG or larger, 600 V grounded conductor). Conductors shall be protected by a minimum diameter type “EB” PVC concrete encased conduit. Encased conduits shall have at least three (3) inches of concrete protecting them on every side. Where two or more conduits share the same encasement, there shall be at least 1.5 inches of concrete shall be at least 30" below final grade level at all points.

2.3 Medium Voltage Cable Terminations and Splices - Shall be the preformed type only, tape type are not acceptable.

2.4 Secondary Extension:

2.5 No equipment grounding conductor shall be installed in service laterals.

2.6 Cables - Conductors in cables shall be of annealed copper only with thermoplastic insulation (600V) for wet locations. All conductors shall be installed in Schedule 40 PVC conduit a minimum of 30" below grade.

2.7 Transformers - New building service transformers shall be pad mounted and served from an existing overhead main primary feeder in an underground concrete encased duct bank. Transformer fusing shall be ELSP under oil partial range current limiting fuses combined with load sensing Bay-O-Net® fuses. All transformers shall be dead front type, loop feed, with 10 KV dead front lightning arrestors, and taps 2½% and 5% above and below the nominal voltage. Color shall match existing architectural color scheme for the surrounding area. No field testing, pre-energization, or manufacturer’s field service shall be required unless specifically stated in project definition. If primary load-break switching is used, fuses shall not be interlocked with switches.

2.8 All utility road and driveway crossings shall be bored and sleeved with single schedule 80 PVC or ¼” wall steel sleeve. Roads and driveways shall not be crossed by open cut unless approved. Wherever boring is impractical, street crossings shall be

limited to three (3) days maximum for any utility crossing roadway (including trenching, compaction, and replacement of existing pavements). Contractor shall provide steel matting sufficient to carry traffic loading over excavated area.

2.9 Manholes/handholes - All electrical concrete manholes, handholes, and pull boxes shall be of the precast type.

2.10 All excavations, trenches, open manholes, etc., will be properly shored, braced, barricaded or guarded. Warning lights or other illumination maintained from sunset to sunup will be placed at all excavations which are adjacent to pedestrian or vehicle thoroughfares.

2.11 Lighting Poles - Shall be 30' aluminum with 5' davit arm for all roadway lights. Sidewalk lighting shall be accomplished using wall mounted HPS luminaries not to exceed 70 watts. Parking lot lighting (where required) shall be accomplished using wall mounted HPS luminaries where possible and HPS luminaries on 25' anchor base poles. High mast lighting shall be considered for large square parking lots. Evaluate the need to light the entire parking lot if vehicles are not left in the lot over night. All exterior lighting shall be controlled by photocells.

2.12 Provide quick-disconnect or three-way switches on outside of facility for portable generator connection when authorized by AFR 9 1-4.

2.13 No exposed conduit or piping shall be permitted on exterior of building surface. Exterior disconnect switches shall be a maximum of 18" above grade.

2.14 Communications wiring: Contractor will provide dedicated 4-inch conduits, installed with pull wires in them for all communication runs defined in the project design. The communications media (telephone cables, computer LAN cables, or fiber optic cables) will be installed by specialists in those systems.

2.15 Provide suitable shelter for new fixed emergency generator installations. Color shall match existing architectural theme in surrounding area.

2.16 New high voltage air or vacuum type switches are required in lieu of oil insulated.

2.17 Electric design shall include load verification to base entry transformers and to the building service transformer.

2.18 All power and light poles, steel support structures and their foundations, will be rated for a 100 MPH wind load.

2.19 Contractor personnel will not enter manholes, tunnels, tanks, or confined spaces until such entry complies with the requirements of OSHA 1926.21 (6)(l). Government

personnel will not enter manholes, tunnels, tanks, or confined spaces until a confined space entry permit has been obtained from a government representative, i.e. OC-ALC Safety Office, Bio-Environmental Engineers, or the Base Fire Department.

2.20 Disconnects for mechanical and other equipment on the outside of buildings shall be mounted 18" above grade with the exception that the top of the disconnect shall not be higher than the top of the equipment. Disconnects shall be served from the rear or bottom with liquid-tight flexible metal conduit extended to equipment unless noted otherwise. Disconnects shall be positioned as to allow flex conduit to be routed with mechanical lines.

3. Interior Electrical:

3.1 All new wiring (including, but not limited to: power, fire alarm, telephone, intercom, communications, control, and so forth,) shall be in metal conduit, and all conduit shall be concealed above ceiling, under floor, or in walls, except where noted otherwise. No metal-clad cable, (Type MC), shall be permitted. All new electrical devices shall be flush mounted except where noted otherwise and in mechanical rooms. No exposed conduit or piping shall be permitted on exterior building surfaces. Flexible metal conduit shall only be used for equipment connections appliances, and motors only) and to fish into existing walls (in lengths not exceeding 12 feet) and shall not be used for general wiring applications. Lay-in light fixtures shall be individually served from an individual junction box directly over light fixture with 3/8" flexible metal conduit at least four (4) feet but not exceeding six (6) feet in length. Schedule 40 PVC conduit may be used under slabs. All wire shall be copper THWN/THHN unless otherwise noted. All other conductors shall be copper THWN/THHN. Wire shall be solid for #10 and smaller and stranded for #8 and larger (except stranded shall be used for luminaire connections). No. 14, 12, and 10 AWG conductors shall be twisted together before installing twist-on pressure connectors (wirenuts). Support conduits within 2 feet of each end of each bend, or each termination, and at intervals along the run that will maintain true raceway alignment without sag or deformation (minimum ten feet on center). On exposed raceways, provide supports at a minimum of six (6) feet on centers and on each side of each bend. Two hole straps shall be used on flat surface for conduit 1" and larger. Conduit shall not be supported by suspended ceiling or suspended ceiling support wires except where allowed by N.E.C. 300-11(A). Conduit to roof mounted equipment shall be routed beneath the roof structure to a penetration immediately adjacent to the equipment.

3.2 Exposed raceways (where shown to be allowed) shall be installed parallel or perpendicular to walls, structural members, or intersections of vertical planes and ceilings. Wiring above lay-in ceilings is considered exposed (as applied to wiring methods). Exposed raceway shall only be run vertical below nine (9) feet unless noted otherwise or approved by Contracting Officer.

3.3 Electrical system layouts are generally diagrammatic. The location of outlets and equipment are approximate. The exact location of outlets, lighting fixtures, equipment, and wiring shall be governed by structural conditions and obstructions, and shall be repositioned as required at no additional cost to the Government. Coordinate all work so that interference between piping, architectural, and structural work shall be avoided. Drawings generally indicate the routes of all branch circuits. All homeruns are indicated as starting from nearest outlet and pointing in direction of panel as though their routes where shown in their entirety. The electrical contractor shall coordinate with ceiling contractor to insure sufficient clearance for lighting fixtures before ceiling grid is installed. Existing electrical/communications equipment and wiring (conductors and conduit) shall be rearranged or rerouted if required for the installation of any new mechanical ductwork or equipment at no additional cost to the Government, even if not indicated on drawings. Lay-in fluorescent light fixtures shall be securely fastened to ceiling framing members by mechanical means (4 clips per fixture). All recessed light fixtures or other electrical devices shall be supported independently of lay-in ceiling tile by means of bar hangers or other structural means. Surface mounted fixtures shall be securely fastened to ceiling supporting structure (no toggle bolts in gypsum board or plaster shall be permitted.)

3.4 All electrical equipment shown to be removed by contractor shall include all fasteners, supports, straps, clamps, and associated hardware. The electrical contractor shall be responsible for cutting and patching required for the performance of his work. No structural members shall be cut without the approval of the contracting officer. The electrical contractor is responsible for the repair of existing structure to match existing required for installation or removal of electrical equipment shown on drawings. This repair shall be done in neat manner, exhibiting professional workmanship acceptable to the Contracting Officer at no additional cost to the Government.

3.5 An unswitched lighting circuit phase conductor shall be provided and installed to serve self-contained emergency battery packs in new fluorescent fixtures installed or where these units are shown to be installed in existing fluorescent fixtures. This unswitched phase conductor shall be on the same lighting branch circuit serving fixtures (with battery pack) switched lamps, and installed in existing lighting branch circuit conduit system.

3.6 Electrical circuits disturbed during demolition shall be restored serving existing items to remain even if not indicated on drawing at no additional cost to the Government.

3.7 Excess electrical equipment generated as a result of demolition work shall become the property of the electrical contractor and shall be removed from Tinker Air Force Base.

3.17 A 4" thick concrete housekeeping pad shall be provided and installed for all new floor-mounted electrical equipment unless noted otherwise. The concrete housekeeping pad shall have chamfered edges and extend 4" from face and sides of electrical equipment.

3.18 Exit Lights - All EXIT lights shall be of the diffused L.E.D. type with red lettering. Exterior EXIT lights shall be vandal resistant.

3.19 Fluorescent Fixtures - Lighting for general office areas, classrooms, corridors, conference rooms, and lobbies shall be provided by 2' x 4' recessed fluorescent fixtures. No 2' x 2' fluorescent fixtures shall be permitted. New Fluorescent fixtures shall incorporate electronic ballasts. For energy efficient interior lighting schemes, lighting systems should be designed to allow reduction of lighting levels by appropriately banking lighting circuits or providing separate switching of inner and outer lamps in 3- or 4-tube fluorescent fixtures. Consideration will be given to the use of energy efficient lighting systems, including ballasts, lamps, and fixtures. Consideration should also be given for any task lighting that might be provided by systems furniture, and overhead lighting should be reduced accordingly, Fluorescent fixtures shall use T-8 lamps, electronic ballasts with high power factor (greater than .9) and low harmonic distortion (less than 10). Parabolic fixtures shall be used to the maximum extent possible.

3.20 Acrylic lens (if used) shall be a minimum A19 pattern and be .156 inches thick.

3.21 An electrical outlet shall be provided adjacent to each pay phone outlet (exterior or interior).

3.22 A grounding bus, separate front the neutral bus, shall be provided in all new panel boards. All panelboards shall have copper buses.

3.23 If a lead-acid battery is required, specify the lead-calcium type, rather that lead-antimony, to provide increased service life, decreased hydrogen gas production (venting may not be required), and decreased routine maintenance (water make up).

4. Fire Protections Considerations:

4.1 Fire protection systems will be designed and installed in accordance with Military Handbook 1008, and National Fire Protection Association standards.

4.2 The system will have tamper switches on all valves that would disable the sprinkler system, and will transmit all trouble, tamper, and flow alarms to the Base fire Department.

4.3 Fire detection system:

4.4 Manual pull stations for evacuation of personnel and transmission of fire alarms to the Base Fire Department will be located at each exit and spaced to meet NFPA requirements. Manual pull stations, heat detectors, smoke detectors, audible/visual units shall comply with NFPA requirements.

4.5 The Fire alarm panel, transmitter or transceiver, associated antenna, lightning arrestor, and cable will be located in equipment rooms and easily accessible by the Base Fire Department. Equipment rooms shall have one-hour fire ratings.

4.6 Alarms will be transmitted by a Monaco Radio Fire Alarm System® "D500 Plus," currently in use at Tinker AFB.

4.7 All fire alarm control panels shall be class "A" supervised fire alarm circuit which provides a trouble signal and continues to operate as an alarm circuit after one fault has occurred in the wiring. All zones shall be able to transmit to the fire department independent of any other zones. Multiple zones shall be able to transmit on alarm directly to the fire department and will not "lockout" other zones.

4.8 The control panel shall have a dry set of contacts for each zone plus trouble dry contacts and fire alarm dry contacts for the control panel and shall be compatible with the Monaco system.

4.9 Provide and install a Monaco BT-2-3 Zone transceiver P/N 225-500-42 set to frequency 142.850 MHz and all equipment necessary to transmit fire alarms to the Base Fire Department, including cable, brackets, antennas, and so forth.

4.10 Install all combination fixed temperature/rate of rise heat detectors a minimum of 10 feet away (if possible) from existing or new air diffusers. If this involves changing a detector's position from what is shown on the drawings the contractor shall move the location of the detector at no additional cost to the Government. Contractor shall perform a fire alarm system acceptance test, in the presence of the Base Fire Department, to demonstrate operation of all newly installed or relocated fire alarm devices.

4.11 Fire alarm panels and devices shall be specified as "Fire Control Instruments (FCI)" or equal on all projects.

4.0 Handicapped Accessibility

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4.0 Handicapped Accessibility

It is the goal of Tinker AFB to create building sites and buildings that are accessible to all people. Both maintenance and repair and new construction projects must comply with the Uniform Federal Accessibility Standard (UFAS) or the Americans with Disabilities Act (ADA), whichever is more restrictive.

4.1 Uniform Federal Accessibility Standards

- The UFAS and the ADA are the applicable standards pertaining to handicapped accessibility at Tinker AFB. The UFAS standardizes handicapped accessibility requirements in all Department of Defense (DOD facilities.

- The UFAS and ADA documents present uniform standards for the design, construction, and alteration of buildings so that physically handicapped persons will have ready access to them and use of them.

- A detailed survey and proposed solution for ADA items on a majority of the facilities has been accomplished and a copy pertaining to a particular site or facility will be provided, if applicable, upon request. Requests shall be made through the ACM, Mr. Carmie Ashley at (405) 734-2868.

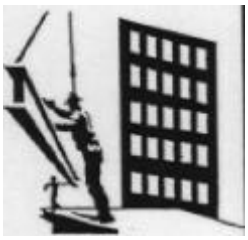
4.2 Maintenance and Repair

- If existing elements, space, essential features, or common area are altered, then each such altered element, space, feature, or area shall comply with the applicable provisions of the UFAS and ADA.

- All facilities that are eligible for listing in the National Register of Historic Places shall comply with the UFAS and ADA handicapped accessibility requirements.

4.3 Military Exclusions

- As a goal, Tinker AFB will strive to provide adequate accessibility to all facilities regardless of the military exclusions granted by the UFAS in Section 4.1.4.



5.0 Base Comprehensive Planning

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5.3 Air Installation Compatibility Use Zone 26

5.0 Base Comprehensive Planning

Careful and proper planning is critical to successful architectural compatibility at Tinker AFB.

5.1 Facility Siting

- Proper facility siting in accordance with Tinker AFB Land Use Plan is critical to ensure that every effort is made to avoid incompatible land usage. The base's Facility Board shall approve all siting requests for new construction.

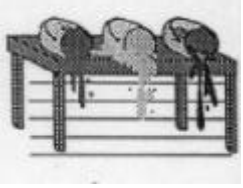
5.2 Area Development Plans (ADP)

- When proposed construction requires planning beyond the limits of a single facility, designers should pursue the creation of area development plans in order to facilitate thoughtful planning of the relationship facilities have with one another.

5.3 Air Installation Compatibility Use Zone (AICUZ)

- The Tinker AFB AICUZ study provides an assessment of noise levels and statistical analysis to determine aircraft Accident Potential Zones. The goal of the study is to provide protection of the public and compatible development adjacent to the airfield.

- Designers shall pay careful attention to the noise contours of the study to actively avoid potential sound abatement problems. Construction of habitable facilities should be avoided within all hazardous Accident Potential Zones.



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6.0 Architectural Finishes

Building materials make a major contribution to the scale, color, and texture, of Tinker AFB's buildings. A limited palette of durable, low-maintenance materials shall be used to encourage variety of expression and provide a cohesive and consistent architectural character within each planning district.

6.1 Paint

- All painting and material selection shall conform to the following color standards. Del Paint Manufacturing Company, Cabot Stains, and Sherwin Williams Paint Company paint colors have been referenced as a design basis; comparable samples of paint from other manufactures must be approved by the base ACM.

  Approved Paint Schemes by District:

  District 1 - Northside Area
  Base: 35B-1P Biscuit (light tan)
  Trim: 24C-4D Fudge (dark tan)
  Accent: 25A-1A Chocolate Chip (dark brown)

  District 2 - Eastside Depot Maintenance Area
  Base: 35B-1P (light tan) and 11B-4D Light Earth
  Trim: 24C-4D Fudge (dark tan)
  Accent: 25A-1A Chocolate Chip (dark brown)

  District 3 - Communications Systems Command Area
  Base: 35B-1P Biscuit (light tan)
  Trim: 24C-4D Fudge (dark tan)
  Accent: 25A-1A Chocolate Chip (dark brown)

  District 4 - Southeast Side Munitions Area
  Base: 35B-1P Biscuit (light tan)
  Trim: 24C-4D Fudge (dark tan)
  Accent: 25A-1A Chocolate Chip (dark brown)

  District 5 - "South Forty" Area
  Base: 35B-1P Biscuit (light tan)
  Trim: 24C-4D Fudge (dark tan)
  Accent: 25A-1A Chocolate Chip (dark brown)

Navy Complex in "South Forty" Area District 5 (matching existing)
Base: SW1022 Cubist Gray (light gray)
Trim: SW2272 Bar Harbor (gray/blue)
Accent: SW1020 Distant Thunder (dark gray)

District 6 - Westside MFH/Community/MWR Area
Base: 35B-1P Biscuit (light tan)
Trim: 24C-4D Fudge (dark tan)
Accent: 25A-1A Chocolate Chip (dark brown)

Housing (District 6) Scheme I
Base: Q7-51P Snowball
Wood Trim and Fascia: 0577 - Federal Blue
Vertical Plywood Siding: 0574 - Bluestone

Scheme II
Base: Q7-51P Snowball
Wood Trim and Fascia: 0551 - Sagebrush
Vertical Plywood Siding: 0148 - Aspen Green

Scheme III
Base: Q7-51P Snowball
Wood Trim and Fascia: 0533 - Red Cedar
Vertical Plywood Siding: 0594 - Beige

Note: Off white must be used for trim as required.

Note: Use of color numbers allows each paint manufacturer an equal opportunity to formulate a color match for the type of coating selected. Color match must be submitted for approval by the base ACM. (Colors as shown are representative only.
See base ACM for actual paint samples for exact color matching.)

TINKER AIR FORCE BASE EXTERIOR PAINT COLORS

District 1 - Northside Area

	Base:	35B-1P Biscuit (light tan)
	Trim:	24C-4D Fudge (dark tan)
	Accent:	25A-1A Chocolate Chip (dark brown)

District 2 - Eastside Depot Maintenance Area

	Base:	35B-1P (light tan) and 11B-4D Light Earth
	Trim:	24C-4D Fudge (dark tan)
	Accent:	25A-1A Chocolate Chip (dark brown)

District 3 - 38th Engineering Installation Wing (EIW)

	Base:	35B-1P Biscuit (light tan)
	Trim:	24C-4D Fudge (dark tan)
	Accent:	25A-1A Chocolate Chip (dark brown)

District 4 - Southeast Side Munitions area

	Base:	35B-1P Biscuit (light tan)
	Trim:	24C-4D Fudge (dark tan)
	Accent:	25A-1A Chocolate Chip (dark brown)

District 5 - “South Forty” Area

	Base:	35B-1P Biscuit (light tan)
	Trim:	24C-4D Fudge (dark tan)
	Accent:	25A-1A Chocolate Chip (dark brown)

Navy Complex in “South Forty” area District 5) (matching existing)

	Base:	SW1022 Cubist Gray (light gray)
	Trim:	SW2272 Bar Harbor (gray/blue)
	Accent:	SW1020 Distant Thunder (dark gray)

District 6 - Westside MFH/Community/ MWR Area

	Base:	35B-1P Biscuit (light tan)
	Trim:	24C-4D Fudge (dark tan)
	Accent:	25A-1A Chocolate Chip (dark brown)

35B-1P Biscuit	SW1022 Cubist Gray	Q7-51P	0574 - Bluestone
24C-4D Fudge	SW 2272 Bar Harbor	0577-Federal Blue	0544 - Driftwood
24C-1A Chocolate Chip	SW 1020 Distant Thunder	0547 - Dark Gray	0148 - Aspen Green
11B-4D Light Earth	0551 - Sagebrush	0594 - Beige	0533 - Red Cedar

6.2 Metal

- Metal siding is used in warehouse/storage facility construction and in some hangar construction. All metals shall be factory-finished with paint colors to match the Tinker AFB standard paint scheme.

6.3 Concrete/Exposed Concrete Aggregate Panels

- Concrete and exposed concrete aggregate panels are acceptable building materials provided that the material is finished in accordance with base color schemes. Large expanses of the material shall be visually broken up through use of architectural details and/or trim color. Exposed concrete aggregate panels are used extensively in the Awake Area of District 1 and in the Navy Area of District 5. This is the preferred material in these areas.

6.4 Brick

- Brick is a desired architectural finish throughout all districts, where applicable, due to its low maintenance needs and durability. All brick shall be laid in a running band, with minimum differing brick detail to provide an accent only.

- Design color basis for the brick in Planning District 2, Eastside Depot Maintenance Area, shall be "3001 Brick Red." The brick color designation signifies that brick color throughout this district shall match, as closely as possible, the brick on Building 3001. The designer shall submit proposed brick colors to the base ACM for approval.

- Designers shall give careful attention to matching brick and mortar color for all maintenance and repair projects as well as for new construction projects to insure compatibility with existing facilities.

6.5 Concrete Masonry Units (CMU)

- Concrete block is an acceptable building material. Standard 8-inch by 12-inch by 16-inch CMU shall be laid in a running band and are acceptable with the following finishes:

  Split-faced or Ribbed

  - Split-faced block provides an acceptable alternative to brick and is to be used in the AACS and Navy Areas of the base. An inherent color shall be used to match the surroundings when using split-faced and ribbed block.

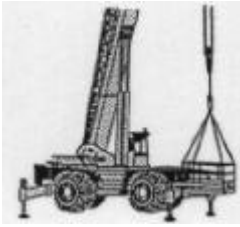
Smooth

- Standard smooth - finished block is also acceptable when specified to be selected to match its surroundings, and used on smaller projects such as a pump house. When using CMU, the block shall be sealed and painted to match the base color scheme.

- All mortar color shall match the block color.

6.6 Exterior Insulation Finish System (EIFS)

- When compatible with surrounding area and with the base standard colors, use of EIFS products such as Dryvit, Synergy, and Durock are acceptable.



7.0 Roofing

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7.2 Built-Up Roofing (BUR) 31
7.3 Roof-Top Equipment 31
7.4 Standing-Seam Metal Roofs 31

7.0 Roofing

Roofing plays a significant role in the visual integrity of architectural compatibility at Tinker AFB.

7.1 USAF Sloped Roof Policy

- HQ USAF has published policy directives for the conversion of flat roofs to sloped. This policy authorizes conversion of built-up roofs to sloped roofs provided:

  - The existing roof needs to be replaced due to its deteriorated condition.
  - No functional space is added to the facility.
  - The useful life of the facility exceeds the life-cycle economic analysis.
  - The selection of the sloped roof system is justified as the most economical method on a life-cycle economic analysis.
  - Cost-effective repair of existing built-up roofs is the most significant factor driving the conversion to sloped roofs.

7.2 Built-Up Roofing (BUR)

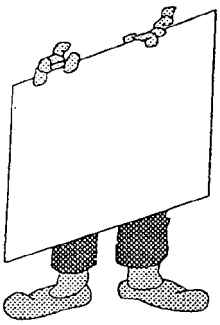
- BUR is used extensively basewide, but not exclusively at Tinker AFB. Installation of BUR shall be in accordance with the accepted standards of the built-up roofing industry and of the U.S. Air Force. If penetrating existing roofs, all existing warranties shall be coordinated to determine how or whether the applicable warranty may be affected.

7.3 Roof-Top Equipment

- If at all possible, placement of roof-top mechanical and utility equipment shall be avoided. However, if no other viable alternative exists, the designer shall consider concealment of this equipment through color or screening compatible with the existing facility.

7.4 Standing Seam Metal Roofs

- The base standard exterior colors shall be used on all panel finishes. All roof slopes and the roof's aesthetic characteristics shall be compatible with the surrounding areas within each given district.



8.0 Exterior Signage

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8.2 Zip + 4 Program Implementation 32
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8.0 Exterior Signage

A consistent system of signage is not only essential to smooth navigation of the base but also is an important tool in providing a unified visual image.

8.1 Standard Facility Signs

- Exterior facility signs shall be developed and designed in accordance with OC-ALC-TAFBR 88-1, Sign Standards (Attachment 5). These regulations apply to all exterior directional and informational signage. All exterior signage that is mechanically fastened to the exterior of the building structure shall comply with AFPAM 32-1009, Signage Standards, in addition to the regulation cited above.

    - Use high intensity grade sheathing on all exterior signs. Reflective sheathing shall conform to the requirements of Federal Specification LS300C, Type I, Table III, Reflectively II and the Manual of Uniform Traffic Control Devices (MUTCD).

    - All exterior signs shall be brown with reflective white letters, except in the Navy area, where Machine Blue shall be used. Reflective numbers and letters shall meet Federal Specification LS300C, Type I, Table III, Reflectively II and shall be Helvetica medium style.

    - All painted frames shall match as closely as possible 3M® Company, Scotchlite®, #3680-29, Russet Brown, except in the Navy Area, where frames shall match the existing blue color.

    - Existing exterior signage that does not comply with base standards shall be replaced as needed, due to wear.

- The AFMC logo and shield shall be used to establish corporate identity; however, use shall be limited to gate signs, selected towers, billeting, base operations, street signs, and headquarters buildings. The logo and shield color shall be as prescribed by AFMC Regulation 190-1, the AFMC logo. Placement of the logo and shield on exterior signage shall be in accordance with AFPAM 32-1099

8.2 Zip + 4 Program Implementation

- The Zip + 4 program is a DOD directive mandating that bases such as Tinker shall develop street addresses for all base facilities in addition to the long-time standard facility numbers.

- Questions about the program shall be directed to the base Comprehensive Planner.

72 CEG/CEOC
MR WILLIAM C. DALKE
7535 5TH STREET, SUITE 119
TINKER AFB OK 73145-9054
(405) 734-3201

8.3 Logos and Super Graphics

- Painted logos and racing stripes are no longer acceptable. All exterior signage proposals shall be submitted to the base ACM for approval

- There will be no letters no numbers attached to the surface of the facility except for standard building signs (see Signage 9.1).

9.0 Traffic Considerations

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9.0 Traffic Considerations

The vehicle circulation system at Tinker AFB provides primary means of movement of both people and materials throughout the base. The infrastructure of roads, pedestrian systems, and open spaces links the individual structures on base into a complete and functioning military installation.

9.1 Signage

- All facility signs must comply with the Tinker AFB regulation 88-40, Sign Standards; TAFB 88-1, Sign Standards; and TACR 88-1, Architectural Policy, Traffic signage on base must comply with the standards of the MUTCD.

9.2 Parking

- 72 SPS is the authority for assigning reserved parking spaces. Requirement for new facilities shall be in accordance with AFM 86-2, Table 21-2, Parking Space Requirement for Non-Organizational Vehicles.

- A standard parking space is 10 feet wide by 18 feet long.

- Standard handicap parking spaces shall match the required standard from the ADA.

9.3 Curbing Standards

- Base standard is 24-inch curb and gutter unless existing site conditions require compatibility with existing curb and gutter of a different size.

- Curbing standards shall conform to the handicapped accessibility standards defined by the UFAS.

10.0 Landscaping

Landscaping on Tinker AFB, to the designer, encompasses not only the layout of placing treatments, but also takes into account pedestrian environments (such as plazas and courtyards), recreational areas, site furnishings, lighting, and fencing. A well-executed design contributes greatly to the environmental and visual quality of Tinker AFB.

10.1 Recommended Plantings

- All landscape plantings shall be those that are hardy for this area. Plantings shall be low maintenance and shall help to visually blend the building with the natural environment, provide scale, reinforce desired views and screen undesirable areas of the base. Selections shall require approval from the base ACM.

10.2 Site Elements

- Plaza and courtyards shall be designed to provide low maintenance, visual interest, and user safety. These areas shall be integrated with a comprehensive pedestrian circulation system, separate from traffic and parking, provide a comfortable, attractive resting space and add to the visual quality of the base landscape.

- Site furnishings shall provide comfort and service to the users of the pedestrian system and outdoor spaces. The furnishings must be located in response to the needs of users and have a consistency of design. Designers shall strive to achieve compatibility of site elements within each district. When no apparent consistency exists, the designer shall coordinate material selection with the base ACM.

10.3 Fencing

- Fencing and screening on Tinker AFB is used primarily for security purposes and visual screening. Great care shall be given to screening considerations. Well designed screens shall not draw attention to themselves and shall be used at a minimum.

  Split Face and Ribbed Block
  - Selection of split face and ribbed concrete block shall be compatible with the standards described in Section 5.0 of this document. Fencing using this material shall only be used in the AACS Area of District 1 and the Navy Area of District 5.

Chain Link Fencing

- This type of fencing is acceptable in the housing area and for perimeter security fencing.

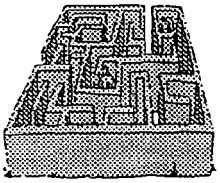
Brick and Wood Fencing

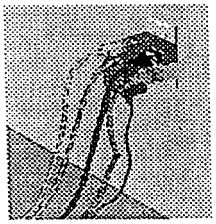
- Wooden Fences are acceptable for screening such items as trash dumpsters, mechanical and electrical equipment, etc., as long as the brick columns' style, configuration, height, and finish, (used in conjunction with the wood), are approved by the base ACM. For long spans of fencing with brick columns used, the brick color shall match the districts color scheme. Each brick column shall have a concrete cap. For shorter lengths of fencing, the brick shall not only be used as columns, but shall also be used on at least the lower 2-foot height of the fence.

Brick and Wrought Iron

- If the fence is intended for containing accessibility to a site, rather than being used primarily to screen an area, wrought iron may take place of wood as fencing material. The wrought iron shall be installed as described above with brick columns and brick at the lower 2-foot height of fence.

- All fencing shall be at height sufficient to visually screen the materials, building, and/or equipment it is intended to screen. If fence exceeds 6-feet in height, landscaping shall also be installed to visually lower the height of the fence.





11.0 Interior Design

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11.0 Interior Design Standards

A holistic approach to facility design should be taken to achieve a balance between physical requirements, aesthetic ambiance, and meeting occupant needs. A comprehensive Interior Design Policy achieves this by improving quality of life, increasing productivity, and protecting the health, safety, and welfare of facility occupants. Comprehensive Interior Design shall encompass the entire interior environment to include all structural interior design building finishes, cabinetry, window treatments, graphics, signage, furniture, lighting, artwork, and plants. As such, CID shall be an integrated part of the programming and design criteria used for the design, construction, and maintenance of all Tinker Air Force Base facilities.

The goal is to ensure interior appearance of each facility is based on carefully established professional design standards.

11.1 Program Components

- CID policy incorporates the AFMC Comprehensive Interior Design Guidance as the basis for its policy and shall be used in conjunction with references found in Section 14.0 References, of this book.

  Further assistance may be obtained from the Tinker AFB CID Manager:

  MS. DEBBIE FRIEDLANDER
  72 CEG/CECE
  7535 5TH STREET, STE 119
  TINKER AFB OK 73145-9054
  (405) 734-5236

11.2 Specifications

- Construction Specification Institute standard specifications shall be used for all finishes.

11.3 Interior Finish Guidelines

- Ease of maintenance is a critical factor in selection of interior finishes. Tinker AFB follows AFMC Interior finish guidelines for selection and specification of interior finishes. AFMC policy is to use durable low-maintenance finishes appropriate for the function of the space. Neutral colors with medium-range, muted, or subdued accents are to be used for all SID finishes, except in certain MWR and

distinguished visitors areas. Introduce primary accents through artwork, furnishings, and plants.

11.4 Systems Furniture

- Procedures and guidelines for the development of systems furniture packages and typical workstation layouts shall be in accordance with the attached Systems Furniture Policy for Administrative Facilities at Tinker AFB.

11.5 Installation of Artwork and Signage

- Artwork and signage shall be a coordinated part of all CID design packages. Interior signage shall be coordinated throughout the building and be able to be updated and changed as building functions move. Interior signage policy can be found in the AFMC Interior Finish Guidelines, which provides guidance for the selection and placement of interior signage as part of CID. Signage and specifications shall be included in all comprehensive interior design packages for AFMC facilities.

- Artwork and wall hangings shall be integrated into each design. Coordinate the subject of the artwork, frames, and matting to create a consistent visual image. Include all waste receptacles, clocks, coat storage, drinking fountains, and coffee/food/break equipment.

11.6 Carpet Policy

- Flooring materials are some of the most important interior finishes to be selected. Tinker AFB complies with AFMC guidelines pertaining to carpet selection. The guidelines apply to all carpet purchased with AMFC funds, regardless of fund source (appropriated or nonappropriated), excluding family housing.

- The AFMC carpet policy permits patterned carpet only, regardless of area size, except in those facilities/areas indicated below:

  - Medical facilities
  - Computer areas
  - Chapels and religious facilities
  - Designated Distinguished Visitor areas of transient quarters

- A patterned carpet has a design that is distinguished and consists of two or more colors and not shades of the same color. A tweed is not considered a pattern and shall not be accepted as complying with this policy. Carpets with tweed

backgrounds and an overprint pattern are acceptable. Avoid light colors and high-contrast, bold patterns. Use random patterns.

- Carpet construction shall be level-loop pile or where applicable, tufted or woven plush pile with a face weight of 26 ounces per square yard minimum. Carpet backing shall meet AFMC carpet policy criteria.

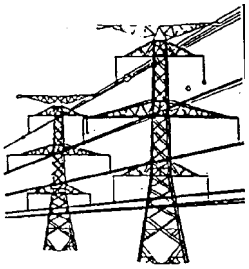
- Carpet installed in AFMC facilities shall use direct glue method without pad.

- All carpet selections for AFMC facilities shall be approved by the CID manager and base carpet monitor. The base carpet monitor for Tinker AFB is located in the:

SELF-HELP STORE
72 CEG/CERSH B413
(405) 734-5530

11.7 Color Board Presentation and Approval

- Color boards shall be approved for all major MILCON, O&M, and NAF construction and renovation projects. Guidelines and procedures for SID & CID, and the development of submittals shall follow the AFCEE Interior Presentation format found as Attachment 2.



13.0 Interior Design

13-1 Base Energy Manager 41

11.0 Interior Design Standards

Energy costs account for a significant portion of the Defense budget. In light of this, the DOD has established rigorous energy cost reduction objectives for all subordinate agencies. Meeting these objectives requires the scrutiny of all elements of our operations to determine areas of potential improvement. Architectural design of energy-efficient facilities is one such area.

13.1 Base Energy Manager

- In accordance with DOD objectives to reduce energy consumption, Tinker AFB has assigned a Base Energy Manager to focus energy conservation efforts.

- The Base Energy Manager is responsible for creating and implementing the various energy plans:

MR. BRADLEY BRACHER
72 CEG/CEOE
7615 FIFTH STREET
TINKER AFB OK 73145-9052
(405) 734-7222
DSN: 884-7222

INTERIOR DESIGN PRESENTATION FORMAT

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Appendix C - Sample Furniture Placement Plan C-1

Appendix D - Sample Color Guide Specification D-1

INTRODUCTION

This manual covers interior design services for the Air Force. It explains the two types of design services available, Structural Interior Design and Comprehensive Interior Design, and gives detailed guidelines on presentation requirements for each type. Chapter 1 is an overview of interior design for the military. Chapter 2 explains the required presentation format for interior design projects and discusses standards for health, safety, accessibility, and environmental quality. Chapter 3 gives specific information on assembling a Structural Interior Design submittal. It includes a submittal matrix listing each submittal element, and which elements are required at each submittal phase. Chapter 4 provides specific information on assembling a Comprehensive Interior Design submittal. It includes the submittal matrix, detailed information on requirements unique to Comprehensive Interior Design, information on furnishings sources, and cost guidelines. The manual concludes with Glossary of Government Contract Terms, an Index of Referenced Standards containing useful information about terms and concepts discussed in the manual, and several Appendices containing sample forms and documents.

2 SID/CID REQUIREMENTS & INFORMATION

This chapter provides general and technical information that applies to both SID and CID packages. It covers the required presentation format and gives specific information about each type of drawing required for each type of package.

Cutting and Fitting

The interior design should identify items in the SID or CID that require attachment to the building by cutting or fitting and should prepare construction drawings and specifications to cover these operations. These items must be properly coordinated with other work on the project.

Trade Names & Non-proprietary Disclaimers

When indicating manufacturers' product styles and colors for a project, use a Color Guide Specification (Appendix D). This guide includes the brand names for color selections of the exterior and interior materials, products which will be exposed to view in the finished construction, and products which are sampled in the SID and CID binders. Specific locations where materials are to be installed will be shown in the drawings via a standard material, finish, and color schedule. Key the color codes used in the drawings with the products indicated in the Color Guide Specification. The Color Guide Specification should include a non-proprietary disclaimer that reads: "Trade names indicated are non-proprietary and are intended only to indicate color, texture, and pattern."

Federal Standard Colors

Federal Standard Colors are not required on interior design projects, but may be used if desired.

PRESENTATION FORMAT

SID and CID information and samples are to be submitted in 210 x 280 mm (8½" x 11") format in separate three-inch ring binders with pockets on the inside of the covers. When there are numerous pages with thick samples, more than one binder should be used. Large D-ring binders are preferred to O-ring binders. Fold out items should have a maximum spread of 640 mm (25½").

Each binder should be labeled on the outside spine and front cover with the following information:

- Phase %
- SID or CID
- Project Title and Number
- Location
- Date
- A-E Firm
- Volume Number
  (example: Vol 1 of 3)

Each sheet within the binder should be labeled with the project title, location, A-E firm name, and street number.

Color Boards

SID finish samples should be grouped into color schemes organized by Color Placement Zones. A Color Placement Zone is all spaces or areas within a building that have like finishes. For example, all toilet rooms might have the same color scheme and would then comprise one Color Placement Zone. The general office Areas might have another color scheme and would then comprise another Color Placement Zone.

If a finish is used in more than one zone, it must be displayed in each one. Large samples, such as ceiling tiles or carpet samples can be provided separately from the color board in a loose sleeve that can be moved from one scheme to another.

Color board should be sturdy enough to support all samples. Use page protectors that are strong enough to keep pages from tearing out. Anchor large or heavy samples with mechanical fasteners, Velcro, or double-faced foam tape rather than rubber cement or glue. Samples which are difficult to fasten should be labeled with the finish code so they can be identified independently.

Material and finish samples should indicate true pattern, color and texture. Photographs or colored photocopies of materials or fabrics will be disapproved. Carpet samples should be large enough to show a complete pattern or design. If the specified carpet has a large pattern, provide a color photograph showing the overall pattern in addition to the carpet sample. Color photocopies of artwork and plants are acceptable.

REVIEWS AND REVISIONS

All SID and CID packages will be reviewed by the Government during each phase of the project, and written annotated comments will be provided to the A-E. These review comments and the A-E's written responses should be placed in the front inside pocket of the first volume of the next SID or CID binder submittal.

The designer should revise the binders after each review to respond to review comments. Printed information on existing pages may be revised with white-out. If the binders are not returned to the A-E after review, the A-E may simply provide updated inserts to the Government. Note: Some MAJCOMs require that any changes made after submittals have been approved be resubmitted to the MAJCOM for re-approval.

INFORMATION ON REQUIRED DRAWINGS & DOCUMENTS

Renderings and Sketches

Renderings or black and white perspective sketches may be required in the Statement of Work or design task for some projects. Verify that renderings or sketches are a contract requirement. All renderings should be professional in appearance. The A-E shall submit a sample or a copy of a previous rendering indicating the proposed artistic style. The actual rendering should not be executed until the artistic style and selected view are approved. Black and white sketches should emphasize spatial selected view are approved. Black and white sketches should emphasize spatioal relationships, furnishings, patterns, and texture. Illustrate one major area which may be used as a basis for a color rendering in the final package.

Composite Floor Plan

The Composite Floor Plan should show all panels, components, and free-standing furniture in relationship to the building and the building systems. This includes information on locations of light switches, fire pull boxes, mechanical devices, and other wall mounted items. It should be a full-size contract drawing showing furnishing item numbers (where applicable). The gross and net square footage of each floor should be noted on the composite floor plans.

Workstation Panel Plan

The Panel Plan should include a panel symbol legend, panel placements, critical dimensions of aisle widths, and critical dimensions tying the panels to the building's structure and electrical/mechanical system. Panels must not block access to mechanical electrical or fire controls. Each panel should be coded with the following system:

N (non-powered) or **P** (powered) **Width** (in centimeters) **Height** (in centimeters)

For example, a non-powered panel 610 mm (two feet wide) and 1,727 mm (five feet eight inches high) would be noted on the plan as N 61 172.7.

Workstation Electrical, Voice, & Data Plans

The Electrical, Voice, and Data Plans should show any panel placements, all receptacles used in each workstation, height and location of all light switches and mechanical control devices, and a symbol legend. The workstation designer must coordinate the Electrical, Voice, and Data Plans with the building's communication and mechanical engineering drawings.

Furniture Systems

Furniture systems should be designed using generic components and work surfaces sold by many manufacturers. Use one manufacturer as a basis for design, and indicate that manufacturer's name and finishes on the contract drawings. This will provide sufficient information for competitive bid purposes.

In the Color Guide Specifications on Furniture Systems, indicate the fabric width, fiber content, and construction method for the workstations. The vendor should be indicated on the drawings and in the Color Guide Specification. Do not indicate a vendor in the furniture Systems Specifications.

Workstation Types & Number Codes

The workstations should be classified into groups of like configuration and features, and each group or type should be given a single letter code (A, B, etc). For example; all similar reception stations might be type A and all similar offices might be type B. Each workstation should also be given a unique number code similar to a room number but separate from the building room numbering system. Every workstation should be identified on every plan with the composite code composed of the letter identifying the type and the workstation number code. For example “A110" would indicate that workstation number 110 is a type A station.

Workstation Isometric/Elevation & Inventory Drawings

The Workstation Isometric/Elevation and Inventory drawings should show an elevation or isometric of each type of workstation with a related inventory list of all the panels and components used, and the method of attachment (i.e., wall hung, floor mounted, etc.). The inventory list should describe components generically rather than using specific part numbers.

Workstation Finishes

It is suggested that only two fabric finishes be used for furniture systems: one color for panels and one for tackboards and flipper doors. A third color may be used to unify workstations used by the same organizational group in order to aid in pathway finding in large open office areas. It should be noted that some installations have color and finish restrictions. The A-E should comply with any local or MAJCOM standards.

Workstation Costs

The average cost of a furniture system is $4,500. The Air Force considers an ergonomically designed chair as part of the workstation and should be included in the workstation design and cost. The total available funding for furniture systems for a project is listed as a non-add entry on in block 9 of the DD Form 1391. In block 12b, list the equipment as an O&M funded item, the fiscal year the funds are requested, and the line item cost.

Workstation Components

The following items are some of the typical workstation components and options that must be selected and specified.

- *Panels*
- Acoustical/non-acoustical
- Powered/non-powered

- *Components*
  - Work Surfaces
  - Drawers
  - Shelves (with doors/without doors)
  - Files (lateral, panel hung/bins)
  - Task lights/special purpose
  - Counter tops
  - Drafting surface
  - Freestanding components
- Shelf dividers
- Reader stand
- Paper flow devices
- Marker/chalk boards
- Printer stand
- Coat rack
- Wire guides
- Keyboard trays
- Mouse pads
- Wrist rest/foot rest
- Disc sotrage

- *Accessories*
  - Tackboards
  - Locks
- *Signs*
  - Organization signs
  - Workstation name signs

HEALTH, SAFETY, ACCESSIBILITY, AND ENVIRONMENTAL QUALITY

Some of the issues designers must consider in creating a quality working environment are safety, health, disabled access, and environmental standards. Many of these concerns are regulated by code authorities and quantified by standardized testing. Designers should be aware of the pertinent regulations and should cite them in the contract documents. Reference standards are listed and indexed in the *Index of Reference Standards* on page 25. An asterisk by a topic indicates that there is a reference in the Index.

Health & Safety Criteria

Fire safety is one of the paramount concerns in any design. Designers must comply with all appropriate fire safety codes and provide for safe egress in the event of fire. Code requirements on this issue are stringent and several different codes exist. See **egress*.

There are several regulations relating to flammability of interior materials and furnishings. See **fire, flame spread.*

Designers should provide protection against injury and death from falls, chemical emissions, electronic emissions, and microbial conditions. See **falls.* No reference standards exist for chemical emissions, electronic emissions, or microbial conditions. OSHA has a proposed regulation in relation to indoor air quality standards. Comments to this regulation are currently being reviewed at OSHA. See **indoor air quality.*

Accessibility

All designs, including signage, must comply with the Americans with Disabilities Act (ADA) or the Uniform Federal Accessibility Standards (UFAS), whichever is the most stringent. The only exceptions to this requirement are facilities which limit their access to able-bodied military personnel in accordance with the exclusion in Paragraph 4.1.4. of the UFAS. See **accessibility*.

Environmental Quality

Designers must be concerned with providing an environment that is comfortable, welcoming, and conducive to work. Contributing factors include ergonomically correct furniture, appropriate efficient lighting, and good acoustical control.

Furnishings and equipment provided for SID/CID shold be comfortable, sturdy, and designed for anthropomorphic fit and stability. See **furnishings*.

Lighting is an important tool in shaping the ambiance of the environment. Careful consideration should be given to lighting in order to produce a comfortable environment that is easy to live and work in. Reflectance should be minimized and task lighting should provide glare free illumination of work surfaces. See **lighting*.

Provide adequate acoustical control to ensure a good working environment. See **acoustics.*

Pathway Finding

Interior design for military facilities should incorporate the concept of pathway finding. The space plan, the use of color and pattern, and the interior sign package should coalesce to form a well organized. comprehensible interior environment that guides users and visitors through the building to their destination.

3 SPECIFIC INFORMATION FOR SID SUBMITTALS

This section gives information on assembling an SID package. The Submittal Matrix gives the sequence of assembly and tells what information must be included in each submittal if that work is a part of the design contract. Not all projects wil have a formal 65% design review stage. If that is the case, those items may move to the 90% submittal. Note that Interior Design Submittals must run concurrent with Architectural Submittals.

Submittal Matrix Summary for SID Packages

Item	Description	PD*	65%	90%	RTA
1	Title Page	X	X	X	X
2	Table of Contents	X	X	X	X
3	Narrative of Interior Design Objectives	X	X	X	X
4	Interior Color Zone Key Plan (1/8"=1'-0" scale or 8½ x 11" size	X	X	X	X
5	Interior Color Boards (relating to color placement plan)	X	X	X	X
6	Interior Signage Color Boards		X	X	X
7	Furniture System Color Boards		X	X	X
8	Interior Floor Plan (¼" = 1'-0" for full size drawings. Use metric scale when required.)	X	X	X	X
9	Room Finish Schedule/Color Key	X	X	X	X
10	Signage Plan			X	X
11	Furniture System Composite Floor Plans	X	X	X	X
12	Furniture System Cost Estimate		X	X	X
13	Furniture System Panel Plans		X	X	X
14	Furniture System Electrical/Voice/Data Plans		X	X	X
15	Furniture System Elevation/Isometric and Inventory Drawings			X	
16	Enlarged Perspective (optional) of furniture System Configurations	X	X	X	X
17	Diskette of all Drawings/Plans/Schedules				X

*PD: Project Definition
**65%: When required.

Separate sign drawings should be prepared which indicate plaque size, type, location, and message for all signs. Submit a sample of the sign color in the SID.

Typical SID Items

Some of the items which are usually included in an SID are listed below:

- Carpet
- Resilient Floor Coverings
- Ceramic Tiles and Stones
- Terrazzo
- Paint
- Wallcoverings
- Wood Stains
- Wall Base
- Ceiling Tiles and Grid
- Plastic Laminates
- Built-in Casework
- Auditorium Seating (Fixed)
- Blinds and other Window Coverings
- Marker Boards/Bulletin Boards
- Furniture Systems
- Toilet Partitions
- Moveable Room Dividers
- Cubicle Curtains
- Signage
- Stage Curtains
- Trim and Hardware Finishes
- Decorative Light Fixtures

Also see Chapter 2, SID/CID Requirements and Information.

4 SPECIFIC INFORMATION FOR CID SUBMITTALS

This section gives information on assembling a CID package. The Submittal Matrix gives the sequence of assembly and tells what information must be included in each submittal if that work is a part of the design contract. Not all projects will have a formal 65% design review stage. If that is the case, those items may move to the 90% submittal. Note that Interior Design Submittals must run concurrent with Architectural Submittals. Services CID normally include SID services.

If the client is purchasing and installing the systems furniture, all systems furniture should be shown the contract drawings with the note “FOR INFORMATION ONLY.”

Submittal Matrix Summary for CID Packages

Item	Description	PD*	65%	90%	RTA
1	Title Page	X	X	X	X
2	Table of Contents	X	X	X	X
3	Narrative of Interior Design Objectives	X	X	X	X
4	Photo of Proposed Rendering Technique	X			
4A	Photo of Completed Interior Color Rendering(s) (only if required by contract)			X	X
5	Black and White Sketch Perspective(s) (only if required by contract) One will be approved for the interior rendering.		X	X	X
6	Generic Composite Floor Plans with Conventional and Furniture Systems on full size sheet. (Use metric scale when required.)	X	X	X	X
7	Furniture System Panel Plans (Only if client is buying and installing furniture system.)		X	X	X
8	Furniture System Electrical/Voice/Data Plans (Only if client is buying and installing furniture system.)		X	X	X
9	Furniture System Elevation/Isometric and Inventory Drawings (Only if client is buying and installing furniture system.)		X	X	X
10	Manufacturer’s Summary Lists			X	X
11	Conventional Furniture Placement Plans (Use metric scales as req.) All areas (Include item numbers.)		X	X	X
12	Conventional Furniture Illustration Sheet (sample form only)	X			

12A	Conventional Furniture Illustration Sheet with number codes (all areas)		X	X	X
13	Artwork Illustration Sheets/Artwork Placement Plans		X	X	X
14	Itemized Furniture Cost Estimate		X	X	X
15	Order Data Sheets (sample form only)	X			
15A	Order Data Sheets (all areas)		X	X	X
16	Letter of Justification for Waiver (if required)		X	X	X
17	Diskette of all Drawings/Plans/Schedules				X

*PD: Project Definition
**65%: When required.

Manufacturer's Summary List

The Manufacturer's Summary List is a list of all the manufacturers whose products are used in the CID package. For each manufacturer, provide the name, address, phone number, fax number, and a point of contact.

Furniture Placement Plan

A Furniture Placement Plan is a plan of one room showing each furniture component in the room. There will be one Furniture Placement Plan for each room in the Composite Floor Plan that contains furniture. Furniture Placement Plans are drawn at 1:50 (¼" = 1'-0") if possible, or at 1:100 (1/8" = 1'- 0") if the room or area illustrated is very large. Each Furniture Placement Plan should include the following information:

- The job name, location, and date
- The footprint of the room
- A Furnishing Item Number for each furnishing item
- Quantity of each product specified for the CID

Furniture Illlustration Sheet

Provide one Furniture Illustration Sheet for each item of furniture in the CID. The Furniture Illustration Sheet should include all of the following information:

- The job name, location, and date
- A picture or line drawing of the product specified
- The furnishin item number which keys the product to the Composite Floor Plan and the Furniture Placement Plan
- The options specified, if any
- Specification data on the finishes and fabric
- Samples of the finishes and fabric
- A comprehensive list giving all occurrences of the item, broken down by room. For example:

4 each Room 104 Commander
2 each Room 103 Receptionist

Furniture Illustration Sheets should be arranged in numerical order by furnishing item number. The furnishing item numbers should begin with 001. See Appendix A for an example Furniture Illustration Sheet.

Artwork Placement Plan

An Artwork Placement Plan shows the spatial relationship between the furniture and the artwork in a room. There wil be one Artwork Placement Plan for each room in the Composite Floor Plan that contains artwork. Assign a furnishing item number to each piece of artwork. The Artwork Placement Plan will include the furnishing item number for the artwork and but will show the furniture without item numbers. Artwork Placement Plans are drawn at 1:50 (¼" - 1'- 0") if possible, or at 1:100 (1/8" = 1'- 0") if the room or area illustrated is very large. Each Artwork Placement Plan should include the following information:

- The job name, location, and date
- The room name and number
- A plan of the room locating the artwork
- An elevation of each wall containing artwork showing mounting height
- A Furnishing Item Number for each artwork item
- Quantity of each product specified for the CID

Provide one Artwork Illustration Sheet for each piece of art in the CID. The Artwork Illustration Sheet should include the following information:

- The job name, location, and date
- The title of the artwork and the artist's name.
- A picture of the proposed artwork. Color photos are acceptable
- The furnishing item number, which keys the artwork to the Composite Floor Plan and the Artwork Placement Plan
- Name and number of the room where artwork will be displayed
- Frame description and sample of mat colors
- Mounting height and installation instructions
- Specify security mounting if required

Itemized Furniture Cost Estimate

The itemized furniture cost estimate lists all furnishings and indicates quantities, unit costs and totals. It is organized according to UNICOR and GSA/FSC Group, Part, and Section of the FSC Schedules. The cost estimate should also include a 10% general contingency and 7% installation listed as separate line items. Estimated freight charges that are not included in furniture cost should also be a separate line item.

Order Data Sheets

The Order Data Sheets provide all information necessary to order the furnishings specified in the CID. Only one item should be listed per data sheet. The sheets should be in numerical order. The Order Data Sheet should include the following information:

- Furnishing item number.
- The job name, location, and date
- FSC Group, part, and section
- GSA Contract Number, Special Item Number (SIN), and contract expiration date
- Maximum Order Limitation
- Source and manufacturer's name (include ordering address, telephone number and fax number)
- Product name
- Product model number or National Stock Number (NSN)
- Finish name and number
- Fabric name and number
- Dimensions
- Weight
- Description (Include construction information, fabric content, finish application, etc.)
- Justification (Example: "These guest chairs are coordinated to match the task seating, at each workstation. The size of the guest chair is critical because of the limited space where they are to be placed. If this company is not selected, coordinate the newly proposed finishes with furniture item numbers #001, 002, 003)
- Item location by room number
- Quantity per room
- Total quantity
- Unit price
- Estimated freight charges, 7% of item cost (Note: whether or not freight charges are included in the price of the CID item.)
- Special instructions (if any)

Note: Some MAJCOMs require that the A-E fill out the government purchase request in lieu of the Procurement Information Sheet. Verify which method is preferred. Items will be purchased using one of two different forms: DD Form 1348-6 or AF Form 9. A copy of each of these documents is provided in Appendix E.

GENERAL DESIGN/COST INFORMATION FOR CIDS

Furnishings Sources

Furniture may be obtained from three categories of sources: UNICOR, GSSA Federal Supply Schedule, and open market. Every effort should be made to use UNICOR or GSA Stock/Federal Supply Schedule items for CID projects. There may be occasions which there is no current FSS/GSA or UNICOR resource for a furnishing requirement, or when items available on FSS/GSA contract or from UNICOR do not meet the functional requirements of the project. If the latter occurs, the Base Contracting Officer must submit a Request for Waiver to UNICOR.* The A-E shall assist in the waiver process by providing the information within the brackets of the sample letter.* GSA sources are not mandatory for DOD projects, but all procurement procedures must be followed as stated in the FAR. Open market line ietms over $2,500 will require a justification letter. Open market line items over $25,000 will have to be solicited by bid, and solicitation documents including detailed specifications will be required. Line items under GSA contract that exceed the Maximum Order Limitation (MOL) will also require a formal solicitation for bid.

Projects that are funded with non-appropriated funds (NAF) are exempt from the UNICOR mandatory resource, and a waiver is not required in order to use open market sources on these projects. The Air Force Non-Appropriated Fund Purchasing Office (AFNAFPO) has contracts with many furnishings vendors and are an additional resource for these types of projects. Their address is

Air Force Services Agency / AVCKH
9504 IH 35 N, Suite 370
San Antonio, TX 78233
Phone: (210) 652-6931
Fax: (210) 652-6309

**Request for UNICOR Waiver*

Revised waiver procedures and sample letter for UNICOR Products will follow, in a future addendum.

Typical CID Furnishings

The furnishings which are usually included in a CID are listed below.

- ADP tables/printer stands/support furnishings
- Artwork
- Audio-Visual support furnishings
- Beds, wall units, night stands, chests, mirrors, refrigerators
- Bedspreads, bedding, mattresses, box springs, bed frames or boxes
- Bookcases

- Bulletin boards, projection screens/marker boards (if not attached to structure)
- Carts
- Chairs - all seating types except those attached to structure
- Desks - unless included in furniture system
- Drafting tables
- Draperies
- Files
- Freestanding partitions
- Lamps
- Library furniture
- Lounge furniture - sofas, chairs, occasional tables
- Mobile furnishings - unless included in furniture system
- Modular desk units
- Podiums, lecture stands
- Silk plants
- Storage - all kinds
- Furniture system workstations (if not in SID)
- Planters, waste and ash receptacles
- Tables - all kinds
- Wardrobes (if not in the construction contract)

CID Furnishings Costs Guidelines

Following are guidelines for material costs for CID. These numbers are to be used for preliminary budgeting purposes only. The information is given first as cost per total square foot, then as cost per unit. The numbers do not include associated costs such as contractor's overhead, profit, and shipping. They are based on the Air Force FY 95 Costs, so an appropriate inflation factor should be included for subsequent years. On overseas projects costs may vary from country to country and with the current exchange rate.

FACILITY TYPE	COST/SQ METER	COST/SQ FOOT
Administrative Space (Conventional Standard)	86.00	8.00
Administrative Space (Conventional Executive)	161.00	15.00
Administrative Space (Systems Furniture)	377.00	35.00
Airmen Club (excluding kitchen equipment)	140.00	13.00
Alert facilities	140.00	13.00
Auditorium (fixed seating)	377.00	35.00
Base Ops DV Lounge	215.00	20.00
Chapel	280.00	26.00
Child Development Center	150.00	14.00

FACILITY TYPE (CONTINUED)	COST/SQ METER	COST/SQ FOOT
Classroom	150.00	14.00
Clinic/Dental Clinic (not including equipment)	172.00	16.00
Conference Room (Executive)	215.00	20.00
Conference Room (Standard)	581.00	54.00
Dining Facility (excluding kitchen / serving line)	377.00-484.00	35.00-45.00
Distinguished Visitor's Suite (iii Lodging)	323.00	30.00
Family Housing Office	172.00	16.00
Fire Station	140.00	13.00
Golf Clubhouse	161..00	15.00
Judge Advocate Facility (including Courtroom)	269.00	25.00
Library	269.00	25.00
Lodging Office	161.00	15.00
Open Mess (NCO or Officers)	323.00-377.00	30.00-35.00
Physical Fitness Center (not including equipment)	129.00	12.00
Recreation Center	129.00	12.00
Temporary Lodging Facility (TLF)	172.00	16.00
Training Center (miscellaneous types)	151.00	14.00
Open Mess (NCO or Officers)	183.00	17.00
Unaccompanied Enlisted Personnel Housing (EUPH)	194.00	18.00
Unaccompanied Officer Personnel Housing (UOPH)	215.00	20.00
Visiting Airmen's Quarters (VAQ Single Occupancy)	183.00	17.00
Visiting Officers Quarters (VOQ)	183.00	17.00
Youth Center	140.00	13.00

Cost per Unit

FACILITY TYPE	COST/UNIT
Administration Space (furniture system per workstation: includes installation and one ergonomic chair	4,500.00
Lodging Office/Lobby ● without front desk ● with front desk	 15,000.00 to 20,000.00 40,000.00 to 100,000.00
Distinguished Visitor Suites ● One bedroom suite ● Two bedroom suite ● 2 to 3 bedroom apartment (including dining room)	 15,000.00 to 20,000.00 25,000.00 to 36,000.00 40,000.00 to 45,000.00
Temporary Living Facility (TLF)	17,500.00

Unaccompanied Enlisted Personnel Housing (UEPH) (per person)	5,000.00
Unaccompanied Officers Personnel Housing (UOPH) ● Bedroom only ● Small apartment	 7,000.00 9,000.00 to 10,000.00
Visiting Airmen Quarters (VAQ)	5,000.00 per peson
Visiting Officers Quarters (VOQ) ● Single room ● Single suite ● Double suite	 8,000.00 10,000.00 15,000.00

INDEX OF REFERENCED STANDARDS

accessibility	• Americans with Disabilities Act: ASTM 117.1 • Uniform Federal Accessibility Standards
acoustics	• Airborne Sound: ASTM C423, PBS C.1 • Speech Privacy: SPP, Speech Privacy Potential • Impact Sound Transmission: ASTM C 423-66, PBS C-2
egress	• NFPA 101 Fire Safety Code - (Most current year) • National Building Code, BOCA • Standard Building Code • Univorm Building Code, ICBO
falls	• ASTM D-2047 - Test for Slip Resistance of Hard Surfaces
fire, flame spread	• ASTM E-84 Steiner Tunnel Test. • BS 476, Part 7 Flammability Standard (UK and Belgium) • CAL TB-133 Flammability Test Procedure for Seating Furniture for Use in Public Occupancies • CAL TB-117 (Sections A through E) Test Procedures for Testing the Flame Retardant of Resilient Filling Materials Used in Upholstered Furniture • DIN 4102, B 1 Flammability Standard (German) • DOC FFI-70 Standard for the Surface Flammability of Carpet and Rugs Methenamine Pill Test) • NFPA-701-1/701-2 Standard Method of Fire Test for Flame Resistant Textiles and Films • NFPA-705 Field Flame Test for Textiles and Films • NFPA 80 Fire Test of Door and Windows • NFPA-220 Standard on Types of Building Construction • NFPA-253 Flooring Radiant Panel Test • NFPA.-255 Standard Method of Test of Surface Burning Characteristics of Building Materials • NFPA-258 Research Test Method for Determining Smoke Generation of Solid Materials • NFPA-259 Potential Heat of Building Materials • NFPA-260 Methods of Tests and Classification System for Cigarette Ignition Resistance of Components • NFPA-261 Method of Test for Determining Resistance of Mock-up Upholstered Furniture Material Assemblies to Ignition by Smoldering Cigarettes.

- NFPA-264 Standard Test Method for Heat Release Rates for Upholstered Furniture Components or Composites and Mattresses Using an Oxygen Consumption Calometer
- NFPA-265 Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Wall Coverings
- NFPA-267 Standard on Mattress Subjected to Open Flame Ignition Using an Oxygen Consumption Calometer
- NFPA-701 Flame Resistant Textiles and Films
- NFPA-703 Standard for Fire Retardant Impregnated Wood and Fire Retardant Coatings for building Materials
- UBC 8-2-(94) Test Method for Textile Wall Coverings.
- UL- 1056 Fire Test of Upholstered Furniture

furnishings

- ANSI/BIFMA X5.6-86 Standard for Office Furnishings

lighting

- ANSI E-97
- ASTM E-97-ES

indoor air

- ASHRAE 62-1989R Ventilation Standard for Acceptable Indoor Air Quality

FURNISHING ITEM:_____

ITEM NUMBER: _____

(Place photograph here)

FABRIC
(Fabric Name)
(Fabric Number)

(Place sample here)

FINISH
(Finish Name)
(Finish Number)

(Place sample here)

OPTIONS (if any)

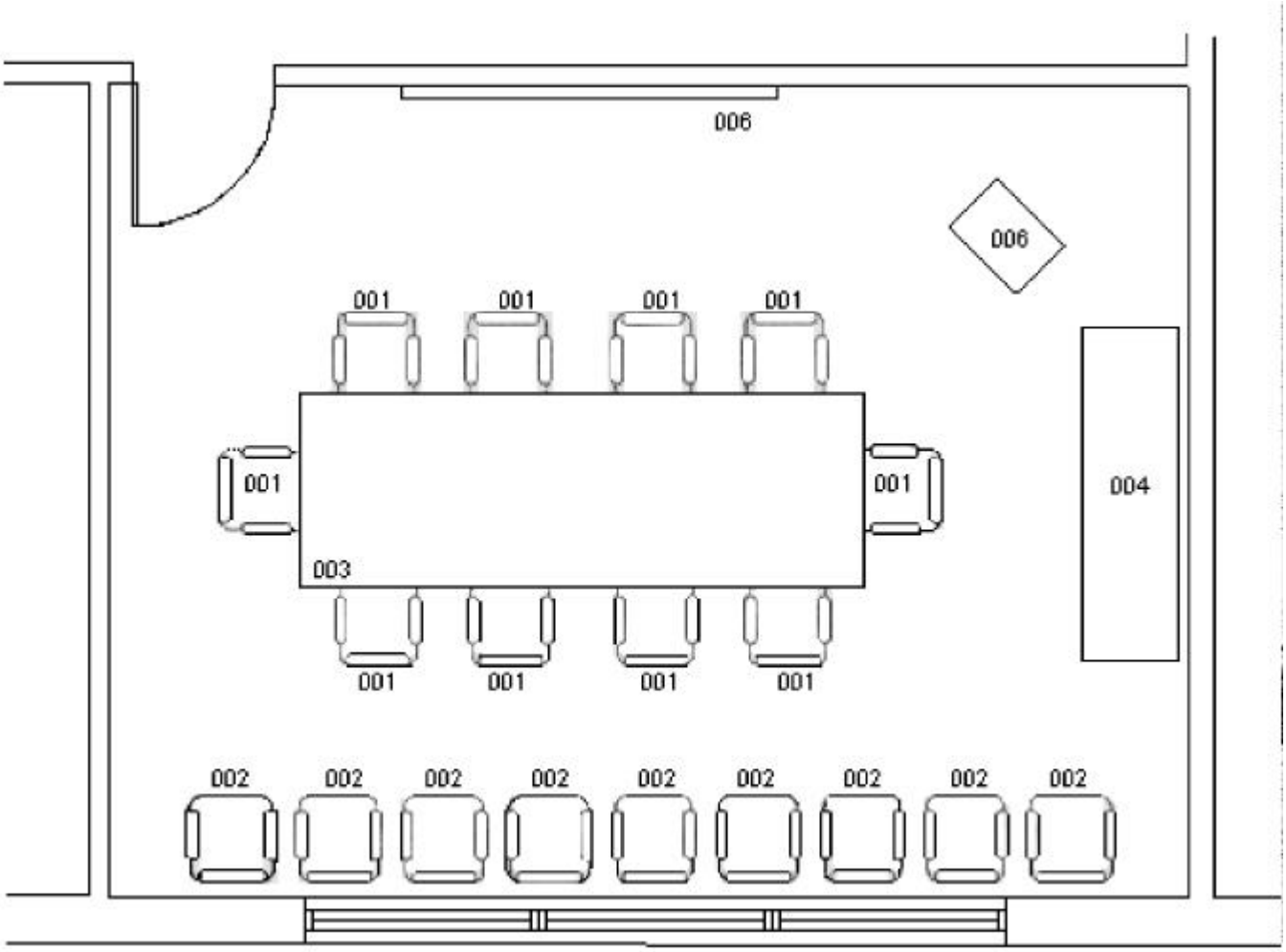
_____
_____
_____
_____
_____
_____
_____

ROOM	QUANTITY
(Enter Room number and name)	_____
(Enter Room number and name)	_____
(Enter Room number and name)	_____

Project Name	Contract No. XXXXXX-XX-XXXXX
	Firm Name
Project Location	Firm's Project No.
Date:	

Order Data Sheet

Item Number:	00X								
Item Description	(example: Mail Sorter Cabinet)								
Department:									
Manufacturer:									
Source:	(include ordering address, phone number, & fax number)								
GSA Conract #					Expiration Date:				
FSC Group:				SIN#					
FSC Part, Sect				MOL Amount					
Component:		Number:		Price:		Qty.		Total	
Component:		Number:		Price:		Qty.		Total	
Component:		Number:		Price:		Qty.		Total	
Component:		Number:		Price:		Qty.		Total	
Component:		Number:		Price:		Qty.		Total	
Component:		Number:		Price:		Qty.		Total	
Component:		Number:		Price:		Qty.		Total	
Fabric Name:		Number:		Price:		Qty.			
Finish:									
Description:									
Weight:			Dimensions:						
Department:		Room:		Quant:					
Department:		Room:		Quant:					
Department		Room:		Quant:					
Department		Room:		Quant:					
Department		Room:		Quant:					
Department		Room:		Quant:					
Department		Room:		Quant:					
Estimated or Actual Freight Charges:									
Total Quantity:				Item Price:				Total:	
Special Instructions:									
Justification:									



ROOM: (ENTER ROOM NAME & NUMBER HERE) SCALE: 1:50 (1/4" = 1'0")

ITEM NUMBER	DESCRIPTION	QUANTITY
001	CONFERENCE CHAIRS, (SUPPLY MANUFACTURER'S NAME & STYLE NO.)	10
002	GUEST CHAIRS, (SUPPLY MANUFACTURER'S NAME & STYLE NO.)	9
003	CONFERENCE TABLE, (SUPPLY MANUFACTURER'S NAME & STYLE NO.)	1
004	CREDENZA (SUPPLY MANUFACTURER'S NAME & STYLE NO.)	1
005	PODIUM, (SUPPLY MANUFACTURER'S NAME & STYLE NO.)	1
006	VISUAL BOARD, (SUPPLY MANUFACTURER'S NAME & STYLE NO.)	1

FIRM NAME
FIRM NAME
DATE

FURNITURE PLACEMENT PLAN
PHASE PERCENT

PROJECT NAME
PROJECT TITLE
PROJECT LOCATION
CONTRACT NUMBER

BASE STANDARDIZATION OF BUILDING/UTILITY ELECTRICAL DISTRIBUTION SYSTEMS

1. **General**:

1.1. All electrical work shall conform to the Latest edition of National Electrical Code, AF regulations, and Tinker AFB policies. All specifications and general notes shall have the non-applicable parts edited.

1.2. Only certified journeymen electricians or apprentices under the direct supervision of journeymen will be permitted to install, alter, or repair electrical systems.

1.3. Existing as-built drawings may be used as guidelines (if available), but "information must be verified by field investigation". The Designer shall be responsible for the verification of all dimensions, measurements, and location of existing facilities, utilities, equipment and other existing conditions that may affect the design.

1.4. Lighting Levels - General illumination levels shall not exceed the intensities shown for Military Handbook 1190 Dated I September 87.

1.5. The electrical contractor is responsible for the repair of existing structures (to match existing) after installation or removal of electrical equipment shown on drawings. This repair shall be done in neat and workmanlike manner acceptable to the Contracting Of ficer at no additional cost to the Government.

1.6. All conductors shall be color-coded; colored tape may be used on conductors #6 and larger at all manholes, handholes, terminations and junction boxes. A green equipment grounding conductor shall be installed in each receptacle circuit and where noted. All circuit conductors shall be factory color coded as follows:

A. 120 Volt, 2-wire circuit: Grounded Neutral, White: Ungrounded Leg, Black.

B. 240/120 Volt, Single Phase, 3 wire circuit: Grounded Neutral, White; One hot Leg, Black; One Hot leg; Red.

C. 208Y/120 Volt, Three Phase, 4-wire circuit: Grounded Neutral, White; Phase A, Black; Phase B, Red; Phase C, Blue

D. 240 Volt, 3 Phase, 3 wire circuit; Phase A, Black; Phase B, Red; Phase c, Blue.

E. 240/120 Volt, 3 Phase, 4 wire, High-Leg Delta Circuit; Grounded Neutral, White; High Leg (208 Volt to Neutral), Orange; Phase A, Black; Phase C, Red.

F. 480/277 Volt, 3 Phase, 4-wire circuit: Grounded Neutral, Gray; Phase A, Brown; Phase B, Orange; Phase C, Yellow.

G. 480 Volt, 3 Phase, 3 wire circuit; Phase A, Brown; Phase B, Orange; Phase C, Yellow.

1.7. Major items of electrical equipment shall be permanently marked with an identification name to identify the equipment by type or function and specific unit number as indicated. Unless otherwise specified, all identification nameplates shall be made of laminated plastic with black outer layers and a white core. Edges shall be chamfered. Plates shall be fastened with black-finished round-head drive screws or approved non-adhesive metal fasteners. The following equipment, as a minimum, shall be provided with identification nameplates: Panelboards, safety switches, transformers, switchgears, major electrical equipment and control devices. Letters shall be a minimum of 1/4" in height.

1.8. Material and equipment shall be a standard product of a manufacturer regularly engaged in the manufacture of the product and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. All materials in the same category shall be by a single manufacturer.

1.9. No registered professional engineer (fire, corrosion or lighting protection) services shall be required in electrical specifications for construction contracts.

1.10. Emergency Lighting - Emergency lighting must be provided IAW NFPA 101 and ETL 94-5. Normally, emergency lighting is required only for designated stairs, aisles, corridors, ramps, escalator, and passageways leading to an exit. Interior rooms and windowless rooms do not require emergency lighting unless they meet the definition of a "Windowless Structure" in NFPA 101, Chapter 30, Section 30-1.3.5. Mechanical rooms, telephone equipment rooms, and similar utility spaces do not require emergency lighting. Unit equipment must be circuited to comply with NEC 700-12 (F).

1.11. Each new facility shall be provided with KW/KWH/PF/Amp meters. Metering systems for 480-volt services shall incorporate 480-120 volt PTs. Any new Busbars from the service entrance switchgear shall have individual Amp meters.

1.12. All new building wiring systems shall consider using 277/480 volts unless uneconomical to accomplish. A-E shall make recommendation at the design analysis phase of each project.

1. 13. **Warning Tape** - A 5-mil brightly colored plastic tape not less than 3 inches in width and suitably inscribed at not more than 10 feet on centers with a continuous metallic backing and a corrosion resistant l-mil metallic foil core to permit easy location of duct line, shall be placed approximately 12 inches below finished grade levels of conduit runs.

2. **Exterior Electrical**:

2.1. **Primary Loop Feeder** - Medium voltage cables shall be copper, 15 KV, XLPE or EPR 133% insulation, concentric neutral with PVC jacket (500 Kcmil, and a # 4/0 AWG, 600 V grounded conductor). Conductors shall be protected by a 5 inch diameter concrete encased type "EB" PVC conduit.

2.2. **Primary Radial Feeder** - Medium voltage cables shall be copper, 15 KV, XLPE or EPR 133% insulation, concentric neutral with PVC jacket (#2 (minimum size) AWG, and a #2 AWG or larger, 600 V grounded conductor). Conductors shall be protected by a minimum diameter type "EB" PVC concrete encased conduit. Encased conduits shall have at least 3 inches of concrete protecting them on every side. Where two or more conduits share the same encasement, there shall be at least 1.5 inches of concrete between adjacent conduits at all points. The top of the encasement concrete shall be at least 30" below final grade level at all points.

2.3. **Medium Voltage Cable Termination's and Splices** - Shall be of the preformed type only, tape type are not acceptable.

2.4. **Secondary Extension**:

2.5. Cables - Conductors in cables shall be of annealed copper only with thermoplastic insulation (600V) for wet locations. All conductors shall be install in Schedule 40 PVC conduit a minimum of 30" below grade.

2.6. Transformers - New building service transformer shall be pad mounted served from an existing main primary feeder in an underground concrete encased duct bank. Transformer fusing shall be ELSP under oil partial range current limiting fuses combined with load sensing Bay-O-Net fuses. All transformers shall be dead front type, loop feed, with 10 KV dead front lightning arresters, and taps 2 1/2% and 5% above and below the nominal voltage. Color shall match existing architectural color scheme for the surrounding area. No field testing, pre-energization, or manufacturer's field service shall be required unless specifically stated in project definition. If primary load-break switching is used, fuses shall not be interlocked with switches.

2.7. All utility road and driveway crossings shall be bored and sleeved with single schedule 80 PVC or 1/4" wall steel sleeve. Roads and driveways shall not be crossed by open cut unless approved. Wherever boring is impractical, street crossings shall be limited to three (3) days maximum for any utility crossing roadway (including trenching, compaction, and replacement of existing pavements). Contractor shall provide steel matting sufficient to carry traffic loading over excavated area.

2.8. Manholes/handholes - All electrical concrete manholes, handholes and pull boxes shall be of the precast type.

2.9. All excavations, trenches, open manholes, etc., will be properly shored, braced, barricaded or guarded. Warning lights or other illumination maintained from sunset to sunup will be placed at all excavations that are adjacent to pedestrian or vehicle thoroughfares.

2.10. Lighting Poles - Shall be 30' aluminum with 5' davit arm for all roadway lights. Sidewalk lighting shall be accomplished using wall mounted HPS or MH luminaries not to exceed 70 watts. Parking lot lighting (where required) shall be accomplished using wall mounted HPS or MH luminaries on 25' anchor base poles. High mast lighting shall be considered for large square parking lots. Evaluate the need to light the entire parking lot if vehicles are not left in the lot over night. All exterior lighting shall be controlled by photocells.

2.11. Provide quick disconnect or three way switches on outside of facility for portable generator connection when authorize by AFR 91 -4.

2.12. No exposed conduit or piping shall be permitted on exterior of building surface. Exterior disconnect switches shall be a maximum of 18" above grade.

2.13. Communications wiring: Contractor will provide dedicated two 4 inch conduits, installed with pull wires in them for all communication runs defined in the project design.

2.14. Provide suitable shelter for new fixed emergency generator installations. Color shall match existing architectural theme in surrounding area.

2.15. New high voltage air or vacuum type switches are required in lieu of oil insulated.

2.16. Electric design shall include load verification to base entry transformers and to the building service transformer.

2.17. All power and light poles, steel support structures and their foundations, will be rated for a 100 MPH wind load.

2.18. Contractor personnel will not enter manholes, tunnels, tanks, or confined spaces until such entry complies with the requirements of OSHA 1926.21 (6)(1). Government personnel will not enter manholes, tunnels, tanks, or confined spaces until a confined space entry permit has been obtained from a government representative, i.e. OC-AALC Safety Of fice, BioEnvironmental Engineers, or the Base Fire Department.

2.19. Disconnects for mechanical and other equipment on the outside of buildings shall be mounted 18" above grade with the exception that the top shall not be higher than the top of the equipment. Disconnects shall be served from the rear or bottom with liquidtight flexible metal conduit extended to equipment unless noted otherwise. Disconnects shall be positioned as to allow flex conduit to be routed with mechanical lines.

3. Interior Electrical:

3.1. All new wiring (Including, but not limited to, power, fire alarm, telephone, intercom, communications, control, etc.) shall be in metal conduit, and all conduit shall be concealed above ceiling, under floory or in walls, except where noted otherwise. No metal-clad cable, (Type MC), shall be permitted. All new electrical devices shall be flush mounted except where noted otherwise and in mechanical rooms. **No exposed conduit or piping shall be permitted on exterior building surfaces**. Flexible metal conduit shall only be used for equipment connections (appliances, and motors only) and to fish into existing walls (in lengths not exceeding 12 feet) and shall not be used for general wiring applications. Lay-in Light fixtures shall be individually served from an individual junction box directly over light fixture with 3/8" flexible metal conduit at least 4 feet but not exceeding 6 feet in length. Schedule 40 PVC conduit may be used under slabs. All wire shall be copper #12 THHN unless otherwise noted. All other conductors shall be copper THWN/THHN. Wire shall be solid for #10 and smaller and stranded for #8 and larger (except stranded shall be used for luminaire connections). No. 14, 12, and 10 AWG conductors shall be twisted together before installing twist-on pressure connectors (wirenuts). Support conduits within 2 feet of each end of each bend, or each termination, and at intervals along the run that will maintain true raceway alignment without sag or deformation (minimum ten feet on center). On exposed raceways, provide supports at a minimum of six feet on centers and on each side of each bend. Two hole straps shall be used on flat surface for conduit 1" and larger. Conduit

shall not be supported by suspended ceiling or suspended ceiling support wires except where allowed by N.E.C. 300-l l(A). Conduit to roof mounted equipment shall be routed beneath the roof structure to a penetration immediately adjacent to the equipment.

3.2. Exposed raceways (where shown to be allowed) shall be installed parallel or perpendicular to walls, structural members, or intersections of vertical planes and ceilings. Wiring above lay-in ceilings is considered exposed (as applied to wiring methods). Exposed raceway shall only be run vertical below 9 feet unless noted otherwise or approved by Contracting Of ficer.

3.3. Electrical system layouts are generally diagrammatic. The location of outlets and equipment are approximate. The exact location of outlets, lighting fixtures, equipment and wiring shall be governed by structural conditions and obstructions, and shall be repositioned as required at no additional cost to the Government. Coordinate all work so that interference's between piping, architectural, and structural work shall be avoided. Drawings generally indicate the routes of all branch circuits. All homeruns are indicated as starting from nearest outlet and pointing in direction of panel as though their routes where shown in their entirety. The electrical contractor shall coordinate with ceiling contractor to insure sufficient clearance for lighting fixtures before ceiling grid is installed. Existing electrical/communications equipment and wiring (conductors and conduit) shall be rearranged or rerouted if required for the installation of any new mechanical ductwork or equipment at no additional cost to the Government, even if not indicated on drawings. Lay-In fluorescent light fixtures shall be securely fastened to ceiling framing members by mechanical means (4 clips per fixture). All recessed light fixtures or other electrical devices shall be supported independently of lay-in ceiling tile by means of bar hangers or other structural means. Surface mounted fixtures shall be securely fastened to ceiling supporting structure (no toggle bolts in gypsumboard or plaster shall be permitted).

3.4. All electrical equipment shown to be removed by contractor shall include all fasteners, supports, straps, clamps, and associated hardware. The electrical contractor shall be responsible for all cutting and patching required for the performance of his work. No structural members shall be cut without the approval of the contracting of ficer. The electrical contractor is responsible for the repair of existing structure to match existing required for installation or removal of electrical equipment shown on drawings. This repair shall be done in neat and workmanlike manner acceptable to the Contracting Of ficer at no additional cost to the Government.

3.5. An unswitched lighting circuit phase conductor shall be provided and installed to serve self-contained emergency battery packs in new fluorescent fixtures installed or where these units are shown to be installed in existing fluorescent fixtures. This unswitched phase conductor shall be on the same lighting branch circuit serving fixtures (with battery pack) switched lamps, and installed in existing lighting branch circuit conduit system.

3.6. Electrical circuits disturbed during demolition shall be restored serving existing items to remain even if not indicated on drawing at no additional cost to the Government.

3.7. Excess electrical equipment generated as a result of demolition work shall become the property of the electrical contractor and shall be removed from Tinker Air Force Base.

3.8. All new cover plates for receptacles and switches shall be nylon ivory unless noted otherwise.

3.9. All conduit and boxes shall be securely fastened in place by means of clamps, clips, hangers, etc. designed for that purpose; No "Tie-wire" shall be permitted. Conduit and boxes shall be installed in a neat and workmanlike manner acceptable to the Contracting Of ficer.

3.10. All branch circuit home run conduits shall be run continuous to the branch circuit panel. In a three-phase system no more than three branch circuit phase conductors shall be contained in any branch circuit conduit and shall be of opposite phases. In a single-phase system no more than two branch circuit phase conductors shall be contained in any branch circuit conduit and shall be of opposite phases. A common neutral and equipment ground may be used in branch circuit home runs to a single panel (in a three phase system a maximum of three opposite phase conductors shall share a common neutral or equipment ground, in a single phase system a maximum of two opposite phase conductors shall share a common neutral or equipment ground) except for computer circuits where neutral conductor shall not be shared.

3.11. Two spare 3/4" conduits shall be stubbed from each new branch circuit panel to above ceiling and below accessible floor, at no additional cost to the government.

3.12. Panelboard directories shall be typewritten, to indicate loads served by each circuit and be mounted in a holder behind a clear protective covering when a new panelboard is installed or an existing panelboard is altered.

3. 13. Equipment interrupting capacities specified in the contract documents are based upon equipment characteristics and impedance shown on the drawings. If actual installed equipment deviates from these characteristics or has lower impedance, the contractor shall increase the interrupting capacities of all items on the load side of the deviant equipment in direct proportion to the changed characteristics at no additional cost to the Government. Interrupting capacities shall not be reduced to values less than those required by the contract documents.

3. 14. Fire stops shall be provided at all locations where electrical equipment or systems penetrate fire rated walls.

3.15. Riser and one-line diagrams are meant to show only vertical and electrical relationships and therefore may not include all required equipment, devices, and accessories. Partial riser diagrams shall be required on all projects replacing any electrical panel or electrical service greater than 100 amps.

3. 16. Provide phase reversal and phase loss relay for each motor greater than 3 HP in size. Relay shall be integral part of starter, which does not require a separate enclosure.

3.17. A 4" thick concrete housekeeping pad shall be provided and installed for all new floor mounted electrical equipment unless noted otherwise. The concrete housekeeping pad shall have chamfered edges and extend 4" from face and sides of electrical equipment

3. 18. Exit Lights - All EXIT Lights shall be of the diffused L.E.D. type with Red Lettering.

3.19. Fluorescent Fixtures - Lighting for general office areas, classrooms, corridors, conference rooms, and lobbies shall be provided by 2' x 4' recessed fluorescent fixtures. No 2' X 2' fluorescent fixtures shall be permitted. New fluorescent fixtures shall incorporate electronic ballasts. For energy efficient interior lighting schemes, lighting systems should be designed to allow reduction of lighting levels by appropriately banking lighting circuits or providing separate switching of inner and outer lamps in 3 or 4 tube fluorescent fixtures. Consideration will be given to the use of energy efficient lighting systems, including ballasts, lamps, and fixtures. Consideration should also be given for any task lighting that might be provided by systems furniture, and overhead lighting should be reduced accordingly. Fluorescent fixtures shall use T-8 lamps, electronic ballast with high power factor (greater than .9) and low harmonic distortion (less than 10). Parabolic fixtures shall be used to the maximum extent possible.

3.20. Acrylic lens (if used) shall be a minimum .156 inches thick.

3.21. An electrical outlet shall be provided adjacent to each pay phone outlet (exterior or interior).

3.22. A grounding bus, separate from the neutral bus, shall be provided in all new panel boards. . All panelboards shall have copper buses.

3.23. If a lead-acid battery is required, specify the lead-calcium type, rather that lead-antimony, to provide increased service life, decreased hydrogen gas production (venting may not be required), and decreased routine maintenance (water make up).

3.24. Building should be pre-wired with category 5 (4 pair) wire in EMT conduit to each outlet. Wire shall be independently supported (Do no lay on suspended ceiling).

3.25. A telephone backboard (4' x 8') shall be install two feet off the ground above the service entrance conduits. The backboard shall be mounted horizontally (8' side parallel to the ground).

4. **Fire Protections Considerations**:

4.1. Fire protection systems will be designed and installed in accordance with Military Handbook 1608, and National Fire Protection Association standards.

4.2. The system will have tamper switches on all valves that would disable the sprinkler system, and will transmit all trouble, tamper, and flow alarms to the Base Fire Department

4.3. Manual pull stations for evacuation of personnel and transmission of fire alarms to the Base Fire Department will be located at each exit and spaced to meet NFPA requirements. Manual pull stations, heat detectors, smoke detectors, audible/visual units shall comply with NFPA requirements.

4.4. The fire alarm panel, transmitter or transceiver, associated antenna, lightning arrestor, and cable will be located in equipment rooms and easily accessible by the Base Fire Department.

4.5. Alarms will be transmitted by a Monaco Radio Fire Alarm System "D500 Plus," currently in use at Tinker AFB.

4.6. All fire alarm control panels shall be class "A" supervised fire alarm circuit that provides a trouble signal and continue to operate as an alarm circuit after one fault has occurred in the wiring. All zones shall be able to transmit to the fire department independent of any other zones. Multiple zones shall be able to transmit an alarm directly to the fire department and will not "lock-out" other zones.

4.7. The control panel shall have a dry set of contacts for each zone plus trouble dry contacts and fire alarm dry contacts for the control panel and shall be compatible with the Monaco system.

4.8. Provide and install a Monaco BT-2-3 Zone transceiver P/N 225-500-42 set to frequency 142.850 MHZ and all equipment necessary to transmit fire alarms to the Base Fire Department, including cable, brackets, antennas, etc.

4.9. Install all combination fixed temperature/rate of rise heat detectors a minimum of 10 feet away (if possible) from existing or new air diffusers. If this involves changing a detector's position from what is shown on the drawings the contractor shall move the location of the detector at no additional cost to the Government. Contractor shall perform a fire alarm system acceptance test, in the presence of the Base Fire Department, to demonstrate operation of all newly installed or relocated fire alarm devices.

4.10. Fire alarm panels and devices shall be specified as "Fire Control Instruments (FCI)" or equal on all projects. The preferred fire alarm panel is the FCI-72.

(SAMPLE ONLY)
COLOR GUIDE SPECIFICATIONS

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 designations only.

Federal Standards (Fed-Std)
Fed-Std 595 (Rev B) Color Used in Government Procurement

1.2 GENERAL

This section covers only the color of the exterior and interior materials and products that are exposed to view in the finished construction. The word “color” as used herein includes surface color and pattern. Requirements for quality and method of installation are covered in other appropriate sections of the specifications. Specific locations where the various materials are required are shown in the drawings. Items not designated for color in this section may be specified in other sections. When color is not designated for items, the Contractor shall propose a color for approval.

1.3 SUBMITTALS

Government approvals 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 01300 - SUBMITTAL DESCRIPTIONS:

SD 14 Samples
Color Board - GA

Four (4) sets of color boards, 120 days after the Contractor is given Notice to Proceed, complying with the following requirements:

1.3.1 Color board shall reflect all actual finish textures, patterns, and colors required for this contract.

1.3.2 Materials shall be labeled with the finish type, manufacturer’s name, the pattern and the color reference.

1.3.3 Samples shall be on size A4 or 215mm (8 1/2") boards with a maximum spread of size A1 or 640 mm x 825 mm (25½” x 33") for fold outs. Color boards are to be

organized and formatted in accordance with the SID and CID. Submittal Matrices in Chapters 3 and 4.

1.3.4 Samples for this color board are required in addition to samples requested in other specification sections.

1.3.5 Color boards shall be submitted to the following addresses: (Design Agents, BCE, MAJCOM, Construction Manager, etc.).

PART 2 - PRODUCTS

2.1 COLOR REFERENCE

FED-STD 595 number are specified for color reference only. Where a product is specified to be a factory finished item, the color shall match the FED-STD 595 color. Federal standard colors are designated by 5 digit numbers, the first of which specifies luster. Since the luster is specified in Seciton 09900 - PAINTING, GENERAL, luster is not referenced within this specification. The first digit of the designation is therefore replaced with an “X” when referenced.

2.2 REFERENCE TO MANUFACTURER’S COLOR

Where color is shown as being specific to one manufacturer, an equivalent color by another manufacturer may be submitted for approval. Manufacturers and materials specified are not intended to limit the selection of equal colors from other manufacturers.

2.3 FINISH SCHEDULE

The finish schedule lists the colors, patterns, and textures required for exterior and interior finishes, including both factory applied and field applied colors.

2.4 EXTERIOR FINISHES

Exterior wall colors shall apply to exterior wall surfaces including recesses at entrances and projecting vestibules. Conduit shall be painted to closely match the adjacent surface color. Colors shall be provided to match the colors listed below.

2.4.1 ALUM - Aluminum

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
Alum - 1	Kawneer	Pemianodic No. 29 (Black)
Alum - 2	PPG	Duranar Coatings UC43347 - Statuary Bronze

2.4.2 COMPOSITE ALUMINUM PANELS - (Resin Core)

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
CAP- 1	Alpocic	M9177 - Champagne Metallic

2.4.3 BLINDS, INTEGRATED IN WINDOWS

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
		Match color to Alum - 1

2.4.4 BRICK

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
BR-K-1	Chattahoochee Brick	Cambridge, Modular Size Red Brick, Roll Back Finish with a Flash Range 15% to 20% Black, with mortar US Cement 48-B, Crimson Red
BRK-2	Grasseill Brick	“Macy’s” #7 Split Face Block (Off white color) with mortar US Cement 12-B, Ivory Buff. 200 mm x 400 mm x 100 mm (8"h x 16"l x 4"d).
BRK-3	King’s Mountain Brick	Light Gray Standard Torn Face Special shapes, See
elevations		(Matches color of BRK-2) with mortar US Cement 12-B Ivory Buff

2.4.5 CER STEEL - Ceramic Steel

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
CER STL - 1	Alliance	“Granite”

2.4.6 CONC PV - Concrete Pavers with Natural Color Mortar

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
CONC PV-1	Stonescape Architectural	Pemianodic No. 29 (Black)
CONC PV-2	PPG	Duranar Coatings UC43347 - Statuary Bronze

2.4.7 P - Paint

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
P-1	Benjamin Moore	Ironclad Retardo Deep Bronze 16362

2.5 INTERIOR FINISHES

Interior materials shall be provided to match the colors listed below.

2.5.1 FLOORING

2.5.1.1 CPT - Carpet (Broadloom) and Carpet Tile

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
CPT - 1	Harbinger	Adirondack Color 708, Potash Mountain
CPT - 2	Harbinger	Champlain Color CHM 708, Old Forge
CPT - 3	Harbinger	Colourado 38 Color 17314

CPT - 4	Harbinger	Estuary Color 3130, Thames
CPT - 5	Harbinger	Dividend Color 21737, Revenue
CPT - 6	Harbinger	Exchange Color 20537, Takeover

2.5.1.2 CTF - Ceramic Tile

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
CTF - I	American Olean	50 mm x 50 mm (2"x2") Unglazed Porcelain Ceramic Mosiac, A-34, Raven
CTF - 2	American Olean	50 mm x 50 mm (2"x2") Unglazed Porcelain Ceramic Mosiac, A-12, Pepper White

2.5.1.3 VCT - Vinyl Composition Tile

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
VCT - 1	Armstrong	Standard Excelon, #51941, Polar White

2.5.2 BASE

2.5.2.1 RB - Rubber

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
VB-1	Roppe	Color 00, Black
VB-2	Roppe	Color 85, Burgundy
VB-3	Roppe	Color 92, Teal
VB-4	Roppe	Color 87, Blue

2.5.2.1 WB - Wood Base

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
WB- 1		Match Mahogany Stain on NOVA Office Furniture

2.5.3 PAINT

2.5.3.1 PT - Paint

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
PT - 1	Sherwin Williams	SW 1921, Rose Attar
PT - 2	Sherwin Williams	SW 1490, Dynasty Blue
PT - 3	Sherwin Williams	SW 1497, Mood Indigo
PT - 4	Sherwin Williams	SW 1287, Deep Maroon
PT - 5	Sherwin Williams	SW 1280, Victoria Garnet
PT - 6	Sherwin Williams	SW 1488, Bluefish
PT - 7	Sherwin Williams	SW 1495, Veronica Blue
PT - 8	Sherwin Williams	SW 1285, Mauvelous
PT - 9	Sherwin Williams	SW 1907, Collector’s White

2.5.4 WALL COVERINGS

2.5.3.1 VWC - Vinyl Wall Covering

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
VWC - 1	Vin L Fab	Toulisse, #28-060, Angelica
VWC - 2	Vin L Fab	Toulisse, #28-412, Sorrel
VWC - 3	Boltawall	Jennings, #BA-JN-10, Cool Shadow

2.5.3.2 WF - Wall Fabric

FINISH CODE ON DRAWINGS	EXAMPLE MANUFACTURER	EXAMPLE COLOR
WF - 1	Gilford, Inc.	Pattern #CAPM 4300, Thing of Naught, Phantom
WF - 2	Gilford, Inc.	Pattern #CAQC 4709, Pleasure Dome, Quixotic

APPENDIX D

EXCERPTS FROM TINKER AFB BASE COMPREHENSIVE PLAN

TINKER
Air Force Base

* * * * * * * * * *

Base Comprehensive Plan

September 1992

Prepared for
654th Civil Engineering Squadron
Tinker Air Force Base, Oklahoma

Prepared by
Woolpert
Dayton, Ohio

WOOLPERT

SYNOPSIS OF THE PLAN

Composite Constraints

Composite constraints to future development at Tinker AFB include both built and environmental features. Built constraints that affect future land use include airfield height and distance regulations, Air Installation Compatible Use Zone (AICUZ) noise regulations, quantity/distance (Q/D) explosive safety zones, and potential historic sites. Environmental constraints that may affect future land use on base include Installation Restoration Program (IRP) sites, landfills, the 100-year floodplain, potential wetlands, threatened and endangered species habitat, and unique major tree or grassland areas. Figure 1-2 shows the composite constraints at Tinker AFB.

Built Constraints

Airfield Constraints

Constraints related to airfield operations include clear zones, APZs, primary surface areas, transitional surface areas, approach surfaces, and aircraft noise patterns. These airfield constraints are designed to improve the safety of aircraft and airfield operations.

- Because of the high risk of aircraft accidents, uses located in clear zones should be limited to open space. A number of existing uses currently violate the clear zone boundaries.

- Uses located in the APZs should be limited to decrease the likelihood of the loss of lives and property in the event of an accident. Uses in agriculture, forestry, outdoor recreation, livestock.

- Aircraft noise levels have affected Air Force recommended land uses. Both existing and future land uses on base are to comply with the AICUZ program guidelines. The AICUZ program delineates various noise level countours (65 to 85 average day-night sound levels, or Ldn) that impact future facility sitings; the program also indicates permitted and prohbited activities within each noise zone.

Q/D Explosive Safety Zones

Q/D zones are established to ensure that a minimum safe distance is present within general areas where explosions may occur. To minimize the potential for the loss of human life and property damage in the event of an explosion, no nonmunitions-related development of any kind should occur within thos Q/D zones. Sever Q/D zones currently located in the central and southeastern portions of the base include the following:

- The skeet range located in Planning District V has a 900-foot Q/D in a semi-circle to the north.

- The southeastern portions of the base contain a number of overlapping Q/D zones related to the hot cargo handling pad and munitions storage and handling facilities. The Q/D zones for the various facilites in this area range from 500 to 1,800 feet.

- The 1,250-foot Q/D zone located in the central portion of the airfield is related to a hot cargo handling area nad aircraft power check pads.

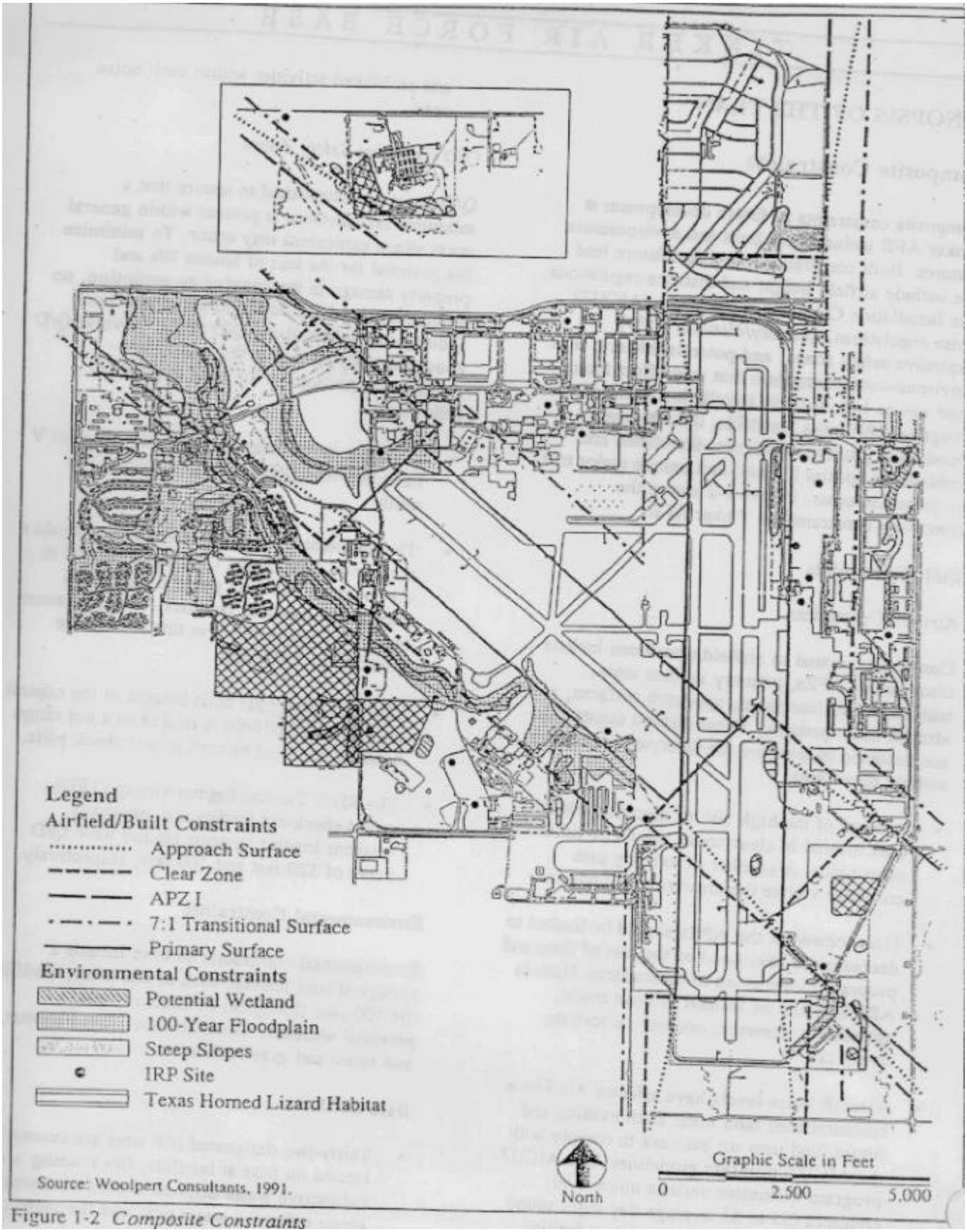
- The 507th Tactical Fighter Group (TFG) rocket check-out facility and automatic weapons loading systems facility have Q/D zones of 320 feet and 100 feet, respectively.

Environmental Constraints

Environmental constraints on base include a variety of land features such as IRP sites, landfills, the 100-year floodplain of Crutcho Creek, potential wetlands, Texas Horned Lizard habitat, and forest and grassland areas.

Base IRP Sites

- Thirty-two designated IRP sites are currently located on base at landfills, fire training areas, radioactive waste disposal sites, fuel storage areas, industrial waste pits, and the industrial waste treatment plant.



Source: Woolpert Consultants, 1991.

Figure 1-2 *Composite Constraints*

Landfills

- Sanitary landfills on base are primarily located within Planning District V--the "South Forty" Area--and Planning District III, the Communications Systems Command (CSC) Area. The presence of a landfill in a particular location will require that additional safety and ground stability considerations be taken into account before future development can be allowed to occur there.

100-year Floodplain

- The 100-year floodplain borders the Crutcho Creek stream network, which traverses the central and northwest portions of the base. Currently, there are significant numbers of military family housing units, visiting officers' quarters (VOQ), and MWR uses in Planning District VI located within the 100-year floodplain.

Potential Wetlands

- Several areas of potential wetlands have been identified on base, largely located in areas within the floodplain in Planning Districts V and VI. Additional potential wetlands have been identified adjacent to the northern end of the main runway and south of the wastewater and industrial treatment plants in Planning District II. Filling wetlands should be discouraged whenever possible. When filling is necessary, federal regulations require that the mitigation efforts be conducted for any wetland more than 1 acre in size in a headwater region.

- The wetlands located adjacent to the northern end of the main runway are attracting a growing flock of roosting birds that may be creating a bird-aircraft strike hazard (BASH). As a result, this wetland will likely be planned for filling. The mitigation required as a result of this filling will likely take place on base.

Rare Animal Habitat

- Land areas in the western portions of Planning District V--the "South Forty" Area--and adjacent to the southern end of the main runway in the airfield have been identified as habitat for the Texas Horned Lizard. This animal is being considered for listing as a threatened or endangered species. AFR 126-1 states that species having such a status should be considered in future planning and facility siting and provided protection wherever possible. If the Texas Horned Lizard is eventually given federal listing status, any base action that may affect the animal or its critical wildlife habitat would require consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act.

Grassland/Forested Areas

- A land parcel located in the western portion of Planning District V contains species of prairie-indicator plants. This prairie may have ecological, recreational, and educational values to the base and should be retained if possible.

- The Glenwood area north of the main runway contains the only significant forested area on base. This area may also have ecological, recreational, and educational value to the base and should also be retained if possible.

Interaction of Component Plans

Each plan developed for the base is a component of the BCP and focuses on a specific element of the base's environment. In fact, all the component plans are interrelated--the recommendations in each component culminate in the framework for the Five-Year CIP and the Long-Range Facilties Development Plan for the base.

The Land Use Plan defines the parameters for base development; it determines the land use patterns for future growth. The Transportation Plan provides infrastructure support to meet current deficiencies and future facility requirements.

The Airfield and Air Operations, Natural and Cultural Resources, Environmental Quality Protection, and AICUZ plans assess airfield, environmental, and safety constraints to future

base development; they set further parameters for land use planning.

The Disaster Preparedness Plan establishes policies that ensure the base will be able to complete its mission regardless of the contingency.

Implementation of the BCP

Implementation of the BCP can be accomplished in three stages: initial scoping and siting of facilities, development of a detailed project scope and requirements, and preparation of the project site.

The Land Use Plan and the Long-Range Facilities Development Plan, which sites are required facilities with respect to the Land Use Plan, are the basic tools used to ensure that the first stage--siting and developmepnt of future facilities--is carried out in accordance with the BCP. However, in future years, resiting some of these facilities, or adding new facilities, may be necessary. Siting, as approved by the Installation Facilities Board, should always be consistent with the Land Use Plan. The approval of sitings should be based on their consistency with other approved facilities in the vicinity and with building constraints for the proposed site.

The second stage of implementation, developing the project's scope and requirements, is a more detailed consideration of site characteristics. Availability of adequate utilities and roadway improvements must be reviewed. The scope of improvements required to support a project, whether programmed separately or as part of the project, should be reviewed for consistency with the recommendations of the BCP.

The third stage of implementation, preparing the project site (including project plans, architectural treatment, and landscape design), should be carried out according to the recommendations in the Architectural Compatibility Plan. All reviews of project plans at each stage of approval should include a check for compliance with sitte and landscape recommendations in the BCP.

Accomplishment of the projects in the Five-Year CIP is the first major step in implementing the BCP for Tinker Air Force Base. The Five-Year CIP is derived from the Long-Range Facilities Development Plan. The CIP establishes priorities for base projects to be implemented according to the recommendations in the BCP.

SUMMARY OF COMPONENT PLANS

The Base Comprehensive Plan addresses a broad spectrum of issues that will affect the development of Tinker AFB over the next 20 years. The intent of the BCP is to be a flexible, dynamic document that can be periodically updated to reflect changing base priorities and new mission requirements. To facilitate this, the BCP process includes provisions for reviewing the document every five years.

The BCP comprises 15 component plans, or chapters, and the Facility Use Survey (FUS), which is bound as a separate document:

- Natural and Cultural Resources (Chapter 2)
- Environmental Quality Review (Chapter 3)
- Base Layout and Vicinity (Chapter 4)
- Land Use and Community Center Plans (Chapter 5)
- Airfield and Air Operations Plan (Chapter 6)
- AICUZ Plan (Chapter 7)
- Utilities Plan, Communications Plan, and Energy Plan (Chapter 8--to be prepared under a spearate contract at a later date)
- Transportation Plan (Chapter 9--bound as a separate document)
- Architectural Compatibility Plan (Chapter 10)
- Landscape Development Plan (Chapter 11)
- Facilities Development Plan (Chapter 12)
- Fire and Life Safety Plan (Chapter 13--to be prepared under a separate contract at a later date)
- Quality-of-Life Programming (Chapter 14--to be prepared under a separate contract at a later date)
- Disaster Preparedness Plan (Chapter 15)

Natural and Cultural Resources

This chapter is divided into two sections:

- Composite Natural Resources Plan
- Historic and Cultural Resources Plan

Following is a synopsis of the findings and conclusions:

- Woodlands and remnant native grasslands on base should be maintained and enhanced by future development if consistent with mission objectives. Such habitat has an aesthetic value and is unique within the surrounding urbanized area.

- Floodplains and flood-prone areas along Crutcho Creek and its tributaries constitute a major constraint to development on the west side of the base. Additionally, total watershed management is appropriate to control flooding and erosion of Crutcho Creek.

- A few small wetlands are associated with streambeds or floodplains. In this precipitation-deficit region, these wetlands/open waters provide important habitat values. These areas should be preserved, although some alteration of the wetlands in the airfield vicinity will be necessary to reduce the BASH potential there. Opportunities for mitigation of wetlands exist on base, specifically within the Crutcho Creek floodplain.

- Habitats for the Texas Horned Lizard, a species being considered for federal listing, occur on base. The main known distribution of the lizards is in the southwest part of the base, south of MFH and west of Patrol Road. This habitat should be preserved to the greatest possible extent.

- A field survey and background and literature search of 1,000 open acres were conducted to identify potentially significant cultural resources. The background and literature search resulted in the discovery of no previously recorded cultural resources within the project boundaries.

- An intensive pedestrian survey located a single historic archeological site (34Ok-146). No prehistoric archeological sites were located.

- Preliminary assessment of the 93 standing structures concluded that 25 buildings represent potentially significant structures. Buildings 1, 24, 206, 208, 209, 214, 230, 236, 238, 240, 650, 2119, 2120, 2121, 2122, 3001, 3102, 3105, 3108, 3113, 3202, 3203, 3204, 3303, and 4029 were assessed significant based on their integrity of architectural style and their contribution to the history of Tinker Air Force Base.

- Historic and archeological sites are recreational and educational resources that should be protected from future development as military mission allows. Historic buildings and sites should be adaptively reused to prolong their economic life while preserving their historic and architectural integrity.

Environmental Quality Review

This chapter is divided into the following seven sections:

- Air Emission Report
- Water Quality Protection Plan
- Land and Soils Quality Protection Plan
- Hazardous Waste Management Plan
- Solid Waste Management Plan
- Environmental Quality Protection Plan
- Oil and Hazardous Spill Prevention Plan

Following is a brief summary of some of the most significant findings, which are described in greater detail in the various component sections.

- Pre-planning will be important for the base to maintain compliance with increasingly strict clean air and clean water regulations.

- Protection of local water quality will depend primarily on current remediation of identified groundwater contamination, control of storm water quality, improvements in wastewater treatment, and ongoing protection of the Stanley Draper Lake watershed.

- Correction of erosion and flooding problems ir Crutcho Creek will likely involve comprehensive watershed sub-basin management.

- Hazardous waste management could be improved by consolidation of certain facilities and responsible organizations.

- There may be a variety of opportunities for further success in waste minimization and recycling .

- An ongoing asbestos survey will assist in renovation and demolition planning.

- Many IAP sites are already closed, while a few will be undergoing remediation for several years.

- Limited types of development such as passive or active recreation facilities could occur on some landfills when hazards from subsidence, leaching, or gas emission have been determined to be minimal.

- The aquifer could be preserved and recharged by retaining open areas on the floodplain, providing adequate vegetation across the base to slow storm water runoff, and increasing percolation by constructing retention basins over permeable deposits.

- Reduction of waste production can occur by minimizing use of materials producing hazardous wastes, recycling process water and solvents, initiating comprehensive solid waste recycling, and preventing spills.

Base Layout and Vicinity

This chapter describes the various mapping products that accompany the BCP document. Also accompanying the final BCP document is a digital graphics and alphanumeric database that can be used on an interactive basis with computer-aided design and drafting (CADD) systems.

Most of the information gathered for production of the mapping products (or Tabs) was performed using aerial photography.

The following series of Tabs (or group of maps) was completed for Tinker AFB:

- A-Tab series, Natural and Cultural Resources
- B-Tab series, Environmental Quality
- C-Tab series, Base Layout and Vicinity
- D-Tab series, Land Use and Community Center
- E-Tab series, Airfield
- G-Tab series, Utilities
- H-Tab series, Communications
- I-Tab series, Transportation
- L-Tab series, Landscape Development
- M-Tab series, Facilities Development

Land Use and Community Center Plans

Land Use Plan

The Land Use Plan establishes a framework for decision making concerning future growth and development at Tinker Air Force Base. Formulation of the Land Use Plan involves identifying base goals and objectives, documenting existing on-base and vicinity land use patterns and trends, conducting a functional relationship analysis, and identifying composite natural and built constraints. This information was used to identify key BCP issues, including both problems and opportunities, and led to the formation of land use alternatives. Alternative development scenarios were developed and evaluated in terms of the predetermined base development goals and objectives. A preferred alternative was selected and used as the basis for configuring the overall land use pattern that comprises the Land Use Plan.

Following are the major recommendations of the Land Use Plan. The Land Use Plan is shown in Figure 1-3.

- Similar land uses or uses that have strong functional relationships are to be consolidated into distinct areas. Depot warehouse functions are to be consolidated within the Northside Area and depot maintenance functions are to be consolidated within the Eastside Depot Maintenance Area.

- Incompatible uses are to be relocated to areas that better suit their use and/or mission. Administrative uses and depot maintenance uses are to be relocated out of the Northside

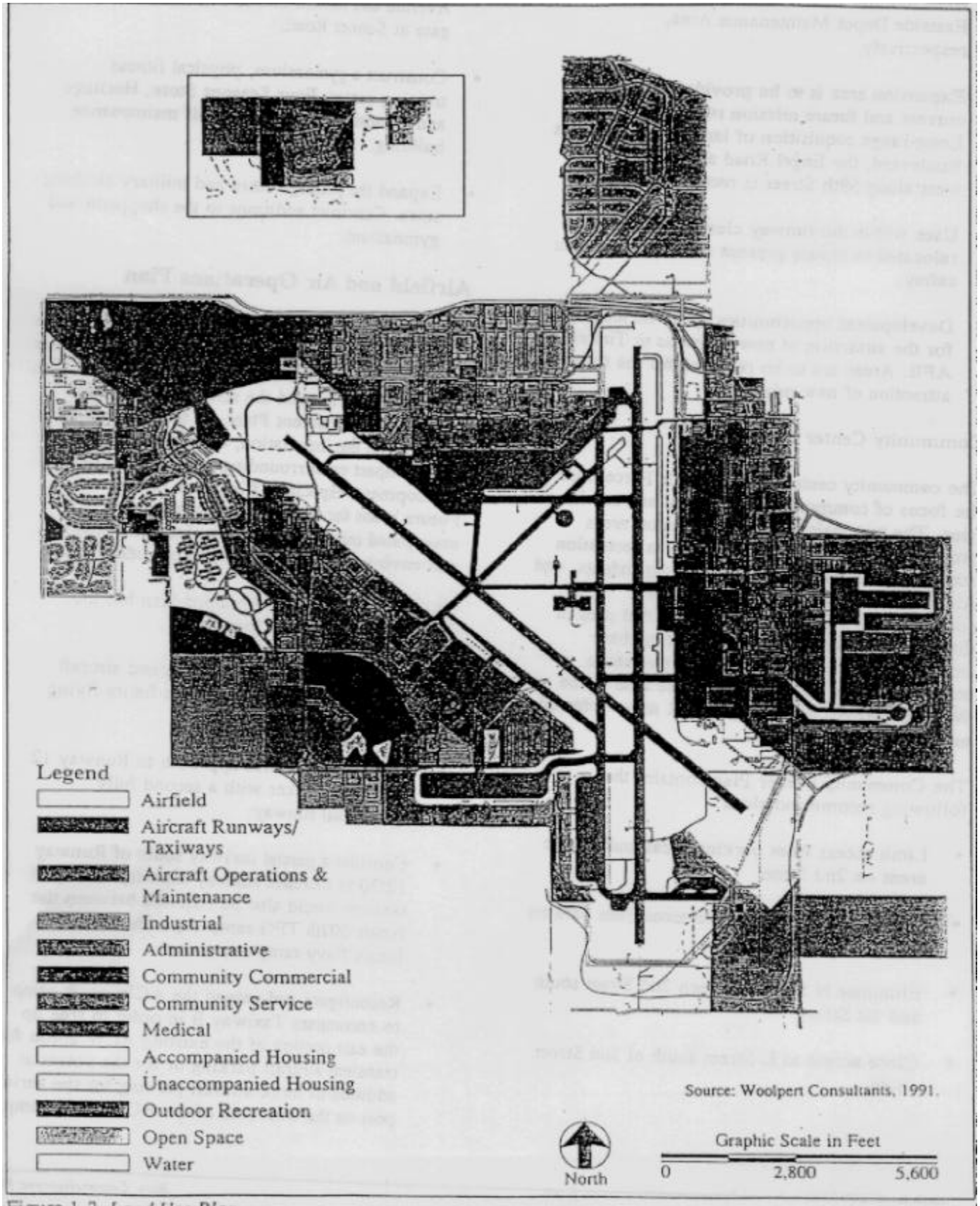


Figure 1-3 *Land Use Plan*

Area into the area around Engel Road and the Eastside depot Maintenance Area, respectively.

- Expansion area is to be provided to meet current and future mission requirements. Long-range acquisition of land east of Douglas Boulevard, the Engel Road area, and to the west along Seth Street is recommended.

- Uses within the runway clear zones are to be relocated to ensure present and future mission safety.

- Development opportunities are to be identified for the attraction of new missions to Tinker AFB. Areas are to be reserved for the future attraction of new missions.

Community Center Plan

The community center at Tinker Air Force Base is the focus of community commercial and service uses. The two major community center areas provide goods and services as well as recreation activities for base personnel, their dependents, and Air Force retirees. The two areas are a concentration of community commercial uses in the Northside Area--referred to as the base exchange (BX)/commissary complex--and a concentration of community service uses in the Westside MFH/Community/MWR area--referred to as the MWR complex.

The Community Center Plan contains the following recommendations:

- Limit access from parking areas and service areas on 2nd Street.

- Separate access to service areas from parking areas.

- Eliminate N Street between 2nd Street south and 1st Street.

- Close access to L Street south of 2nd Street south .

- Extend Rawlings Avenue to meet McNarney Avenue and extend that to the west to a new gate at Sooner Road.

- Construct a gyrnnasium, physical fitness training center, Four Seasons Store, Heritage and Education Center, and golf maintenance building.

- Expand the package store and military clothing store. Construct additions to the shoppette and gyrnnasium.

Airfield and Air Operations Plaxl

The Airfield and Air Operations Plan examines the existin,, airfield and airspace systerns at Tinker Air Force Base for potential problems or conflicts with the Land Use Plan and the related Long-Range Facilities Development Plan. As the single largest land use on the installation, the airfield has a direct impact on surrounding land use and facility development, especially flight line facilities. Future plans for the airfield are driven by anticipated mission changes, maintenance costs, and environmental and logistical considerations.

The Airfield and Air Operations Plan has the following recormnendations:

- Provide additional ramp space and aircraft parking areas to accommodate future flying missions.

- Install a back course approach to Runway 12 to provide Tinker with a second fully operational runway.

- Consider a partial taxiway south of Runway 12/30 to increase runway capacity. A future taxiway would also be required between the future 507th TFG ramp expansion and the future Navy rarnp expansion.

- Reconfigure and extend the ACW north ramp to encompass Taxiway B in order to free up the east portion of the existing ACW apron for transient aircraft parking or for the potential addition of more aircraft parking for the aerial port on the west side of the ACW north ramp

- Construct two additions to the 552nd ACW north ramp to improve overall security and aircraft circulation on the ramp.

- Extend the StratcomONE rarnp to the west to accommodate additional flying activity in that general vicinity.

- Widen Runway 12/30 to 200 feet and construct the runway overrun 1,000 feet to the northwest. Extend Runway 12/30's surface 712 feet to the southeast.

- Construct the runway overrun 1,000 feet to the southeast. Extend Runway 12/30's surface an additional 1,500 feet to the southeast.

- Repair the entire primary runway (17/35) pavement.

- Construct a major addition to the 507th TFG ramp to accomrnodate additional flying activity in that general vicinity.

- Construct a taxiway that will link the StratcomONE ramp and the StratcomONE ramp extended with the 507th TFG ramp extended.

- Install a parallel taxiway to Runway 12/30 that links the 507th TFG ramp with the intersection of Taxiways C and E.

- Install an additional 10 hydrant refueling outlets on the 552nd ACW north rarnp to adequately service all ACW system parking spaces.

- Construct a B-1 noise abatement facility north of Taxiway C and just east of the 507th TFG hush house.

- Construct a new deicing facility on all rarnps:

  - Transient ramp
  - 552nd ACW north ramp
  - 507th TFG ramp
  - StratcomONE rarnp
  - StratcomONE and 552nd ACW alert ramps

AICUZ Plan

The Air Force and Tinker Air Force Base recognize their joint responsibility to assist local communities in dealing with the impacts of base operations on area land use and public safety. At the same time, the base seeks to protect its current airspace/flight operations area and its options for future development.

The Air Force implemented the AICUZ program to promote compatible land use in the vicinity of all its bases through participation in local, regional, state, and federal land use planning for coordination and control.

Development of an AICUZ plan requires studying the types of aircraft that use the base, where they fly, how they fly, how many times they fly over a given area, and the time of day or night they operate. The results are used to modify base operations to minimize the noise and accident potential to surrounding communities. An AICUZ plan is also used to determine land areas where certain land uses might be hazardous to both aircraft operations and the public.

The AICUZ Plan for Tinker AFB contains the following recommendations:

- It is imperative that flights be routed over sparsely populated areas as much as possible to reduce the exposure of lives and property to a potential accident. By Air Force recommendation, commanders are required to periodically review existing traffic patterns, instrument approaches, weather minima, and operating practices and evaluate these factors in relation to populated areas and other local situations .

- The AICUZ program will be an ongoing activity even after compatible development plans are adopted and implemented. Base personnel are prepared to participate in the continuing discussion of zoning,, and other land use matters as they-may affect, or may be affected by, Tinker AFB. Base personnel are also available to provide information, criteria, and guidelines to state, regional, and local

planning bodies, civic associations, similar groups, and the general public.

In addition to the Air Force's responsibilities, the local communities are encouraged to ensure that future development is compatible with Tinker AFB air operations. The adoption of the following recommendations will aid in the planning process and increase the health and safety of the public; it will also help protect the integrity of the base's flying mission:

- AICUZ policies and guidelines should be incorporated into the comprehensive plans of Oklahoma City, Spencer, Midwest City, Del City, Oklahoma County, and Cleveland County.
- The existing zoning ordinances and subdivision regulations should be modified to support the compatible land uses outlined in this study.
- Height and obstruction ordinances should reflect current Air Force and Federal Aviation Administration (FAA) Part 77 subpart C requirements.
- Building codes should be modified to ensure that new construction within the AICUZ area has the recommended noise level reductions incorporated into the design and construction plans.
- Tinker AFB should be informed of planning and zoning actions that may affect base operations. Also, the Joint Airport Zoning Board should be continued as a forum for discussion of AICUZ concerns and major development proposals that could affect airfield operations at Tinker AFB. Representation from Spencer should be added to this board.

Transportation Plan

This plan component provides an appropriate framework to develop safe and efficient ground access to and circulation of people and material through the base. What drives the Transportation Plan is the preferred alternative that was selected from the three alternative development scenarios. The mission, functional relationships, land uses, physical features, and spatial distribution of related functions of the base and the region are used as a primary basis for the Transportation Plan because they define travel behavior. Traffic circulation and parking patterns are a direct result of that travel demand. The relationship between transportation demand and supply, or the available capacity of the road and parking facilities, given the abovementioned factors, is the focus of the transportation analysis and the resulting plan.

This plan has the following recommendations:

- Relocate and widen Patrol Road.
- Relocate Perimeter Road.
- Relocate Gates 7 and 40.
- Construct a new roadway to provide access to the depot maintenance facility east of Douglas Boulevard.
- Construct a new roadway from the housing area to Patrol Road.
- Abandon sections of existing roadways that are no longer needed.
- Signalize intersections that exhibit the need for increased control.

Architectural Compatibility Plan

The Architectural Compatibility Plan extracts pertinent information from the Schooley Caldwell *Architectural and Environmental Standards*, summarizing and adapting the information to the format of the BCP to ensure that all issues are integrated in a manner that will facilitate implementation of the recommendations and guidelines of the BCP.

The primary objective of the Architectural Compatibility Plan is to provide a comprehensive tool for improving the appearance and operations of Tinker AFB by "enhancing natural site assets; compatibly relating the natural and built environment; establishing an orderly organization

of activities, circulation, and open space; achieving a consistent architectural character; and coordinating site components such as lighting, signage, and street furniture to reduce clutter" (Air Force Manual 88-43, Installation Design).

Landscape Development Plan

The Landscape Development Plan is intended to provide a clear framework for both the enhancement of existing landscaping on base and the provision of appropriate landscape materials adjacent to new or expanded buildings or where they are currently lacking.

The Landscape Development Plan examines alternative ways in which the existing environment on base can be made more attractive and still remain functional.

- De-emphasize large building walls by strategically planting ornamental vegetation in organized masses.
- Highlight the main entrance by creating low-maintenance, meticulous planting arrangements.
- Introduce planting bays between aisles to buffer large expanses of pavement.
- Locate central planting islands throughout parking lots to reduce the visual impact of paved surfaces.
- Organize wide open spaces into logical groups to help the viewer gain an immediate sense of the area's size.
- Gradually reduce the intensity of landscape planting toward the flight line to eliminate any abrupt edge created by an "invisible" line due to USAF airfield regulations.
- Separate pedestrian areas along roadways with either shrub planting beds or wide tree lawns to give pedestrians a sense of security.
- Highlight vehicular corridor intersections with a large, formal ornamental planting that is pulled away from the roadway.

Facilities Development Plan

The purpose of the Facilities Development Plan is to provide a framework for future facility sitings at Tinker Air Force Base that will represent efficient and effective mission support. This plan follows recommendations made in the Land Use Plan, and it takes into account site-specific constraints as well as development opportunities that are outlined in other components of the BCP. The result is to be a framework of both short-term (five years) and long-term (20 years) facility sitings that are consistent with the stated development goals and objectives for the BCP.

Specifically, the Facilities Development Plan is the implementation portion of the BCP. This plan directs the siting of future facilities and translates the more general recommendations of the Land Use Plan, Transportation Plan, Landscape Development Plan, Architectural Compatibility Plan, and other component plans into a specific action plan for implementation.

The Facilities Development Plan has two major elements: the long-range plan, which includes projects needed to support future mission requirements in the outyears, and the CIP, which includes projects necessary to support the various missions for the next five years. The Facilities Development Plan identifies projects to be constructed during the next 20 years. These projects include construction of new facilities, additions to existing buildings, and alterations of existing facilities to improve the base's ability to meet mission requirements.

Disaster Preparedness Plan

Disaster preparedness planning is the process of developing a structured system of actions and response procedures that dictate base action in the event of emergencies on or in the vicinity of the base. In the event of all types of disasters or emergencies caused by humans or by nature, disaster preparedness planning provides guidelines

to allow the base to respond in the most efficient manner possible so that lives and property both on and off base may be protected while maintaining mission capabilities. Disaster preparedness at Tinker Air Force Base is administered by the Base Plans and Disaster Preparedness Division, which is part of the 654th ABG.

The following actions are recommended in this chapter:

- The protection of the base perimeter and individual structures at Tinker from terrorist attack is a necessity that must be included in procedures for daily operations and in future facility programming. An option for improving the protection of the base perimeter is to plant trifoliate orange trees whose dense branches and thorns increase the difficulty of penetration.

- For protection from all types of enemy attack or accidental explosion, key existing and future base facilities and communication networks should be hardened. This requirement should also be recognized throughout the development of the BCP.

- The Disaster Preparedness Operations Plan (OPLAN) should be expanded to include a memorandum of understanding that establishes policy between the base, the state of Oklahoma, and the Bureau of Indian Affairs. This memorandum will ensure a more comprehensive off-base response to disasters or emergencies.

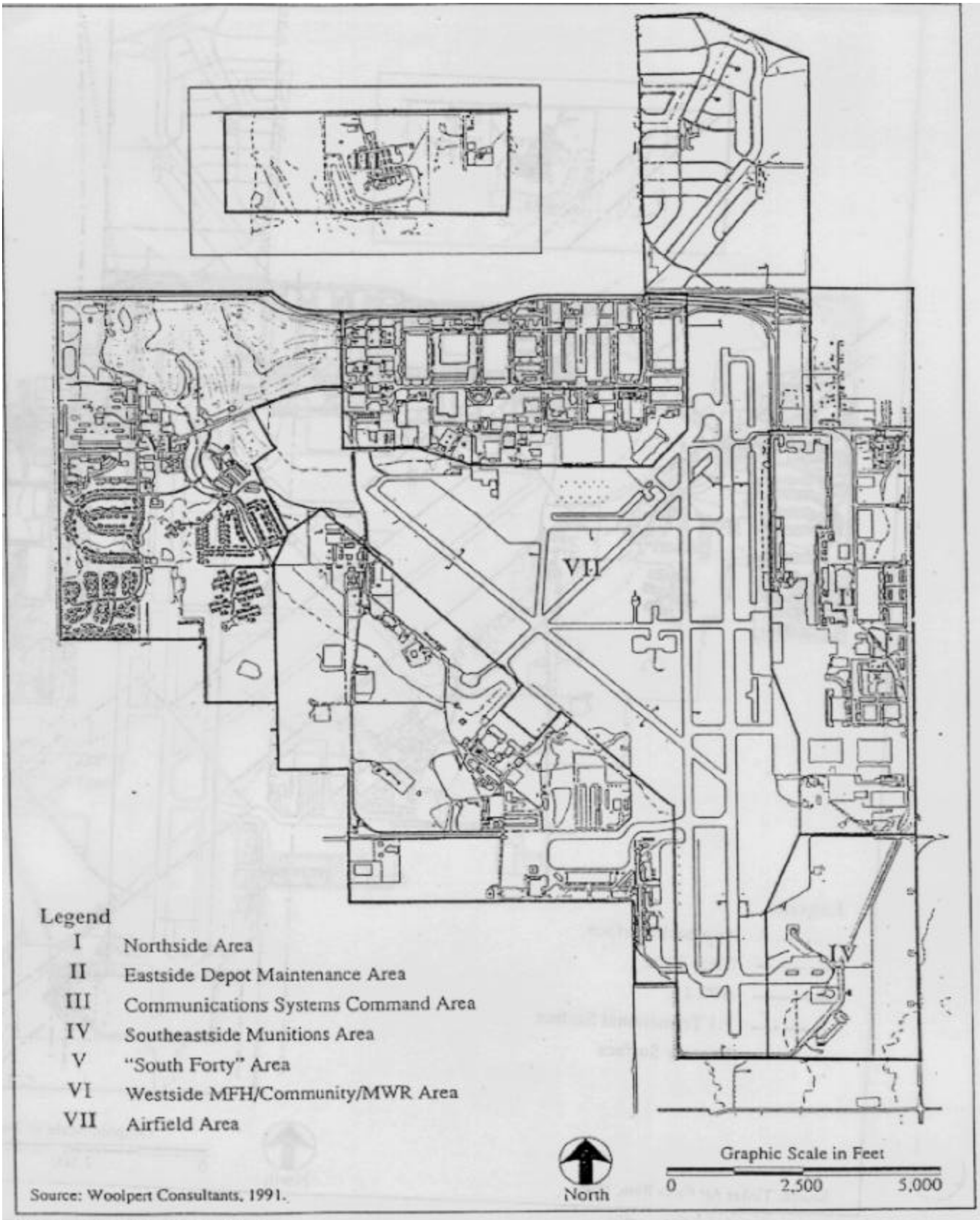


Figure 5-1 *Planning Districts*

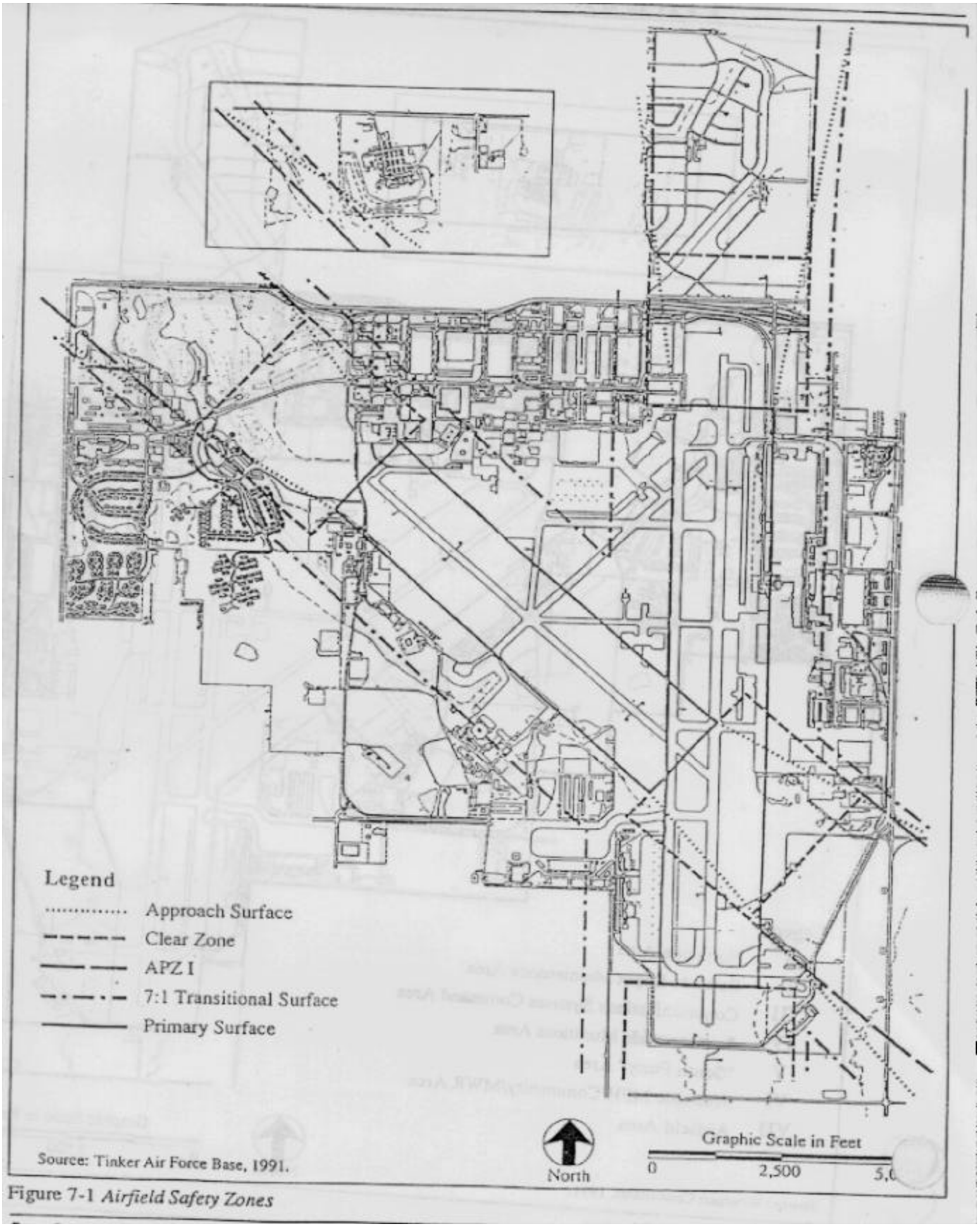


Figure 7-1 *Airfield Safety Zones*

Tinker Air Force Base, Oklahoma
BASE FACILITY STANDARD
(Latest Revision Date: Jul 97)

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Tinker AFB OK
BASE FACILITY STANDARD

1. INTRODUCTION:

1.1. **Office of Responsibility**: This standard is maintained and updated by the 72 Civil Engineer Group (CEG), Architectural-and Engineering Design and Construction Management Section (72 CEG/CECE). Information contained herein should be applied to all projects, whether designed in-house or by Architect-Engineer (A-E) firms, including Military Construction Projects (MCPs). This standard also applies to all Simplified Acquisition of Base Engineering Requirements (SABER) projects and Indefinite Delivery/Indefinite Quantity (IDIQ) contracts.

1.2. **Base Location Maps**:

1.2.1. Area Map: Refer to Attachment (Atch) 1 for the regional location of Tinker Air Force Base OK.

1.2.2. Base Map: Refer to Atch 2.

2. **CODES AND CRITERIA**:

2.1. The designer shall prepare all design and construction documents in accordance with (IAW) the most current edition of the following:

2.1.1. Applicable Department of Defense (DoD) regulations, Military Handbooks (MILHDBK) Air Force Regulations (AFRs). including AFR 88 series regulations, Air Force Instructions (AFIs), Air Force Manuals (AFMs, AFMANs), Air Force Handbooks, AF Pamphlets (AFPs, AFPAMs), including Engineering Technical Letters (ETLs), Engineering Guidance Letters (EGLs), and Construction Technical Letters (CTLs).

2.1.2. HQ AFMC/CEC Engineering Guidance Letter (EGL) 92-2, Engineering Guidance Letter Criteria and Standards for Air Force Materiel Command (formerly AFR 88-15), available in 72 CEG/CECE, Base Civil Engineer Office.

2.1.3. All current (as amended to date) national and state codes, regulations, and specifications involving civil, architectural, interior design, structural, mechanical, electrical, and environmental disciplines which are applicable to the engineering design and construction industry, including OSHA Safety and Health Standards and Air Force policy on Ozone Depleting Chemicals (ODCs).

2.1.4. Use of the National Fire Codes, including the Life Safety Code, published by the National Fire Protection Association (NFPA), the Uniform Building Code (UBC), the Americans with Disabilities Act (ADA), and the Uniform Federal Accessibility Standards (UFAS) is mandatory on all projects.

3. CIVIL CONSIDERATIONS:

3.1. Traffic Control: The designer shall incorporate the following statements, as applicable, in project specifications for traffic control:

3.1.1. "*Contractor shall maintain at least one lane of traffic open at an times on all two-lane streets, roads, and driveways and two lanes, one in each direction, open on all four-lane streets and driveways unless otherwise directed by the Contracting Officer (CO). The Contractor shall provide all required barricades and warning devices when working on roadways and streets and devices shall be IAW Manual on Uniform Traffic Control Devices*."

3.1.2. **Truck Traffic Entering Tinker AFB**: *"Tinker Gate (Gate 1 off I-40 and Air Depot Blvd) and Lancer Gate (Gate 20 off Douglas Blvd and Bradley Drive) were designed to accommodate the standard legal height for trucks in Oklahoma, which is 13 feet 6 inches. Vehicles over this height should enter Eaker Gate (Gate 2 at 1-40 and Industrial Blvd)), Hruskocy Gate (Gate 7 off SE 29th St), Liberator Gate (Gate 21 off Douglas Blvd and Entrance Road A), Gott Gate (Gate 34 at Patrol Road and SE 59th St), and Vance Gate (Gate 40 at Sooner Road). Due to varying hours of operation of these gates, special arrangements should be made with the CO to facilitate their use."*

3. 1.3. **Haul Route**: *"The Contractor shall use Tinker Gate when working on the north side of the base and Gott Gate when working on the south side of the base. Haul routes shall be the most direct route from the gate to the project site as approved by the CO and shall be maintained free of debris and spillage at all times."*

3. 1.4. **Utility Crossing Roadway**: *"In order to minimize traffic disruption, utilities shall be bored under paved surfaces whenever possible. Wherever boring is impractical, street crossings shall be limited to three (3) days maximum for any utility crossing roadway (indicate trenching compaction and replacement of existing pavements). Contractor shall provide steel matting sufficient to carry traffic loading over excavated area."*

3.2 **Parking Spaces**: The standard parking space on base is 10 feet wide by 18 feet long. Handicap Accessible parking spaces shall comply with the Americans with Disabilities Act (ADA) and Uniform Federal Accessibility Standards (UFAS), whichever is more stringent.

3.3. **Curbing**: The base standard is 24 inches for a curb and gutter unless sitng conditions require otherwise. Curbing design shall comply with ADA and UFAS, whichever is more stringent.

4. **Utility Systems Considerations**:

4.1. **Water Supply**: The Tinker AFB domestic water distribution system is supplied by wells and by connections to the Oklahoma City municipal system. New hydrants and fire protection sprinkler systems shall be served by the base domestic water distribution system. Well water is chlorinated at the pump or at the end of collection lines. Chemical analysis of the water may be obtained from the Base Environmental Management office (OC-ALC/EM) upon request. Corrosion control for all new water supply lines shall be provided. Demand shall be based on manned population. Water usage shall be IAW ETL 87-5.

4.2. **Waste Water Treatment**: Waste water goes to Planning District II, Eastside Depot Maintenance Area or Area C, where existing waste water treatment facilities are located. Waste water is treated by trickling filters and clarifiers. For projects which will be large producers of waste water, the designer shall verify that the collection system and capacity of the treatment plant is adequate to transport and treat the discharge. Domestic sewage is channeled to Oklahoma City for treatment. Design contribution to existing sanitary sewer system shall be estimated at 30 gallons per capita per day. Waste water collection systems shall be designed IAW HQ AFMC/CEC EGL 92-2, Chapter 15, Sections E and F. Design requirements for drinking fountains, water closets, lavatories, showers, and laundry washers shall be based on building occupancy.

4.3. **Piping, Utilities, and Manholes**: No physical connections shall exist between sewer and water supply systems. Sewer and water lines shall be at least 10 feet apart horizontally, except where the bottom of the water pipe is at least 12 inches above the top of the sewer, the horizontal spacing may be a minimum of 6 feet. Where conditions require a sewer to cross above a water line, the sewer shall be constructed of cast iron, steel, or other pressure pipe for 10 feet each side of the crossing and preferably

without the occurrence of a sewer pipe joint immediately above the water pipe. The cover for sanitary sewers will be at least 30 inches deep to protect the pipe from superimposed live loads of ordinary traffic.

4.4. **Sanitary Water**:

4.4.1. Ensure all equipment (Heating Ventilating and Air Conditioning (HVAC) systems and fire sprinklers) connected to potable water supplies cannot cause a cross-connection/back flow hazard. Provide properly selected back flow preventers for the degree of hazard. Follow AFM 85-21 policy and guidance and design and installation requirements.

4.4.2. Irrigation/sprinkler systems served by potable water systems shall include a suitable back flow preventer to protect the potable water supply.

4.4.3. All buildings or facilities equipped with a siamese fire department water connection shall have a reduced pressure principle back flow preventer to protect the potable water supply.

4.4.4. Specifications shall call for "approved" back flow prevention devices as required by AFM 85-21.

4.5. **Sanitary Sewage**:

4.5.1. Regardless of sewage quantity and for maintainability, the minimum size pipe provided shall be 6 inches for building connections and 8 inches for all other sewers.

4.5.2. Adequate manholes and clean-outs shall be provided for maintainability.

4.5.3. Lift stations shall have dual pumps/ejectors with controls for automatic alternating of the pumps as lead. Provide manual override of automatic cycling.

4.5.4. Lift stations shall be designed to preclude bypass/overflow. Provide adequate sump storage for short power outages. Provide an electrical outlet and transfer switch to permit connection of an emergency power generator on large lift stations or where overflow/bypass can create a health hazard or pollution problem.

4.5.5. Crossing potable water lines and sewage lines shall be installed IAW AFM 88-10, Chapter 6.

4.6. Industrial Wastes:

4.6.1. All industrial buildings, maintenance shops, or other facilities generating waste waters of other than sanitary wastes shall be connected to an industrial waste sewer. Note: All industrial wastewater connections which connect to a dual-wall IW collection main shall be dual-wall polypropylene pipe with a leak detection system compatible with the existing system. Wastes shall be identified, both in characteristics and quantities, in project design analysis, and compared to the capabilities of the industrial waste water treatment plant.

4.6.2. Materials for industrial waste drains, sewers, tanks, pumps, and other features shall be carefully selected for suitability based on worst case expected waste characteristics. Once selected, these materials shall be clearly and thoroughly specified in project specifications. Material substitutions shall be avoided to the greatest extent possible.

4.6.3. Where necessary, pre treatment at the source shall be provided. This may include physical, chemical, or a combination pre treatment. Flammables and troublesome solids shall be removed at the source.

4.7. **Oil Separators**: Many small, proprietary oil/grease separators on the market do not provide adequate detention times nor have sufficient volumetric capacities to function properly. These should be avoided.

4.7.1. All oil separators shall have a submerged tee (or other submerged feature) as an outlet. This will make the separator function as a two-stage separator and prevent oils which may get into the outlet chamber from being discharged. A tee may not be required if the two-stage-effect is provided by other means.

4.8. **Storm Drainage System**: Storm drainage designs shall be IAW the AFM 88-5 series. All new facilities shall be designed so that the finished floor elevation (FFE) is above the 100-year flood elevation. Rainfall intensity shall be based on local intensity-duration-frequency data. The designer shall analyze the effects of additional runoff before tying into an existing system at any particular location. If additional runoff is generated, sufficient precautions, such as detention ponds, shall be constructed to prevent the additional runoff from increasing the flood potential downstream.

4.9. **Liquid Fuels**:

4.9.1. **Pipelines and Hydrant Systems**: All designs shall ensure that maintenance personnel will be able to physically perform routine tasks with tools and equipment readily available on base. Items of consideration include:

4.9.1.1. Ensuring that parallel or crossing pipelines are at least one foot apart to permit repair and/or equipment use in-between the pipes. Large diameter pipes require greater separation.

4.9.1.2. Providing hydrant outlet pits or equipment pits large enough for tool use in the pit while replacing or maintaining valves, flanges, pumps, nut and bolt, and flange gasket replacement.

4.9.1.3. Assuring that sufficient flanges are installed to permit ease of pipe and equipment repair or replacement. For example, because pipe cutting or welding is not be permitted in a pump house, flanges are required.

4.9.1.4. Providing sectionalizing valves in piping systems to shut down piping sections for repair, maintenance, and pressure testing.

4.9.2. **Fuel Storage Tanks and Welding**:

4.9.2.1. Dikes or basins around storage tanks shall be designed so that tank cleaning, maintenance, and repair equipment can be easily transported into the diked area. This includes providing clear access to the tank manholes without climbing over or under pipelines. Provide cathodic protection (CP) inserts in the concrete basin of the dike for CP testing.

4.9.2.2. Clearance shall be provided between parallel buried tanks or other structures so that each tank can be easily excavated and removed; tanks may be too close together for mechanized equipment use.

4.9.2.3. All welding shall be performed by a welder certified IAW ANSI B31.1 or API 1104 codes. Welds shall be made and inspected IAW ANSI B31.8 requirements.

5. **Architectural Considerations**:

5 1. **Tinker AFB Architectural Compatibility Plan**: Refer to the *Tinker AFB Architectural Compatibility Plan*, May 97 for in-depth discussions of architectural districts on base, historic preservation, examples of approved base color schemes, and other pertinent topics. All selections of exterior finishes and colors shall be IAW this plan and approved by the Base Architectural Compatibility Committee through 72 CEG/CECE or the Depot Maintenance Activity Group (DMAG), 72CEG/CECD.

5.2. **Handicap Accessibility**: All designs shall comply with the Americans with Disabilities Act (ADA) and Uniform Federal Accessibility Standards (UFAS) requirements. In cases of conflict, the more restrictive shall apply. The policy is to use the military exclusion as minimally as possible because of potential changes in facility use and occupancy

5 2.1. Designers working on projects for existing facilities shall review the Tinker AFB ADA Survey data available in 72 CEG/CECE in the architectural area. This is a detailed survey of almost 150 buildings citing discrepancies and non-compliance with ADA..

5.2.2. The discrepancies noted shall be corrected (if not already done so) for all additions, alterations, or renovations to existing surveyed facilities, utilizing the corrective actions brochures provided as an addition to the ADA Survey.

5.3. **Architectural Finishes**: Designers shall select finishes compatible with adjacent facilities, districts, or campuses (OC-ALC, AWACS, Navy, 507 ARW, 3rd CCG, MFES, and Military Housing). All architectural finishes, colors schemes and patterns shall be IAW the Tinker AFB Architectural Compatibility Plan, May 97 and shall be submitted for approval.

5.3.1. **Metal Siding**: Metal siding is used primarily for industrial buildings and hangars. All metal siding shall be factory finished with paint colors to match the Tinker AFB standard color schemes.

5.3.2. **Concrete:** Concrete and exposed concrete panels are acceptable finishes provided the material is finished IAW Tinker AFB standard color schemes.

5.3.3. **Masonry:**

5.3.3.1. Brick is the desired finish for base facilities depending on building use and occupancy. Several brick colors and blends have been introduced on base over the years. No new brick colors will be permitted and designers shall match existing brick colors of adjacent facilities or use an existing base brick color for new facilities.

5.3.3.2. The Concrete Masonry Unit (CMU) is an acceptable material Use standard 8 inch by 16 inch units placed in a running bond with a split-face or ribbed finish wherever possible. Split face and ribbed CMUs shall be used on the AWACS and Navy campuses. An integral color shall be used to match adjacent facilities when using these units.

5.3.4. **Painting:** New or existing concrete floors shall not be painted. Refer to the Tinker AFB Architectural Compatibility Plan, May 97 for allowable exterior paint colors.

5.3.5. **Roofing**:

5.3.5.1 **Built-up roofs (BURs)**: BURs shall be designed with a minimum slope of 1/4 inch per foot and shall meet the requirements of HQ AFMC/CEC EGL 92-2, Chapter 7. Specifications for BUR shall be per Engineering Technical Letter (ETL) 87-8, Built-Up Roof Repair/Replacement Guide Specifications. BUR flashing requirements shall be detailed IAW the National Roofing Contractors Association's Roofing and Waterproofing Manual. Tinker AFB requires a 20-year warranty on BUR systems.

5.3.5.2. **Metal Roof Systems**: All metal roof systems shall be standing seam type, designed IAW HQ AFMC/CEC EGL 92-2, Chapter 7, Section D, Para 7-10H. Metal roofs shall be designed with a minimum slope of 1 inch per foot or 4 inches per foot where feasible. The roof shall be a factory finished anodized aluminum and complement the roof line. Metal roofs shall be utilized only when a minimal number of roof penetrations are required. Overlapping metal roofs shall not be designed for large buildings.

5.3.5.3. **Roof-mounted Equipment**: Roof-mounted equipment shall be avoided as much as possible. New and replacement BURs shall have built-in walkway pads on the roof for servicing equipment and other heavy foot traffic areas.

5.3.6. **Signage**: Exterior facility signs shall be designed and installed IAW OC-ALC Tinker AFB Regulation (TAFBR) 88-1, Sign Standards and AFPAM 32-1099, Signage Standards.

6. **Interior Design Considerations**:

6.1. All interior design proposals shall be IAW the Tinker AFB Architectural Compatibility Plan, (ACP) *May 97* and coordinated and approved by the Base Comprehensive Interior Design Manager, 72 CEG/CECE. Use the standards, guidelines, and format of the ACP for design submittals for both Comprehensive Interior Design (CID) and Structural Interior Design (SID). Use ETL 90-7, *Air Force General Interior Design Policy*; ETL 91-1, HQ AFLC *Fire Protection Criteria for Interior Finish and Construction Materials*; HQ AFMC *Comprehensive Interior Design Guidance*, 18 May 92; and using agency's MAJCOM interior design guidance.

6.2. **Color Boards**: All color board submittals shall be submitted IAW with HQ AFCEE guide, *Interior Design Presentation Format*, Nov 96, Tab 2 of the ACP.

7. **Structural Considerations**:

7.1. Structural designs shall be IAW the AFM 88-3 series, HQ AFMCICEC EGL 92-2, Uniform Building Code (UBC), and the applicable industry codes for the particular material involved.

7.2. Tinker AFB is considered to have a basic wind speed of 75 miles per hour for Exposure Category C, a ground snow load of 10 pounds per square foot, and a frost penetration of 17 inches. Seismic forces shall be calculated IAW AFM 88-3, Chapter 13 for Zone 2A and Importance Factor (I) =1.0, unless otherwise indicated.

7.3. The predominant type of foundation used on Tinker AFB is the pier-and-grade beam -type, with isolated, floating slabs-on-grade. In some cases, mat-type foundations or spread footings have been used where the depth of bedrock (predominantly sandstone) warranted such foundation types.

7.4. Soil borings and investigations will be performed by the government with the results provided to the designer in forms of boring logs and soil investigative reports and recommendations.

7.5. The most economical structural system of steel, concrete, and/or load-bearing masonry shall be utilized for building superstructures, as determined (and documented) by the government.

8. **Mechanical Considerations**:

8.1. **General**: All facilities shall be designed IAW HQ AFMCICEC EGL 92-2, Chapter 13, NFPA 13, and AFOSH 151-2. Mechanical room access shall be from the exterior of the facility. All equipment shall be located with sufficient clearance for maintenance and be provided access by means of identified panels,

catwalks, platforms, stairs or ladders. All supply and return lines shall be identified with markings denoting flow direction and fluid transport. Isolation valves shall be provided at each piece of equipment. Thermometers, pressure gauges and PT plugs shall be provided at all coils. Floor-mounted equipment shall be mounted on suitable concrete housekeeping pads extending 6 inches beyond the unit footprint. Units shall be mounted on spring isolators. Where pneumatic HVAC controls are utilized, control air shall be provided from compressors. Air shall be filtered and dehumidified. Air compressors shall be adequately sized to operate a 113 on, 2/3 off duty cycle. The highest demand for utility service in administrative and housing areas will be during the normal duty hours, 0630 to 1730, Monday through Friday.

8.2. **Natural Gas Systems**:

8.2.1. **Regulators**: Replace natural gas regulators over 15 years old. Install sufficient isolation valves to repair base housing units without shutting off entire system.

8.2.2. **Distribution regulators**: All distribution regulator sets shall be installed with:

8.2.2.1. regulators that do not fail in the valve "open" position (do not use pilot loaded regulators since they often fail to "open")

8.2.2.2. valved, regulated bypasses to permit equipment repair or replacement

8.2.2.3. regulators that have valve stem indicators

8.2.2.4. sets that use one regulator for control of flow and a second regulator to monitor the flow

8.3. **Welding**: All welding shall be performed by a welder certified IAW ANSI B31.1 or API 1104 codes. Welds shall be made and inspected IAW ANSI B31.8 requirements.

8.4. **Piping**: Piping installed on new systems shall be corrosion resistant or cathodically protected. For natural gas or LP gas, provide threaded, schedule 40, black steel natural gas distribution piping. Provide necessary shutoff valves and identification.

8.5. **Water Softeners/Water Treatment Equipment**:

8.5.1. Softeners shall be properly sized to allow soft water to be introduced into plant at all times,

8.5.2. Provide soft water/conditioned water for all large boiler systems.

8.5.3. Install adequate water treatment equipment on boilers/plant.

8.6. **Underground Steam Systems**:

8.6.1. Systems shall be designed IAW Federal Construction Guide Specification (FCGS) 15705, *Underground Heat Distribution Systems*.

8.6.2. All steam and hot water distribution systems shall have a cost analysis performed, comparing aboveground, surface utilidor, and underground conduit systems to determine the most economical system. Comparison shall include cost, maintainability, and system performance.

8.6.3. Install cathodic protection systems.

8.7. **Air Conditioning Systems and Chiller and Air Handling Units**:

8.7.1. Locate equipment to allow reasonable access for maintenance. Avoid locating equipment on roofs due to maintenance problems. Provisions shall be made for removal of equipment for maintenance. Assure that proper distance between system components and walls is maintained to ensure ability to clean, repair, or replace system components.

8.7.2. Install bypasses on all strainers so they may be cleaned without plant shutdown.

8.7.3. Provide disconnect switches or dual strainers for remote controlled equipment such as air handlers and exhaust fans.

8.7.4. Install sufficient insulation and vapor barrier on air conditioning ductwork and chilled water piping to prevent condensation. Duct liner shall be kept to a minimum for sound control only. The preferred thermal insulation shall be external wrap.

8.7.5. Provide adequate clear space around EMCS Data Gathering Panel (DGP) location of future FID and MUX and accessibility of maintenance personnel.

8.7.6. Install conduits entering panels from side and bottom of panel to prevent water from entering the panels and destroying the electronics.

8.7.7. Contractor shall furnish instruction manuals and spare parts inventory requirements for each piece of mechanical equipment. Contractor shall also furnish control diagrams IAW ETL 83-1. Two 28"x 40" Mylar control drawings for each installation shall be furnished. One is to be mounted on a wall in a frame, under glass in equipment rooms. The other is to be furnished to 72 CEG/CECE to become part of the facility "as-built" drawings.

8.7.8. All installed equipment utilizing refrigerants shall use a refrigerant which is CFC free.

8.7.9. Balancing dampers in ductwork shall be installed so as to be inaccessible to the occupants of the space being served (in the take offs from the duct branches rather than in the diffusers).

8.7.10. Mechanical rooms shall meet all requirements of 1994 ASHRAE-E Standard 15.

8.8. **Plumbing**: All plumbing shall be designed IAW the latest edition of the National Plumbing Code. It is anticipated that the highest demand for water will be during normal duty hours.

8.8.1. Building water supply shall be from potable water lines. All water used for process purposes (heating, air conditioning) shall be isolated from drinking water by means of reduced pressure back flow preventers.

8.8.2. Tie-ins to existing water lines shall be analyzed to document that existing demands will not be adversely affected by new demands.

8.8.3. Domestic hot and cold potable water piping shall be of Type L seamless copper tubing with dielectric insulators at point of contact with dissimilar metallic piping or schedule 40 CPVC. Provide insulation per HQ AFMC/CEC EGL 92-2 for all domestic and comfort cooling supply and return lines.

8.8.4. Provide sanitary venting IAW National Plumbing Codes.

8.8.5. Provide sanitary drain systems from lavatories, toilet areas, break areas, and non-industrial waste floor drains to sanitary lines.

8.8.6. Provide a fire protection system IAW the National Fire Protection Association Codes and as required by HQ AFMC/CEC EGL 92-2 and MIL-HDBK-1008B.

8.8.7. Incorporate handicap accessible design for all toilet areas, shower areas, and drinking fountains IAW ADA and UFAS, whichever is more stringent.

8.8.8. Provide for stop valves at all plumbing fixtures.

8.8.9. Provide access to piping, valves, and instrumentation for maintenance personnel.

8.8.10. Specify Type K copper pipe for underground domestic hot water supply applications and Type L copper pipe for above ground hot water applications.

8.8.11. Avoid use of dissimilar metals in contact with each other on piping in a common electrolyte, such as water or soil. If contact must be made, use electrically insulated fittings. Insulated fittings shall remain above ground.

8.8.12. Design piping using the velocity limitations from HQ AFMC/CEC EGL 92-2 to avoid erosion corrosion.

8.8.13. No asbestos containing materials of any kind may be used in construction.

8.8.14. Water meters shall be installed on all facilities.

8.9. **Cross-Connection and Back flow Prevention**:

8.9.1. Cross-connection and back flow prevention policies of AFM 85-21 shall be followed to protect the potable water system and facility occupants.

8.9.2. The proper back flow prevention device shall be specified per AFM 85-21 for the hazard involved.

8.9.3. Back flow prevention devices shall be located and installed to ensure they will function, not freeze, and will permit easy and safe access for testing, service, and repair (AFM-21).

8.10. Compressed Air Systems: Compressed air, if required, shall be provided by the base compressed air distribution system where available. Otherwise, compressors shall be located in mechanical rooms if base air is not available or sufficient. Provide necessary maintenance access for controls, CFC free refrigerated air dryers, and condensate handling equipment. Provide enough ventilating air for mechanical room to prevent overheating of components. Install thermal control valve in water outlet side of compressor to avoid excessive temperature and resulting compressor wear due to incorrect oil temperature, and excessive scaling. Install inlet air filtration with instrumentation. Install vibration isolation pads (neoprene component material is preferred), including flexible connections between the compressor and its associated piping, to prevent vibration damage to compressors. Noise suppression shall be provided to keep compressor noise within Occupational Safety and Health (OSHA) limitations. Oil free compressors are required for breathing air applications.

8.11. Corrosion Prevention and Control: Cathodic protection for buried metallic structures shall be designed IAW ETL 914

8.11.1. **Protective Coatings**: Coating specifications for above and below ground high value metallic structures shall be prepared IAW the guide specifications shown in AFM 85-3, Paints and Protective Coatings, (revised 1982; Underground piping systems shall conform to either FS-L-C-530, Type II (except tape and primer conform to AWWAC203) for epoxy or for continuously extruded polyethylene, FS-L-C530, Type I (Federal Specifications). On all metallic structures where the surface is blasted to white or near white finish, no blasted surface shall be left unprimed beyond the normal workday. Coatings specified for underground or submerged use shall be those specifically designed for those types of environmental conditions. Under no circumstances shall thin plastic film tapes, such as electrical tape, be used to coat underground structures or wiring. Reference NACE Standard RP-01-69 for coating information.

8.11.2. **Cathodic Protection**: General soil conditions at Tinker AFB are very conducive to corrosion of underground metal structures. The soil varies from a sandy silt to a sandy clay with areas of stratification of the various types. Soil resistivity varies from a high of 26,100 ohm-cm to a low of 529 ohm-cm. There is no soil resistivity data available at the base. Designer shall take readings at the locations of structures and paths of utilities being cathodically protected. Design analysis shall contain a map showing the sites of such readings, type of instrument used, and a table containing location designation and soil resistivity. Cathodic protection design shall be a complete design and not a performance specification. The cathodic protection system to be installed shall be designed by an engineer who has been accredited as a "Corrosion Specialist" by the National Association of Corrosion Engineers, which verifies that engineer has had experience in cathodic protection design, installation and testing as per ETL 91-6. Guidance for the installation and/or use of corrosion mitigation equipment and procedures is provided in AFM 8845, Civil Engineering Corrosion Control - Cathodic Protection. All metals installed underground or in contact with the ground at Tinker AFB shall have cathodic protection for control of corrosion.

8.11.3. **Water treatment**: Water treatment shall be provided for all transfer media in heat transfer equipment, including cooling towers, chilled/hot water systems, and boilers if other than central plant. Treatment shall contain no chromates and no heavy metals. Water treatment design analysis shall contain base water analysis and step-by-step procedures used to arrive at recommended treatment. This analysis shall include which of the constituents of the water is the limiting parameter. Chemical requirements shall be given in the weight amounts per day from those listed in AFR 9140. (Note: further reference - ETL 87-6)

8.12. **Existing Energy Source**: Natural gas is available for facility heating if steam is not available. Natural gas pressure will vary from 30 to 40 psig, seasonally. Gas is on an uninterruptable contract. Provide meters on all natural gas mains. Steam is available at various pressures throughout the base. Steam shall be used for facility heating where available.

9. **Electrical Considerations**: All wiring, both indoor and outdoor, shall be installed IAW the applicable provisions of the National Electric Code (NEC), AF regulations, and Tinker AFB policies. Field verification of site location and electrical utility routing shall be made.

9.1. **Outdoor wiring**:

9.1.1. **Primary extensions**: Extensions of the base 12470V underground power distribution loop shall be made with 500 MCM, 15KV copper phase conductors, with XLPE insulation rated 133% and an antitreeing agent; and a #4/0 AWG, 600V grounded conductor. Only modular terminations and connectors shall be used with primary cables. Each run of these conductors shall be protected by a 5 inch diameter concrete encased type "EB" PVC conduit. Primary branch lines, serving the project site only, shall be constructed of 15KV copper phase conductors #2 AWG or larger, and a #2 AWG or larger 600V insulated grounding conductor. Each branch shall be protected by a minimum diameter type "EB" PVC conduit. Concrete encased conduits shall have at least 3 inches of concrete protecting them on every side. Where

two or more conduits share the same encasement, there shall be at least 1 5 inches of concrete between adjacent conduits at all points. The top of the encasement concrete shall be at least two feet below final grade level at all points. A four-inch wide, red plastic marker tape with the words "Danger - Buried High Voltage Cable" shall be placed directly over the high voltage line, and no more than 6 inches below finished grade.

9.1.2. **Underground Secondary Wiring**: Underground secondary wiring shall be made of copper conductors at least as large as required by NEC, with thermoplastic insulation-rated for 600V and 90 degree heat rating in wet locations. All ungrounded conductors, both the grounded conductor (if any) and the grounding conductor shall be installed in a concrete encased type "EB" conduit of at least the size required by NEC, installed as described above.

9.1.3. **Communications Wiring**: (Exterior work not applicable for MCPs). Contractor shall provide dedicated 4 inch conduits, installed as described above with pull wires in them for all communication runs defined in the project design. The communications media (telephone cables, computer LAN cables, or fiber optic cables) will be installed by government specialists in those systems.

9.1.4. Watt hour meters with a demand register shall be installed on all facilities requiring new services.

9.2. **Indoor wiring**:

9.2.1. **Power wiring**: Indoor high voltage wiring, in installations having indoor transformer vaults, shall be in appropriately marked rigid steel conduit. Secondary voltage wiring shall be run in rigid steel or IMC conduit except where flexible conduit is necessitated by machine motion and/or vibration. Circuits operating at 240V or less in dry locations may, as a design option, be run in EMT conduit.

9.2.2. **Communications systems**: Provisions for communication systems shall consist of providing conduits, and connection closets to meet the needs defined by the using agency. The telephone and/or computer equipment will be installed by government technical specialists.

9.2.3. Provide communications equipment rooms (closets) for new facilities. Closets shall be a minimum of 4'x 5'x 8' high with a 4'x 4' x 3/4" plywood backboard securely attached to one wall. Provide two each 110VAC, 20A, duplex outlets with 6" separation in closets with lightning surge protection.

9.3. Equipment: All electrical equipment, both indoor and outdoor, shall be installed IAW the applicable provisions of the NEC, AF regulations, and Tinker AFB policies. All equipment shall be IAW the manufacturer's recommendations, so that none of the service limitations stated will be violated.

9.3.1. Power factor correcting capacitors shall be connected on the load side of the motor controller for all motors 10 horsepower or larger.

9.3.2. TEMPEST equipment shall be installed IAW current and applicable TEMPEST guidelines. Equipment which is not TEMPEST approved shall be enclosed in a shielded enclosure. Ensure proper RED/BLACK separation for telephones, radios, telephone lines, and power lines.

9.4. **Service transformers**: Service transformers shall have primary fuses and on/off switches, mounted inside the enclosure of pad-mounted transformers, or mounted separately for pole-mounted units. The primary voltage shall be 12470V with taps at 2-1/2% and 5% above and below the nominal voltage. Secondary voltage shall meet project design requirements. Oil filled transformers shall be equipped with pressure relief valves and, if pad-mounted, with means of sampling the oil. Transformers servicing nonlinear loads shall have appropriate K-factor rating.

9.5. **Power and lighting systems**:

9.5.1. All new building wiring systems shall consider using 277/480 volts unless uneconomical to accomplish.

9.5.2. Lighting shall be installed using 277 volts if available.

9.5.3. Do not use any polystyrene lenses in light fixtures.

9.5.4. Use energy saving light fixtures in new designs and renovations. These fixtures shall incorporate electronic ballasts and T-8 lamps.

9.5.5. In office buildings or other buildings which will have a considerable amount of computer equipment installed, or will have systems furniture:

9.5.5.1. Run oversized neutral conductors from the transformer to service equipment, and from service equipment through the distribution panels to the branch circuit panels. The neutral ampacity shall be 2.75 times the phase conductor ampacity, or shall have a separate neutral conductor for each phase conductor.

9.5.5.2. From the branch circuit panel boards, run ten conductor circuits (four hot conductors, four neutral conductors, one ground conductor, and one isolated ground conductor) to all receptacle outlets, including those receptacle outlets in prewired systems furniture.

9.5.5.3. Add ground fault circuit interrupters on all receptacles installed in toilet or wet areas. Exterior receptacles shall be waterproof.

9.5.5.4. A grounding bus, separate from the grounded (neutral) bus, shall be provided in all new panel boards.

9.5.5.5. All receptacles installed shall be of the grounding type.

9.5.6. **Auxiliary power**: All requirements will be validated by each user through the using agency's MAJCOM.

9.5.7. **Exterior lighting**: Use high pressure sodium vapor lights for exterior lighting wherever possible. Use photoelectric controls on exterior lighting wherever possible to save energy. Mercury vapor lamps shall not be used.

9.5.8. **Interior lighting**:

9.5.8.1. For energy efficient interior lighting schemes, lighting systems shall be designed to allow reduction of lighting levels by appropriately banking lighting circuits or providing separate switching of inner and outer lamps in 3 or 4 tube fluorescent fixtures. Designer shall consider the use of energy efficient lighting systems, including ballasts, lamps, and fixtures. Consider task lighting that might be provided by systems furniture and reduce overhead lighting accordingly. U-tube fixtures shall be avoided.

9.5.8.2. Fluorescent fixtures shall utilize T-8 lamps and electronic ballasts with high power factor and low harmonic distortion. Parabolic fixtures shall be used to the maximum extent possible. Mercury vapor lamps shall not be used. Compact fluorescent lamps shall be used in place of incandescent lamps.

9.5.8.3. All panelboards shall have copper buses.

9.6. New designs shall consider load shedding in critical facilities where backup power is required

9.7. Use fully enclosed pad-mounted transformers in lieu of pole-mounted types where size is available and economics dictate. Ensure sufficient clearance for access to drain plugs.

9.8. Provide quick disconnect or three-way switches on outside of facility for portable generator connection when authorized by AFR 91-4 or when required by function being performed in the facility.

9.9. Provide bypass switching around automatic transfer switches.

9.10. Use aluminum poles in place of wood poles whenever possible, taking in consideration the economics (life-cycle costs) and aesthetics.

9.11. Install electrical conductors underground in ducts in lieu of direct burial and/or overhead (exception overhead lines should only be used in non-congested areas). This includes airfield lighting.

9.12. Use all copper conductors, not aluminum, where splices are to be made in the field. All new conductors shall be copper with THHN or THWN insulation and sized IAW the latest edition of the National Electric Code.

9.13. Ensure adequate clear space around electrical equipment in accordance with the National Electric Code.

9.14. When a lead-acid battery is required, specify the lead-calcium type, rather than lead-antimony, to provide increased service life, decreased hydrogen gas production (venting may not be required), and decreased routine maintenance (water make-up).

9.15. Provide suitable shelter for new fixed emergency generator installations.

9.16. Electrical transfer switch and control installations shall be located outside of utility rooms where high humidity levels are present.

9.17. In grounded 4-wire systems, where using concentric neutral cable, provide outer sheath to protect the neutral from corrosion.

9.18. New high voltage air or vacuum type switches are required in lieu of oil insulated.

9.19. Receptacle outlets shall be the same ampere rating as the breakers that feed them to prevent receptacle overload without breaker trip.

9.20. Electric design shall include load verification to base entry transformers and to the building service transformer.

9.21. All power and light poles, steel support structures, and their foundations shall be rated for a 100MPH wind load.

10. **General Maintainability Considerations**:

10.1. **Reuse of Existing Materials**: Exercise caution in the planned reuse of any existing material (or material that is to be government furnished equipment). In the time period between project inception, design, and actual construction, either the condition of the material or its availability may change. For

major items of equipment, specify by manufacturer's name plate data exactly which items are to be used and their location.

10.2. **Manufacturer's Name plate, Parts, and Maintenance Manuals**: Ensure that equipment items which require periodic maintenance and repair have sufficient manufacturer's identification data permanently affixed. Specify that contractor shall provide copies of parts identification manuals and installation and maintenance instructions, customarily furnished with the equipment.

10.3. **Construction Over Buried Utilities**: New construction shall not be placed over existing buried water, sewer, heating, compressed air, electric, compressed air or telephone utilities, except in extraordinary situations, and only if special provision is made for maintenance access. In no case shall construction be placed over existing POL or natural gas lines.

10.4. **Refuse Collection**: All new building designs or major modifications shall show on the drawings:

10.4.1. Proposed refuse container location(s) and all screening, pads, walkways, or other pavements.

10.4.2. All needed features to facilitate possible recycling efforts.

10.4.3. Adequate pavement design to permit safe and easy approach, container handling, and maneuvering by refuse vehicles.

10.5. **Termite Control**:

10.5.1. The application of a residual termiticide during construction will provide years of termite protection to the building and its contents. Termiticide pre treatments are required regardless of type of construction. Termite control measures are required when building modifications disturb the in-place termiticide barrier or when construction occurs on untreated soil.

10.5.2. Wood treated with a preservative shall be used where soil termiticides cannot be used or where wood will be in direct contact with the soil.

11. **Fire Protection Considerations**:

11.1. All fire protection system designs shall be accomplished by a qualified Fire Protection Engineer. Fire protection systems shall be designed IAW HQ AFMC/CEC EGL 92-2, AFR 127-100, Military Handbook 1008, National Fire Protection Association (NFPA) 13, and the specific project system safety analysis.

11.2. The system will have tamper switches on all valves that would disable the sprinkler system, and will transmit all trouble, tamper, and flow alarms to the Base Fire Department.

11.3. The designer shall provide a preliminary sprinkler design, including hydraulic calculations no later than 60% design. Follow the requirements of paragraphs 11, 12, and 13 of this Standard for submittal requirements.

11.4. Minimum wall thickness for sprinkler piping using screwed joints shall be schedule 40 steel.

1.1. **Fire detection system**:

1.1.1. Manual pull stations for evacuation of personnel and transmission of fire alarms to the Base Fire Department shall be located at each exit and spaced to meet NFPA requirements. Manual pull stations,

heat detectors, and smoke detectors shall comply with NFPA requirements and HQ AFMC/CEC EGL 92 2, Para 15-76.

1 .1.2. All areas shall have 100% heat detector coverage. Include smoke detectors in air handling units to comply with NFPA 90A.

1.1.3. Notification of evacuation of personnel shall be by both audible and visual alarms per HQ AFMC/CEC EGL 92-2.

1.1.4. The fire alarm panel, transmitter or transceiver, associated antenna, lightning arrestor, and cable shall be located in equipment rooms and easily accessible by the Base Fire Department. Equipment rooms shall have one-hour fire ratings.

1.1.5. Alarms shall be transmitted by a Monaco Radio Fire Alarm System "D500 Plus," currently in use on Tinker AFB.

1.1.6. The complete fire alarm system shall meet requirements of NFPA 72D, Table 3-9.1, Style E and Table 3-10.1, Style 7. Provide a complete 4-wire supervised system.

1.2. Firewalls and Fire Area Limitations: Firewalls and fire area limitations shall comply with HQ AFMCICEC EGL 92-2 and Uniform Building Code (UBC). All construction, including emergency lighting all means of egress (exits), and stairways shall comply with NFPA 101, Life Safety Code.

1.3. Include the following requirements in project specifications:

1.3.1. All fire alarm control panels shall have a class "A" supervised fire alarm circuit which provides a trouble signal and continues to operate as an alarm circuit after one fault has occurred in the wiring.

1.3.2. The control panel shall have a dry set of contacts for each zone, trouble dry contacts, and fire alarm dry contacts for the control panel and shall be compatible with the Monaco system.

1.3.3. Specify a Monaco BT-2-3 Zone transceiver P/N 225-50042 set to frequency 142.850 MHZ, including all equipment necessary to transmit fire alarms to the Base Fire Department, such as cable, brackets, and antennas.

1.3.4. Specify Contractor shall provide spare boards for alarm panels, main board, zone boards, mother board, drawings and schematics of fire alarm panels, recommended spare parts list, and special tools/test equipment required.

2. **Environmental Considerations**:

2.1. **Asbestos Containing Materials (ACM)**: No ACM shall be used in work performed at Tinker AFB. Several facilities on Tinker AFB contain asbestos in the form of pipe insulation, boiler and tank insulation, wall and ceiling materials, floor tile, exterior siding, roofing, and flexible duct connectors. The government will generally perform preliminary surveys to determine the presence of asbestos in facilities where work will be performed.

2.1.1. In some cases the designer may be required to perform asbestos field surveys and testing to determine the extent of ACM present All survey work shall be accomplished by a certified industrial hygienist or personnel trained and certified IAW federal, state, local, and Air Force regulations. Field surveys shall fully describe locations, types (chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite), and quantities. Include percentage of asbestos and composition of material.

2.1.2. Submit documentation and certifications of personnel trained to take ACM samples to the CO prior to beginning asbestos surveys.

2.1.3. Submit samples for ACM testing to a certified laboratory. The designer shall submit to the CO the laboratory results and other pertinent information of samples sent for testing for ACM as soon as they become available.

2. 1.4. Refer to Attachment 4, Section 2, Tinker AFB Asbestos Abatement Specifications for local abatement procedures. The abatement design drawings and specifications shall be based on these local procedures. The designer may, in most cases, be required to provide Attachment 4, Section 1, Scope and Location of Asbestos Containing Materials. All abatement design drawings and specifications shall be coordinated through the Base Environmental Management directorate, OC-ALC/EMCS.

2.2. **Lead-Based Paint**: No lead-base paint shall be used in work performed at Tinker AFB. The government will generally perform preliminary surveys to determine the presence of lead-based paint facilities where work shall be performed.

2.2.1. In some cases the designer may be required to perform field surveys and testing to determine the extent of lead-based paint present. All survey work shall be accomplished by a certified industrial hygienist or personnel trained and certified IAW federal, state, local, and Air Force regulations. Field surveys shall fully describe locations and quantities.

2.2.2. Submit documentation and certifications of personnel trained to take lead-based paint samples to the CO prior to beginning field surveys.

2.2.3. The designer shall submit to the CO the laboratory results and other pertinent information of samples sent for testing as soon as they become available.

2.2.4. Refer to Tinker AFB Lead-Based Paint Management Plan for local procedures. Any abatement design drawings and specifications shall be based on these local procedures. All design drawings and specifications shall be coordinated through the Base Environmental Management directorate, OC-ALC/EMCS.

3. **Safety Considerations**:

3.1. **Standards**: All construction contracts on Tinker AFB are subject to all valid and applicable federal, state, and Air Force laws, rules, and regulations. It is a condition of each contract, and shall be made a condition of each sub-contract, that contractors and subcontractors shall not require any laborer or mechanic employed in the performance of any contract, nor cause any Air Force military, civilian or other contractor personnel to be exposed to any unsanitary, health or safety hazard or condition. These requirements include, as a minimum, the following standards:

3.1.1. Title 29 Code of Federal Regulations, Parts 1910, *General Industry Standards and Interpretations* and 1926, *Construction Safety and Health Standards, Promulgated by the United States Secretary of Labor*.

3.1.2. The National Fire Protection Association (NFPA) which includes by reference the current edition of the National Electric Code.

3.1.3. US Army Corps of Engineers (COE), Safety and Health Requirements Manual (EM 385-1-1).

3.1.4. HQ AFMC/CEC EGL 92-2.

3.1.5. US AFR 127-2, *The US Air Force Mishap Prevention Program*.

3.1.6. US AFR 127-4, *Investigating and Reporting US Air Force Mishaps*.

3.1.7. US AFR 127-12, *Air Force Occupational Safety, Fire Prevention, and Health Program*.

3.2. Ensure the following items, as a minimum, are addressed for each project:

3.2.1. All work shall be coordinated with the construction management inspector, using organization, and the area supervisor prior to start of any construction.

3.2.2. The OC-ALC Safety Office (739-3263) shall be notified immediately of any damage to government property or injury to AF personnel caused by the contractor.

3.2 3. Information regarding fire prevention, welding and cutting, or fire protection systems shall be obtained from and coordinated with the Base Fire Department (734-7964).

3.2.4. Information regarding health and personnel protective equipment shall be obtained from and coordinated with the Base Bio-Environmental Office (734-3719).

3.2.5. Base traffic regulations shall be observed by all contractor personnel. Information regarding such regulations shall be obtained from and coordinated with the Security Forces Squadron (734-3768).

3.2.6. Construction sites shall be properly identified with fences and barriers. Unauthorized personnel may not enter a contractor's working area when such action could result in exposure to injury.

3.2.7. The work area shall be cleaned daily and kept clean and orderly during the period of the contract. All debris, scrap material, tools, and equipment shall be cleared from the work site as work progresses and upon completion of the job. Haul routes shall be cleared of all construction related debris.

3.2.8. Contractor personnel shall not smoke in areas where such action would constitute a fire and/or explosion hazard, and in no instances within 50 feet of liquid fuels or parked aircraft. Smoke only in authorized smoking areas.

3.2.9. All excavations, trenches, and open manholes shall be properly shored, braced, barricaded, or guarded. Warning lights or other illumination maintained from sunset to sunup shall be placed at all excavations which are adjacent to pedestrian or vehicle thoroughfares. Adequate physical protection shall be provided at all remotely located excavations.

3.2.10. Contractor personnel shall not enter manholes, tunnels, tanks, or confined spaces until such entry complies with the requirements of OSHA 1926.21 (6)(I). Government personnel will not enter manholes, tunnels, tanks, or confined spaces until a confined space entry permit has been obtained from the OC-ALC Safety Office, Bio-Environmental Engineers, or the Base Fire Department.

3.2.11. Overhead protection shall be provided where personnel are subject to injury from falling objects.

3.2.12. Mechanized equipment shall be fitted with proper flasher lights and all self-propelled construction equipment shall be equipped with a reverse signal alarm.

3.2.13. Guardrails and toe boards shall be installed on all open sides and ends of platforms and scaffolding over 6 feet above the floor or ground.

3.2.14. Contractors shall store construction material in areas designated by the CEO. No roofing or other material shall be stored on roofs of inhabited buildings, unless prior authority has been obtained from the CO.

3.2.15. After work is completed each day, and as permitted by the CO and approved by the using agency, contractors shall return all areas where work is accomplished to their original condition relative to cleanliness, location, and condition of supplies and equipment.

3.2.16. Government personnel may be working in areas adjacent to work sites. Contractors shall adhere closely to all safety procedures.

3.2.17. Contact the Base Safety Office for further information or assistance.

3.2.18. Complete the matrix shown as Attachment 4 for each project in design. Annotate applicable items.

4. **Energy Conservation Considerations**: Facilities shall include those energy conservation design features which can be economically justified. Principal considerations are building envelope and mechanical systems design and operation to minimize the use of fossil fuels. Passive solar applications shall be considered as per ETL 86-14. Other items for consideration for energy conservation are economy cooling cycle, variable volume systems, and night and weekend system shutdown. Controls for night and weekend setback of space temperature shall be provided for all areas.

4.1. Computer Analysis: Use a computer dynamic analysis technique in order to effectively evaluate all design parameters associated with energy conservation design. Design features shall be evaluated via life-cycle cost analysis. The various alternatives and their costs evaluated during design shall be documented by the designer and included in submittals.

4.2. Energy Monitoring and Control System (EMCS):

4.2.1. All stages of EMCS designs shall be coordinated with the Energy Management Program monitor in the Utility Engineering section (72 CEG/CECU) and HQ AFMC.

4.2.2. Mechanical and electrical systems in facilities shall be provided with the necessary sensors, controls, and hardware points to implement the EMCS application programs, per AFM 88-36, Chapter 3, Section II, for monitoring and control of the systems. Site specific schematics shall be provided per AFM 88-36, Chapter 4, showing all sensors, controls, and hardware points. Wiring from sensors, controls, and hardware points shall be in conduit and terminated at a Data Termination Cabinet (DTC) located in mechanical rooms. The conduit shall enter the side and bottom of the panel only. Hand-off-automatic (HOA), off-automatic, and all similar switches shall be key-operated with all switches keyed alike. Design criteria are AFM 88-36, AFR 91-24, ETL 944, and the Corps Engineering Guide Specification (CEGS) 13946, latest edition.

4.3. The following address schedule is only an example of the points that should be monitored and/or controlled. The designer shall submit the proposed schedule of points to be monitored and/or controlled in the I/O summary table format as outlined in AFM 88-36, Chapter.

- Outside Temperature (F)
- Outside Humidity (%)
- Boiler Safeties Chiller Safeties Air Handler Safeties (Freezestats, Firestats)
- Air Flow Monitor (normal/low)
- Start/Stop Monitor (normal/low)
- Hot Deck (F) . Cold Deck (F)
- Return Air Temperature (F)
- Mixed Air Temperature (F)
- Supply Temperature to each Zone (F)
- Room Air Temperature for each Zone (F)
- Humidity for each Zone (%)
- Intercom to the Building from CRT
- Chilled Water Supply (F)
- Chilled Water Return (F)
- Chilled Water Flow (GPM)
- Chiller Start/Stop Control
- Tower Fan Status (on/off)
- Condenser Water Supply & Return Temps (F)
- Chilled Water Pump Status (on/off)
- Enthalpy Control
- Economizer Control
- Hot Water Pump Status (on/off)
- Hot Water Supply & Return Temperatures (F)
- Hot Water Flow (GPM)
- Tons Cooling
- BTUs Heating
- Filter Media
- Motor Run Time (elapsed)
- Emergency Generator Status (on/off/ready)
- Load Side Voltage
- Moisture Alarms in Raised Floor Areas

4.4. **Engineering Technical Letters (ETLs)**: The following is a brief summary of energy related ETLs to assist the designer in their application to specific projects. For full information concerning the requirements, reference the applicable ETL. The following summaries are not intended to replace the ETLs:

4.4.1. ETL 83-1, *HVAC Control Design* shall apply to most designs. Places specific requirements on the design of HVAC control systems and lists standardized systems for use in specific applications.

4.4.2. ETL 83-9, Insulation applies to all designs. Establishes requirements for optimum insulation where heat gain or loss can be significantly affected by such insulation.

4.4.3. ETL 84-7, *MCP Energy Conservation Investment Program (ECIP)*. Use for ECIP projects only.

4.4.4. ETL 86-14, *Solar Applications*: Prescribes the conditions and considerations for including active and passive design. Reference ETL 82-7.

4.4.5. ETL 94-4, *Energy Usage Criteria for Facilities* in the Military Construction Program. To be used in all MILCON projects.

4.4.6. ETL 95-4, *Mandatory Energy/Water Performance Standards for Replaced or Modified Equipment.*

5. **Computer Aided Design and Drafting (CADD) Considerations**:

5.1. **General**: All drawings will be digitized and must be delivered in printed form and on machine-readable media. The number of printed copies required for construction documents and other uses will be specified by project requirements, as well as the media upon which they will be printed. Section 3 of the "Air Force Materiel Command (AFMC) CADD Standards Manual" defines the levels to segregate information in all discipline drawings. Appendix B of the Standards Manual shows standards developed by the Corps of Engineers (COE) for sheet organization, layout and binding. 72 CEG borders will be used in lieu of the COE border illustrated in the standard for other than MILCON projects. Tinker AFB in-house design teams and contract Architect-Engineer (A-E) firms will use these guidelines when producing a set of plans.

5.2. **Machine Readable Requirements**:

5.3. **Drawing Format**: Drawings shall be produced in a format compatible with one of the following CADD systems: MicroStation/32 on the UNIX platform or MicroStation PC on the PC platform, and if the project is managed by the 72 CEG/CECD design section, AutoCADD 12 is required. Files submitted shall be in acceptable Intergraph format. Translations from other CADD systems will be 100% compatible with the Intergraph format.

5.4. Media Format: 72 CEG has access and capability to accept and provide digital data in the following formats:

Media Type	**Density**	**Operating System**	**Storage Command**
Floppy Disk	720K or 1.44K	MS-DOS	COPY
Floppy Disk		UNIX	TAR or CPIO
8mm Data Tape	2.3GB or 5 GB	UNIX	CPIO or SCPIO

5.4.1. Each diskette or tape shall have an external label indicating operating system/version, format, density, company/organization name, point of contact name, point of contact number, creation date, diskette volume label and number, full storage command used to archive files, full store command used to create files.

5.5. **Documentation**: A hard copy documentation handbook and ASCII disk shall be submitted with the machine-readable media. This handbook shall contain the specifics of the database, the file names, reference file names, plotting files, cell library names, level designation assignments, and all other pertinent information used in constructing and managing the drawings and database.

5.6. **Project Management**: Development and manipulation of drawings and reference files along with file naming methodology **shall be strictly adhered to** as defined in Section 1 of the "AFMC CADD Standards Manual." This CADD Standards Manual defines file naming conventions, file setup procedure, element attributes, and appropriate level assignments. File name shall be confirmed with the CADD Systems Manager to ensure that file name conforms to local changes.

6. **Specifications Considerations**:

6.1. The designer shall submit technical specifications using Corps of Engineers Guide Specifications (CEGS) or SPECSINTACT (for Windows). Tinker AFB specification section 00700, *General Requirements*, provided as Atch 3 to this standard, shall be reviewed and incorporated in the specifications. This specification shall be modified as required for COE projects.

6.2. Final specifications (100% corrected) shall be delivered on 3-1/2 inch word-processing micro floppy disks in the latest version of Microsoft Word for Windows or WordPerfect. The designer shall provide an unbound hard copy suitable for reproduction

7. **Cost Estimating Considerations**:

7.1. **General**: All cost estimates shall be based on recent documented bid data or the latest edition of "Building Construction Cost Data" as published by the Robert Snow Means Company, Inc.

7.2. **Procedures**: All estimates shall be based on unit costs. Single, lump sum estimates for projects shall not be used. All estimates for change orders and the 8A Small Business Set Aside Program shall be prepared on AF Form 3052, and shall include labor hours, material, and bonding costs. The cost estimates for change orders and the 8A Program shall be presented in considerable detail.

8. **Special Considerations**: The following are general considerations. For more in-depth, specific information, refer to Tinker AFB specifications section 00700, *General Requirements*, Atch 3.

8.1. **Construction Season Limitations**: There are no construction season limitations.

8.2. **Skilled Labor and/or Structural Material Availability**: Skilled labor and structural materials are readily available in the local economy.

8.3. **Permits**: The contractor shall obtain all required building and excavation permits.

8.4. **Master Keying and Locks**: Tinker AFB utilizes the master keying system provided by the BEST Universal Lock Co. The designer shall clearly specify that only those cores which are compatible with the BEST master keying system shall be used. Locks shall be supplied with construction cores. Individual locks shall be provided for in all areas except public toilets. Where existing locksets are to be replaced, ensure that the existing cores are turned in to the Base Lock Shop.

8.5. **Procedures for Non-Standard Work Days**: The standard workday for the Base Civil Engineer Group at Tinker AFB is from 0715 (7:15 a.m.) to 1600 (4:00 p.m.). The contractor's workday shall be compatible with that schedule. Written requests for any deviations from the contractor's work schedule (overtime or night shifts) must be made to the Contracting Officer 48 hours in advance of the proposed scheduled deviation. Approval of such requests must also be in writing and in advance of any proposed schedule deviation.

8.6. **Utility Outages and Road Closings**: Unless otherwise specified, all utility outages shall be accomplished between 1800 Friday and 0600 Monday. All outages shall be coordinated in writing through the Contracting Officer with written approval from 72 CEG/CECE, Construction Management Section.

8.7. **Passes**:

8.7 1. **Security clearances**: All contractor personnel are required to obtain a base pass from the Base Security Forces Squadron through the Contracting Officer. For work within "Controlled Access" areas, the Contractor must provide names, birth dates, and social security numbers of everyone who will need access to the site.

8.7.2. **Construction permits**: Contractors shall be required to obtain an approved Base Civil Engineering Work Clearance Request prior to starting any construction work.

8.7.3. **Soil and Foundation Conditions**:

8.7.3.1. The Design Agent or Corps of Engineers will conduct a soil investigation as required to determine the subsoil conditions. The soil varies from a sandy silt to a sandy clay with areas of stratification of the various types. Soil resistivity varies from a high of 26,100 ohm-cm to a low of 529 ohm-cm. There is no soil resistivity data available at the base.

8.7.3.2. The typical foundation type for facilities at Tinker AFB is a conventional pier and grade beam system separated from a "floating slab" or "slab on grade" by use of isolation and/or expansion joints.

9. **Available Services**: Bases services and utilities available to the contractor:

9.1. **Electrical service**: The contractor may temporarily hook up to existing electric as required to accomplish the work.

9.2. **Water**: The contractor may temporarily hook up to existing water as required to accomplish the work.

9.3. **Sewage**: The contractor will provide portable toilets for construction crews.

9.4. **Trash disposal and construction debris**: The contractor may <u>not</u> use trash dumpsters on the installation. All waste material generated by construction or demolition activities shall be hauled off-base by the contractor and disposed of at a legal dump site. The haul route shall be maintained free of debris, mud, rock, and trash by the contractor at all times.

10. **Maps**: Base utility and contour maps are available at the Base Civil Engineer office, Building 400

APPENDIX F

METRIC DESIGN AND DRAFTING CONVENTIONS

Metric in Construction

Volume 3, Issue 3 May-June 1994

ONE MORE TIME: WHATE WILL CHANGE AND WHAT WILL STAY THE SAME?

METRIC MODULE AND GRID

What will change

■ The basic building module--from 4 inches to **100 mm**.

■ The basic planning grid--from 2' x 2' to **600 x 600 mm**.

What will stay the same

■ A module and grid based on rounded, easy-to-use dimensions. The 600 x 600 mm grid is the global standard.

DRAWINGS

What will change

■ Units--from feet and inches to **millimeters** for all building dimensions and to **meters** for large site plans and civil engineering drawings. Unit notations are unnecessary: if there's no decimal point, it's millimeters; if there's a decimal point carried to one, two, or three places, it's meters. **Centimenters are not used in construction.**

■ Drawing scales--from inch-fractions-to-feet to true ratios. Preferred metric scales are:

1:1 (full size)
1:5 (close to 3" - 1'-0"
1:10 (between 1" = 1'-0" and 1-1/2" = 1'-0")
1:20 (between 1/2" = 1'-0" and 3/4" = 1'-0")
1:50 (close to 1/4" = 1'-0")
1:100 (close to 1/8" = 1'-0")
1:200 (close to 1/16" = 1'-0")
1:500 (close to 1" = 40'-0")
1:1000 (close to 1" = 80'-0")

■ Drawing sizes--to the ISO "A" series:

A0 (**1189 x 841 mm**, 46.8 x 33.1 inches)
A1 (**841 x 594 mm**, 33.1x 23.4 inches)
A2 (**594 x 420 mm**, 23.4 x 16.5 inches)
A3 (**420 x 297 mm**, 16.5 x 11.7 inches)
A4 (**297 x 210 mm**, 11.7 x 8.3 inches)

Of course, metric drawings can be made on any size paper.

What will stay the same

■ Drawing contents.

Never use dual units (both inch-pound and metric) on drawings. It increase dimensioning time, doubles the chance for errors, makes drawings more confusing, and delays the learning prpocess.

SPECIFICATIONS

What will change

■ Units of measure--from feet and inches to **millimeters** for linear dimensions, from square

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The National Institute of Building Sciences is a nonprofit, nongovernmental organization authorized by Congress to serve as an authoritative source on issues of building science and technology.

The Council is an outgrowth of the Construction Subcommittee of the Metrication Operating Committee of the federal Interagency Council on Metric Policy. The Construction Subcommittee was formed in 1988 to further the objectives of the 1975 *Metric Conversion Act*, as amended by the 1988 *Omnibus Trade and Competitiveness Act*. To foster effective private sector participation, the activities of the subcommittee were transferred to the Council in April 1992.

Membership in the Council is open to all public and private organizations and individuals with a substantial interest in and commitment to the Council's purposes. The Council meets bimonthly in Washington, D.C., publishes the *Metric Guide for Federal Construction* and this bimonthly newsletter, and coordinates a variety of industry metrication task groups. It is funded primarily by contributions from federal agencies. For membership information, call the Council at the above phone number.

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feet to **square meters** for area, from cubic yards to **cubic meters** for volume (except use **liters** for fluid volumes), and from other inch-pound units to metric units as appropriate.

What will stay the same

■ Everything else in the specification.

Do not use dual units in specifications except when the use of an inch-pound measure serves to clarify an otherwise unfamiliar metric measure; then place the inch-pound unit in parenthese after the metric. For example, "7460 W (10 horsepower) motor." All unit conversions should be **checked by a professional** to ensure that rounding does not exceed allowable tolerances.

FLOOR LOADS

What will change

■ Floor load designations--from "psf" to kilograms per square meter **(kg/m^2)** for everyday use and kilonewtons per square meter **(kN/m^2)** for structural calculations.

What will stay the same

■ Floor load requirements.

Kilograms per square meter often are used to designate floor loads because many live and dead loads (furniture, filing cabinets, construction materials, etc.) are measured in kilograms. However, kilonewtons per square meter of their equivalent, megapascals, are the proper measure and should be used in structural calculations.

CONSTRUCTION PRODUCTS

What will change

■ Modular products--brick, block, drywall, plywood, suspended ceiling components, and raised floors. They will undergo "hard" conversion; that is, their dimensions will change to new rounded "hard" metric numbers to fit the universal **600 x 600 mm** metric planning grid.

■ A number of other products such as concrete reinforcing bars and various kinds of fasteners.

They are being converted to hard metric sizes as the result of industry initiatives.

■ Poured-in-place concrete and products that are custom-fabricated for each job (for example, cabinets, stairs, handrails, ductwork, commercial doors and windows, structural steel, and precast concrete). Such products ususally can be made in any size, inch-pound or metric, with equal ease; therefore, for metric jobs, they simply will be fabricated or formed in metric.

What will stay the same

■ The balance of products since they are cut-to-fit at the jobsite (for example, framing lumber, woodwork, wiring, piping, and roofing) or are not dimensionally sensitive (for example, fasteners, hardware, electrical components, plumbing fixtures, HVAC equipment, and gravel). Such products will just be "soft" converted--that is, relabeled in metric. A 2-3/4" x 4-1/2" wall switch face plate will be relabeled 70 x 115 mm and a 30 gallon tank, 114 L. Manufacturers may convert many of these products to new rounded "hard" metric sizes eventually but only when it becomes convenient for them to do so.

"2-BY-4" STUDS AND OTHER "2-BY" FRAMING (BOTH WOOD AND METAL)

What will change

■ Spacing--from 16" to **400 mm**, and 24" to **600 mm**.

What will stay the same

■ Cross sections.

"2-bys" now are produced in "soft" fractional inch dimensions so there is no need to convert them to new rounded "hard" metric dimensions. 2-by-4s may keep their traditional name or perhaps they-ll be relabeled a nominal 50 x 100 mm or a more exact size, such as 38 x 89 mm.

DRYWALL, PLYWOOD, AND OTHER SHEET GOODS

What will change

■ Widths--from 4'-0" to **1200 mm**.

■ Heights--from 8'-0" to **2400 mm**, 10'-0" to **3000 mm**.

What will stay the same

■ Thicknesses, so fire, acoustic, and thermal ratings won't have to be recalculated.

Metric drywall and plywood are readily available but with a possible cost penalty for small orders. Metric rigid insulation may not be available at this time.

BATT INSULATION

What will change

■ Nominal width labels--from 16" to **16"/400** mm and 25" to **24"/600 mm**.

What will stay the same

■ Everything else.

Batts will not change in width; they'll just have a tighter "friction fit" when installed between metric-spaced framing members.

DOORS

What will change

■ Height--from 6'-8" to **2050 mm** or **2100 mm** and from 7'-0" to **2100 mm**.

■ Width--from 2'-6" to **750 mm**, from 2'-8" to **800 mm**, from 2'-10' to **850 mm**, from 3'-0" to **900 mm** or **950 mm**, and from 3'-4" to **1000 mm**.

What will stay the same

■ Door thicknesses.

■ Door materials and hardware.

For commercial work, doors can be ordered in any size since they normally are custom-fabricated.

CEILING SYSTEMS

What will change

■ Grids and lay-in ceiling tile, air diffusers, and lighting fixtures--from 2' x 2' to **600 x 600 mm** and from 2' x 4' to **600 x 1200 mm**.

What will stay the same

■ Grid profiles, tile thicknesses, air diffuser capacities, florescent tubes, and means of suspension.

RAISED FLOOR SYSTEMS

What will change

■ Grids and lay-in floor tile--from 2' x 2' to **600 x 600 mm**.

What will stay the same

■ Grid profiles, tile thicknesses, and means of support.

HVAC CONTROLS

What will change

■ Temperature units--from Fahrenheit to Celsius.

What will stay the same

■ All other parts of the controls.

Controls are now digital so temperature conversions can be made with no difficulty.

BRICK

What will change

■ Standard brick--to **90 x 57 x 190 mm**.

■ Mortar joints--from 3/8" and 1/2" to **10 mm**.

■ Brick module--from 2' x 2' to **600 x 600 mm**.

What will stay the same

■ Brick and mortar composition.

Of the 100 or so brick sizes currently made, 5 to 10 are within a millimeter of a metric brick so the brick industry will have no trouble supplying metric brick.

CONCRETE BLOCK

What will change

■ Block sizes--to **190 x 190 x 390 mm**.

■ Mortar joints--from 1/2" to **10 mm**.

■ Block module--from 2' x 2' to **600 x 600 mm**.

What will stay the same

■ Block and mortar composition.

SHEET METAL

What will change

■ Designation--from “gage” to millimeters.

What will stay the same

■ Thickness, which will be soft converted to hundredths of a millimeter.

In specifications, use millimeters only or millimeters with the gage in parentheses.

CONCRETE

What will change

■ Strength designations--from “psi” to megapascals, rounded to the nearest 5 megapascals per ACI 318M as follows:

2500 psi = **20 Mpa**
3000 psi = **25 MPa**
3500 psi = **25 Mpa**
4000 psi = **30 Mpa**
4500 psi = **35 Mpa**
5000 psi = **35 Mpa**

Yes, both 3000 and 3500 psi are converted to 30 MPa, which indicates the fairly broad allowable tolerances used in concrete strength designations.

What will stay the same

■ Everything else.

REBAR

What will change

■ Rebars will change in size per ASTM A615M, A616M, A617M, and A706M. New metric bar sizes change from current bar sizes as follows:

No. 3 and No. 4 to **10**
No. 5 to **15**
No. 6 to **20**
No. 7 and No. 8 to **25**
No. 9 and No. 10 to **30**
No. 11 to **35**
No. 14 to **45**
No. 18 to **55**

What will stay the same

■ Installation methods.

GLASS

What will change

■ Cut sheet dimensions--from feet and inches to millimeters.

What will stay the same

■ Sheet thickness; sheet can be rolled to any dimension and often is rolled in millimeters now. See ASTM C1036.

PIPE AND FITTINGS

What will change

■ Nominal pipe and fitting designations--from inches to millimeters.

What will stay the same

■ Pipe and fitting cross sections and threads.

Pipes and fittings are produced in "soft" decimal inch dimensions but are identified in moninal inch sizes as a matter of convenience. A 2-inch pipe has neither an inside nor an outside diameter of 2 inches, a 1-inch fitting has no exact 1-inch dimension, and a 1/2-inch sprinkler head contains no 1/2-inch dimension anywhere; consequently, there is no need to "hard" convert pipes and fittings to rounded metric dimensions. Instead, the will not change size but simply be relabeled in metric as follows:

1/8" = **6 mm**	1-1/2" = **40 mm**
3/16" = **7 mm**	2" = **50 mm**
1/4" = **8 mm**	2-1/2" = **65 mm**
3/8" = **10 mm**	3" = **75 mm**
1/2" = **15 mm**	3-1/2" = **90 mm**
5/8" = **18 mm**	4" = **100 mm**
3/4" = **20 mm**	4-1/2" = **115 mm**
1" = **25 mm**	1" = 25 mm for all larger sizes
1-1/4" = **32 mm**	

See the July-August 1993 *Metric in Construction* newsletter for more information.

ELECTRICAL CONDUIT

What will change

■ Nominal conduit designations--from inches to millimeters.

What will stay the same

■ Conduit cross secitons.

Electrical conduit is similar to piping: it is produced in "soft" decimal inch dimensions but is identified in nominal inch sizes. Nonmetallic conduit will not change size but will be relabeled in metric as follows:

1/2" = **12** (mm)	2-1/2" = **65** (mm)
3/4" = **20** (mm)	3" = **75** (mm)
1" = **25** (mm)	3-1/2" = **90** (mm)
1-1/4" = **32** (mm)	4" = **100** (mm)
1-1/2" = **40** (mm)	4-1/2" = **115** (mm)
2" = **50** (mm)	1" = 25 (mm) for all larger sizes

Metallic conduit will not change size but will be labeled in mteric as follows:

1/2" = **16** (mm)	2-1/2" = **63** (mm)
3/4" = **21** (mm)	3" = **78** (mm)
1" = **27** (mm)	3-1/2" = **91** (mm)
1-1/4" = **35** (mm)	4" = **103** (mm)
1-1/2" = **41** (mm)	5" = **129** (mm)
2" = **53** (mm)	6" = **155** (mm)

The new metric names were asigned by the National Electrical Manufacturers Association.

ELECTRICAL WIRE

What will change

■ Nothing at this time

What will stay the same

■ Existing American Wire Gage (AWG) sizes.

STRUCTURAL STEEL

What will change

■ Section designations--from inches to **millimeters** and from pounds per foot to **kilograms per meter**, in accordance with ASTM A6M.

■ Bolts--to metric diameters and threads per ASTM A325M and A490M.

What will stay the same

■ Cross sections.

Like pipe and conduit, steel sections are produced in "soft" decimal inch dimensions (with actual depths varying by weight) but are named in rounded inch dimensions so there is no need to "hard" convert them to metric. Rather, their names will be changed to metric and rounded to the nearest 10 mm. Thus, a 10-inch section is relabeled as a 250-mm section and a 24-inch section is relabeled as a 610-mm section.

HIGHWAY UPDATE

Here is the status of the highway metrication as reported at the AASHTO/FHWA National Metric Conference in January 1994: 48 states expected to be designing in metric by the end of this year; 42 states were planning pilot projects; 35 states were converting their standard specifications and 9 already had done so; 33 states were converting their standard plans and 4 already had done so.

The California Department of Transportation, in its bimonthly *Metric Letter*, reminds surveyors that the difference between the standard foot and the U.S. survey foot must be taken into account during metric conversion. The standard foot is 304.8 mm and the U.S. survey foot is 304.8006 mm.

English is the international language of business.
Metric is the international language of measurement.

National Institute of
BUILDING SCIENCES

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APPENDIX G

SITE SURVEY, SOIL CHARACTERISTICS, AND ENGINEERING CRITERIA

APPENDIX G

SOIL CHARACTERISTICS, SURVEYING, AND GEOTECHNICAL ENGINEERING CRITERIA

144 PERSON DORMITORY PROJECT
TINKER AIR FORCE BASE

MAY, 1998

PREPARED BY: DESIGN BRANCH
GEOTECHNICAL ENGINEERING & DAM SAFETY SECTION
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT

1.0 GENERAL. This Appendix provides the minimum requirements for topographic surveying, site investigation, soils testing, and foundation and pavement design analyses for the 144 Person Dormitory Project at Tinker Air Force Base, Oklahoma. The Offeror's proposal shall outline their drilling and testing program including the number, depth, and type of borings to be advanced, and the estimated number and type of laboratory tests to be conducted.

The successful Offeror shall conduct topographic survey mapping for the proposed 144 Person Dormitory Project as specified in Section 5.0 of this Appendix.

The successful Offeror shall conduct a complete, in-depth drilling and testing program as specified in Section 3.0 of this Appendix to provide all geotechnical data required to complete the foundation and pavement designs for this facility. The Foundation and Pavement Design Analysis shall include all boring information, laboratory test results, design calculations, and supporting documentation as specified in Section 3.0 of this Appendix.

The successful Offeror shall be responsible for obtaining all necessary drilling permits and utility clearances prior to drilling. Tulsa District, Geotechnical Engineering and Dam Safety Section shall be notified at (918) 669-7673 48 hours prior to the start of drilling and sampling for this project.

2.0 SUBSURFACE CONDITIONS.

2.1 Geologic Setting. Tinker AFB, Oklahoma, lies within the southwest boundary of the Interior Lowlands Province and is characterized by flat to very gently rolling topography. Principle drainage is furnished by Crutcho Creek, which crosses the west central part of the base. The base is underlain by bedrock (red

beds) of Permian Age which include the Hennessey Group and the Garber Sandstone/ Wellington Formation. The Permian deposits form long parallel belts of outcrops that extend without interruption from northwestern Nebraska across Kansas into south-central Oklahoma. The beds dip westward at a very low angle forming a structure that has been termed the Prairie Plain Homocline. The Permian beds underlying the Base consist of interbedded layers of clayey shale and weakly to well cemented sandstone and siltstone, all red to reddish brown in color. Overburden soils consist of residual red to reddish-brown clay (CL to CH), sand, and silt. The base is located in seismic zone 2A.

2.2 Subsurface Investigations. Three borings (9801DB, 9802AC, and 9803AC) were drilled at the site in March, 1998. Samples of subsurface materials were obtained from borings with a 6" Denison Barrel sampler, a 4" core bit, and a 4" flight auger. The samples were shipped in airtight containers to the Corps of Engineers Materials Testing Center in Vicksburg, MS, for classification and testing. Gradation, Atterberg limits, moisture content, and dry density were determined for selected samples, and unconfined compression and controlled expansion consolidation tests were conducted. **Attachment A** contains borehole logs, a plan of exploration showing the borehole locations, and a subsurface profile. Laboratory soil test data is presented in **Attachment B**. The stratification boundaries indicated on the boring logs are based on observations during drilling and on data obtained from laboratory classification and testing. The location of each boundary is approximate, and the transition between soil types is generally gradual rather than clearly defined.

The boring logs and soil testing results presented in Attachments A and B are generally representative of the variety of materials which can be expected at the site; **however, the actual depths, thicknesses, strengths, and properties of the materials encountered at the site are expected to vary**. The successful Offeror shall conduct a complete, in-depth drilling and testing program as specified in Section 3.0 of this Appendix to develop the final foundation and pavement designs for this facility.

2.3 Site Conditions. Site topography ranges from flat to gently sloping eastward with an intermittent stream/drainage ditch located within the eastern boundary of the site.

Overburden at the site varies from 2.74 to 6.89 meters in thickness. Overburden soils consist of lean clay (CL) and high plasticity clay (CH). The overburden clays are generally sandy and vary in color from red to brown. The primary rock materials beneath the overburden consist of clay shale and sandstone with some interbedded layers of hard, well cemented, sandy pebble conglomerate. The depth to the top of rock ranged from 2.74 m in

boring 9801DB to 6.89 m in boring 9803AC. Individual boring logs should be reviewed for detailed descriptions of the subsurface conditions encountered at the site.

Following a 24 hour stabilization period, the depth to groundwater was measured in each boring. The 24 hour stabilized groundwater level varied from 3.93 meters in boring 9801DB to 4.75 meters in boring 9803AC.

Plots showing the variations in dry density, Atterberg Limits, and shear strength with elevation at the site are included in Attachment 2 along with a plasticity chart and the results of the consolidation and strength testing. **Table 2.1** presents the undrained shear strength results from triaxial and unconfined compression tests performed on soil and rock samples collected at the site.

Table 2.1 - Soil Undrained Shear Strength

Boring No.	Depth (meters)	Elevation (meters)	Undrained Shear Strength (kPa)
9801	1.07	368.27	95.8 (Q)
9801	9.74	359.60	480.2 (UC)
9801	10.10	359.24	2291.5 (UC)
9802	8.64	361.28	1960.7 (UC)
9802	9.24	360.69	1773.0 (UC)
9802	9.97	359.96	2751.2 (UC)
9802	11.11	358.81	1382.3 (UC)
9803	11.17	358.96	1571.4 (Q)

Q = 1 point Unconsolidated, Undrained Test
UC = Unconfined Compression Test

For estimating purposes, Offerors shall assume a **CBR value of 3** and a **Modulus of Subgrade Reaction (K) value of 27 kPa/mm (100 pci)**.

One controlled expansion consolidation test was performed on a sample collected between 0.8 m and 1.4 m in boring 9801DB. The results of this test indicated an expansive pressure of 21 kPa (0.22 tsf). This test was conducted on a lean clay with a Liquid Limit of 34 and a Plastic Index of 18; however, some of the shallow soils tested at the site were more active with Liquid Limits as high as 59 and Plastic Index values as high as 43. Based on swell pressure tests conducted on similar expansive soils

at Tinker AFB, these more active soils would be expected to exhibit swell pressures between 48 and 144 kPa (0.5 and 1.5 tsf). Offers shall be based on an expansive pressure of at least 60 kPa (0.6 tsf).

3.0 REQUIREMENTS FOR PREPARATION OF FOUNDATION AND PAVEMENT DESIGNS. The successful Offeror shall satisfy the following minimum requirements for drilling, sampling, testing, and preparation of the Foundation and Pavement Design Analysis Report for the 144 Person Dormitory Project at Tinker AFB.

3.1 Subsurface Investigation. The successful Offeror shall conduct a complete in-depth drilling and testing program as outlined in TM 5-818-1, Procedures for Foundation Design of Buildings and Other Structures to develop the foundation design for this facility. The geotechnical information and test data provided in this Appendix may be used to supplement the successful Offeror's drilling and testing program.

The successful Offeror shall advance, sample, and test soil borings beneath the footprint of the proposed structures. The number of borings and frequency of testing shall be in accordance with the requirements set forth in TM 5-818-1. Borings shall also be advanced, sampled, and tested, and/or in-situ tests shall be conducted (CBR, Plate Bearing, or other appropriate in-situ tests) for the pavement subgrades beneath the parking areas and running track.

Because of the expansive nature of the soils at Tinker AFB, continuous undisturbed samples shall be obtained from the ground surface to the top of rock in at least one boring to assess potential consolidation and heave movements. These samples shall be obtained with a 6-inch Denison barrel sampler, a 6-inch Pitcher Sampler, or a 5-inch Shelby tube. Use of other equivalent sampling methods may be approved by the Tulsa District Geotechnical Engineering & Dam Safety Section at 918-669-7673.

Core samples shall be obtained from the underlying rock at 5 foot (1.5 m) intervals and at material changes using a minimum 4-inch core barrel. Borings shall be advanced and sampled to a minimum depth of 35 feet (10.7 meters) below the existing ground surface for pier and grade beam foundations. Borings shall be advanced to a minimum depth of 20 feet (6.1 meters) below the existing ground surface for shallow foundations such as ribbed mat slabs, thickened slabs, or shallow footings.

3.2 Subsurface Conditions. The Foundation and Pavement Design Analysis Report shall include a summary of the site and subsurface conditions, and shall describe the methods employed to obtain soil

and rock samples. Geologic profiles, boring logs, plan of exploration, and laboratory test results shall be included in the appendices of the Foundation and Pavement Design Analysis report. In addition, the plan of exploration, geologic profiles, and boring logs shall also be included in the drawings.

The boring logs shall include soil descriptions, sampling methods, sample intervals, depth of groundwater, boring location (coordinates), and top of ground elevation. The geologic profiles shall include all soil/rock classification information, Atterberg limits, water content, static water levels, percent gravel, sand, and fines, and strength test results.

3.3 Laboratory Testing. Classification, mechanical sieve analysis, Atterberg limits (Liquid Limits using 3 point method), water content, and dry density tests shall be conducted to determine the index properties of the soil. Compressive strength tests shall be conducted to evaluate the shear strength of the soil and controlled expansion consolidation tests shall be conducted to evaluate the compressibility/expansive characteristics of the soil. CBR testing (or other appropriate testing to evaluate subgrade strength) shall be completed for use in the design of the pavements. All testing shall be conducted in accordance with procedures specified in EM 1110-2-1906, Laboratory Soils Testing.

Samples for compressive strength testing shall be confined at overburden pressure and tested under unconsolidated and undrained conditions. Rock samples may be tested using unconfined compression tests. **Calibrated hand penetrometer tests shall not be used to determine the unconfined compressive strength of cohesive soils.**

Controlled expansion consolidation tests shall be performed on undisturbed samples collected from the overburden material to assess potential settlement and/or heave for shallow footings, floating slabs on grade, piers, and edge lift/center lift conditions for ribbed mat slabs and thickened slabs. At least one of the consolidation tests shall be conducted on samples collected from the active zone. The expansive pressure of the soil shall be measured as part of the controlled expansion consolidation test procedure. The following loading and unloading sequence shall be followed: 0.25, 0.5, 1.0, 2.0, 4.0, 8.0, 16.0, 4.0, 0.25, and 0.1 tons/ft^2. To measure the expansive pressure, separate swell pressure tests may be run in conjunction with conventional consolidation tests rather than conducting controlled expansion consolidation tests.

To evaluate foundation settlement for pier and grade beam foundations, consolidation tests shall also be performed on

samples obtained at depths within 2 pier base diameters of the expected pier founding elevation (if consolidation testing is appropriate for the material type present at that depth). These consolidation tests shall be performed using the loading and unloading sequence specified above.

3.4 Foundation Design Analysis. All foundation and pavement design recommendations shall be supported by presenting the methods of analysis along with the field and laboratory data.

Foundation designs shall be completed in accordance with the following references. These references and any other references used to develop the design shall be cited in the bibliography of the design analysis report.

SWD-AEIM, Southwestern Division Architectural and Engineering Instructions Manual, August, 1996.

ETL 1110-3-471, Design and Construction of Conventionally Reinforced Ribbed Mat Slabs (RRMS), September, 1995.

TM 5-818-1, Soils and Geology Procedures for Foundation Design of Buildings and Other Structures, Oct., 1983.

TM 5-818-7, Foundations in Expansive Soil, Sept., 1983.

TM 5-809-1, Load Assumptions For Buildings, March, 1986

TM 5-809-12, Concrete Floor Slabs on Grade Subjected to Heavy Loads, August, 1987.

EM 1110-1-1904, Settlement Analysis, September, 1990.

EM 1110-1-1905, Bearing Capacity of Soils, Oct., 1992.

EM 1110-2-1906, Laboratory Soils Testing, August, 1986.

U.S. DOT, Drilled Shafts: Construction Procedures and Design Methods, Lymon C. Reese and Michael W. O'Neill, 1988.

For pier designs, the allowable pier capacities shall be developed based on laboratory test results of samples obtained from the site and shall be presented (along with all computations) in the foundation design analysis. The design vertical movement for the piers shall be specified in the design analysis. Side friction shall be considered (if appropriate for the site conditions) when determining the allowable load capacity for the piers. The design analysis shall include the design column loads, load distribution along the shaft and base, potential settlement, uplift resistance capacity, and assumed depth of active zone.

Settlement and heave calculations shall be completed as part of the foundation design analysis to determine the thickness of soil removal and replacement with nonexpansive fill required to limit the potential settlement and heave of floating slabs on grade and/or ribbed mat slab foundations. Floor slabs may be structurally supported over a 150 mm (6 inch) void when this method of construction is determined to be more cost effective than removal and replacement with nonexpansive fill. Load assumptions and soil parameters used for heave and settlement calculations shall be clearly indicated.

When shallow footings are recommended, the Design Analysis shall include bearing capacity, settlement and heave calculations for the shallow footings to demonstrate that the potential vertical movement of these footings is tolerable.

3.5 Pavement Design Analysis. Flexible and Rigid pavement sections shall be designed and detailed using criteria presented in TM 5-822-5, Pavement Design for Roads, Streets, Walks, and Open Storage Areas, and TM 5-822-2, General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas. The Design Analysis shall indicate the design traffic and soil parameters used in arriving at the recommended pavement section.

Joint details for concrete pavement shall be constructed as presented in the Design Guide for Army and Air Force Airfields, Pavements, Railroads, Storm Drainage, and Earthwork, April 1991. Joint seals in new rigid pavements shall be preformed compression seals.

Concrete pavement shall be reinforced where mismatched joints and odd-shaped slabs occur. Reinforcement details shall be in accordance with the specifications in the Army/Air Force Technical Manual Pavement Design for Roads, Streets, Walks, and Open Storage Areas, TM 5-822-5.

Pavement designs shall be completed in accordance with the following references. These references and any other references used to develop the pavement designs shall be cited in the bibliography of the design analysis report.

SWD-AEIM, Southwestern Division Architectural and Engineering Instructions Manual, August, 1996.

TM 5-822-5, Pavement Design for Roads, Streets, Walks and Open Storage Areas, June, 1992.

DG 1110-3-204, Design Guide for Army and Air Force Airfields, Pavements, Railroads, Storm Drainage, and Earthwork, April, 1991.

TM 5-822-2, General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas, July, 1987.

EM 1110-2-1906, Laboratory Soils Testing, August, 1986.

3.6 Minimum Design Criteria. All foundation design details shall be in accordance with the Southwestern Division Architectural and Engineering Instructions Manual (SWD-AEIM), August, 1996.

Floor slabs in areas which are particularly sensitive to differential movements shall be structurally supported over a minimum 150 mm (6 inch) void. These areas include mechanical rooms, restrooms, and rooms with tile floor and/or wall finishes. Slabs on grade shall neither bear on nor be tied to grade beams.

Nonexpansive fill shall be defined as satisfactory material (SC, SM, SW, SP, CL, GC, and GM) having a plasticity index between 3 and 12. **All fill required to bring a structure to grade shall be nonexpansive fill**. Non-expansive fill with 15% or more of the soil by dry weight passing the No. 200 sieve shall be compacted to a minimum of 92% maximum laboratory dry density as determined by the American Society of Testing and Materials (ASTM) publication designated ASTM D 1557. Non-expansive fill with 5% or less of the soil by dry weight passing the No. 200 sieve shall be compacted to a minimum of 95% maximum laboratory dry density as determined by the ASTM publication designated ASTM D 4253. The maximum laboratory dry density and required percent minimum compaction of non-expansive fill with between 5% and 15% of soil by dry weight passing the No. 200 sieve shall be determined by the above testing procedure achieving the highest maximum dry density.

A minimum 10 percent finished grade shall be established for a distance of 3 meters (10 feet) from all structures to provide positive surface drainage away from the structures. Positive surface drainage shall be established by including two 150 mm (6 inch) lifts of compacted impervious fill and a layer of vegetated top soil (minimum 150 mm thickness) as the upper layers of material extending a minimum of 4.5 m (15 feet) from the perimeter of the building. Impervious fill is defined as a material classified as CL or CH having a Liquid Limit greater than or equal to 25, with 60% or more of the material by weight passing the No. 200 screen.

Roof gutters shall be provided and all roof drains shall discharge either into a piped storm water drain system or to splash blocks that are sloped to drain away from the building.

Sprinkler heads and lines shall be located no closer than 3 meters (10 feet) from any permanent structure, and sprinkler heads shall be directed away from the building.

Planting beds placed within 3 meters (10 feet) of a building shall be lined with impermeable material and drained away from the building. Planting bed edging shall allow for surface drainage away from the building.

Trees shall not be planted within a distance equal to 1½ times the mature tree height from the building perimeter for buildings with slab on grade construction.

The minimum pier diameter shall be 457 mm (18 inches) to facilitate clean out and inspection of the pier excavation.

Concrete used in drilled piers shall develop a minimum 28-day compressive strength of 20.7 MPa (3000 psi) and shall be placed with a slump between 150 and 190 mm (6.0 and 7.5 inches). A minimum of 1 percent steel by cross-sectional area shall be used for tensile support against uplift forces.

To facilitate concrete placement, the cage of steel reinforcement for the drilled piers shall be **circular.** Concrete shall be placed using rigid tremie pipe; use of flexible tremie hose shall not be allowed.

Temporary casing shall be used during pier excavation in the event of hole caving, squeezing, sloughing, or groundwater inflow. If groundwater inflow cannot be controlled by the use of casing, concrete shall be placed under water **by pumping**. Temporary casing shall not be allowed to remain in the shaft.

Due to the shrink-swell characteristics of the overburden soils, grade beams and all other structural elements that would otherwise be formed on grade, such as pier caps or pilasters, shall be formed over a minimum 150 mm (6 inch) void.

4.0 SPECIFICATIONS. At a minimum, **the following specification shall be included in the design for the 144 Person Dormitory Project:**

02221TD	Excavation, Filling, and Backfilling for Buildings
02222TD	Excavation, Trenching, and Backfilling for Utilities Systems.
02225TD	Earthwork for Roadways, Railroads, and Airfields
02240TD	Lime-Modified Subgrade
02241TD	Aggregate Base Course
02383TD	Drilled Foundation Piers

02552TD	Bituminous Surface Course (ODOT)
02558	Bituminous Tack and Prime Coats
02754	Concrete Pavement for Small Projects (< 2000 cubic meters)

The “TD” designation indicates specifications which have been modified to accommodate site conditions typically encountered at military facilities located within the Tulsa District. The Tulsa District point of contact for specifications is Mr. Steve Walters (918-669-7268).

5.0 TOPOGRAPHIC SURVEYING.

5.1 Horizontal Control. The horizontal control shall be based on the Tinker, primary control network which is established on the Oklahoma State Plane Coordinate System, North Zone, with NAD 83 values. Controlling points shall be occupied points of a closed and adjusted traverse that will meet or exceed Third order, Class I, Accuracy of 1:10,000. If horizontal control is needed to be placed on site then contractor shall place aluminum capped re-bars, minimum 2" x 24" set in a material to assure a degree of permanency. Each aluminum cap shall be stamped with year and project identification and adequately describe and reference in the field book.

5.2 Vertical Control. The vertical control shall be based on the NGVD 1929. Elevations shall originate and close on Tinker control monuments. All level lines shall be closed and vertical error adjusted throughout each level loop.

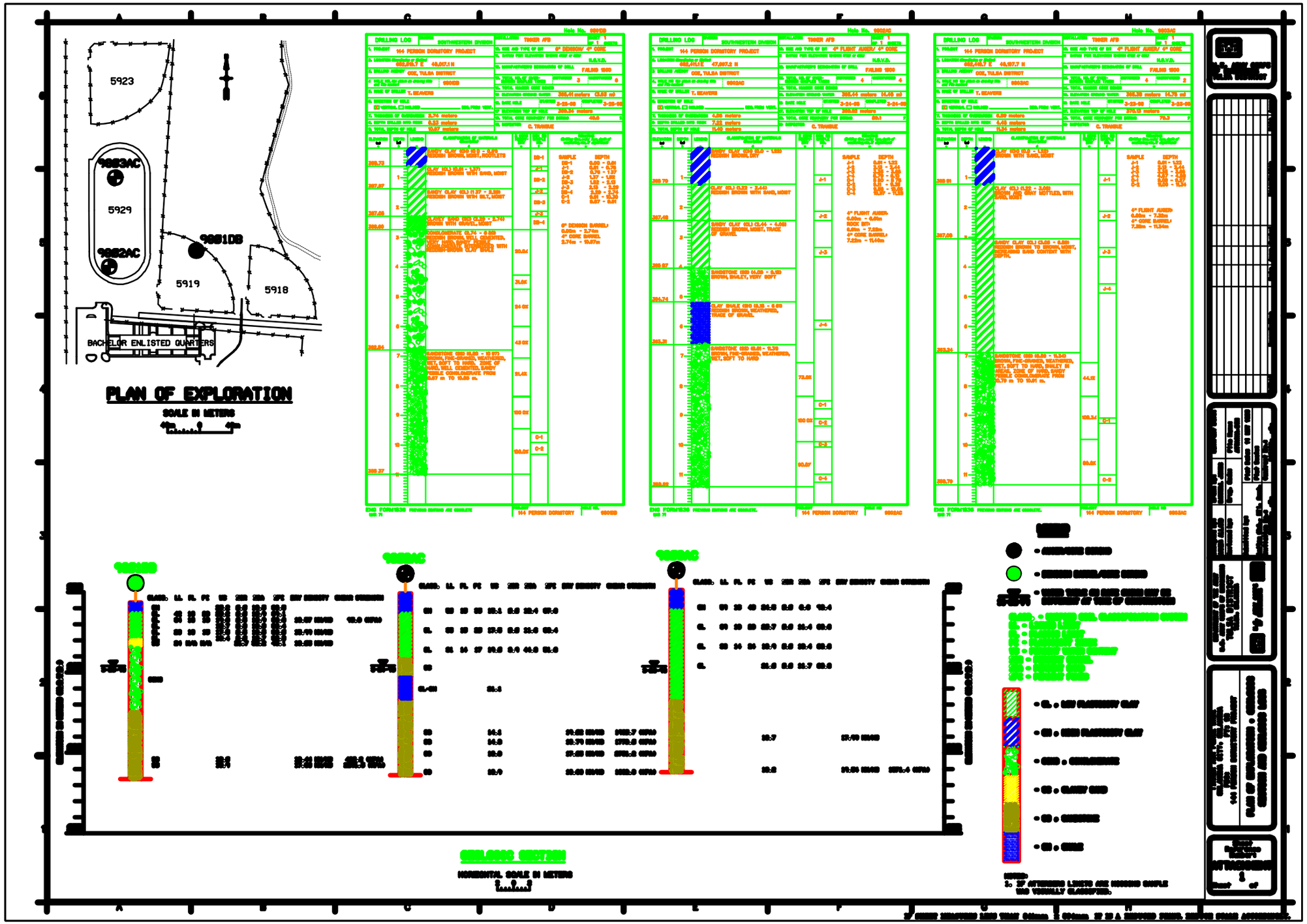
ATTACHMENT A

BORING LOCATION MAP

SUBSURFACE PROFILES

GEOLOGIC LOGS

(SEE FILE ATTACHA.DGN)



PLAN OF EXPLORATION
SCALE IN METERS
5923
9803AC
5929
9802AC
9801DB
5919
5918
BACHELOR ENLISTED QUARTERS
DRILLING LOG
SOUTHWESTERN DIVISION
TINKER AFB
144 PERSON DORMITORY PROJECT
ENG FORM 1836
CROSSCOTE SECTION
HORIZONTAL SCALE IN METERS
NOTES:
1. IF ATTERBERG LIMITS ARE NOSSING SAMPLE WAS VISUALLY CLASSIFIED.

Hole No. 9801DB

DRILLING LOG	DIVISION SOUTHWESTERN DIVISION	INSTALLATION TINKER AFB	SHEET 1 OF 1 SHEETS

1. PROJECT 144 PERSON DORMITORY PROJECT	10. SIZE AND TYPE OF BIT 6" DENISON/ 4" CORE
2. LOCATION (Coordinates or Station) 652,519.7 E 48,017.1 N	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) N.G.V.D.
3. DRILLING AGENCY COE, TULSA DISTRICT	12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 1500
4. HOLE NO. (As shown on drawing title and file number) 9801DB	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 3 UNDISTURBED 6
5. NAME OF DRILLER T. BEAVERS	14. TOTAL NUMBER CORE BOXES
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.	15. ELEVATION GROUND WATER 365.41 meters (3.93 m)
	16. DATE HOLE STARTED 3-25-98 COMPLETED 3-25-98
7. THICKNESS OF OVERBURDEN 2.74 meters	17. ELEVATION TOP OF HOLE 369.34 meters
8. DEPTH DRILLED INTO ROCK 8.23 meters	18. TOTAL CORE RECOVERY FOR BORING 49.6 %
9. TOTAL DEPTH OF HOLE 10.97 meters	19. INSPECTOR C. TRANSUE

ELEVATION (m) a	DEPTH (m) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
368.73			SANDY CLAY (CH) (0.0 - 0.61) REDDISH BROWN, MOIST, ROOTLETS		DB-1	SAMPLE DEPTH DB-1 0.00 - 0.61 J-1 0.61 - 0.76 DB-2 0.76 - 1.37 J-2 1.37 - 1.52 DB-3 1.52 - 2.13 J-3 2.13 - 2.29 DB-4 2.29 - 2.74 C-1 9.91 - 10.30 C-2 9.57 - 9.91
367.97	1		CLAY (CL) (0.61 - 1.37) REDDISH BROWN WITH SAND, MOIST		J-1 DB-2	
367.05	2		SANDY CLAY (CL) (1.37 - 2.29) REDDISH BROWN WITH SILT, MOIST		J-2 DB-3 J-3	
366.60			CLAYEY SAND (SC) (2.29 - 2.74) BROWN WITH GRAVEL, MOIST		DB-4	6" DENISON BARREL: 0.00m - 2.74m 4" CORE BARREL: 2.74m - 10.97m
	3		CONGLOMERATE (2.74 - 6.80) REDDISH BROWN, WELL CEMENTED, VERY HARD, SANDY PEBBLE CONGLOMERATE INTERBEDDED WITH REDDISH-BROWN CLAY SHALE	20.0%		
	4			31.0%		
	5			24.0%		
	6			43.0%		
362.54						
	7		SANDSTONE (SS) (6.80 - 10.97) BROWN, FINE-GRAINED, WEATHERED, WET, SOFT TO HARD. ZONE OF HARD, WELL CEMENTED, SANDY PEBBLE CONGLOMERATE FROM 10.67 m TO 10.85 m.	21.4%		
	8					
	9			100.0%		
	10			100.0%	C-1 C-2	
358.37						
	11					

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE.
MAR 71

PROJECT 144 PERSON DORMITORY | HOLE NO. 9801DB

Hole No. 9802AC

DRILLING LOG	DIVISION SOUTHWESTERN DIVISION	INSTALLATION TINKER AFB	SHEET 1 OF 1 SHEETS

1. PROJECT 144 PERSON DORMITORY PROJECT	10. SIZE AND TYPE OF BIT 4" FLIGHT AUGER/ 4" CORE
2. LOCATION (Coordinates or Station) 652,411.1 E 47,997.2 N	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) N.G.V.D.
3. DRILLING AGENCY COE, TULSA DISTRICT	12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 1500
4. HOLE NO. (As shown on drawing title and file number) 9802AC	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 4 UNDISTURBED 4
5. NAME OF DRILLER T. BEAVERS	14. TOTAL NUMBER CORE BOXES
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.	15. ELEVATION GROUND WATER 365.44 meters (4.48 m)
7. THICKNESS OF OVERBURDEN 4.05 meters	16. DATE HOLE STARTED 3-24-98 COMPLETED 3-24-98
8. DEPTH DRILLED INTO ROCK 7.22 meters	17. ELEVATION TOP OF HOLE 369.92 meters
9. TOTAL DEPTH OF HOLE 11.40 meters	18. TOTAL CORE RECOVERY FOR BORING 89.1 %
	19. INSPECTOR C. TRANSUE

ELEVATION (m) a	DEPTH (m) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
368.70	1		SANDY CLAY (CH) (0.0 - 1.22) REDDISH BROWN, DRY		J-1	SAMPLE DEPTH J-1 0.91 - 1.22 J-2 2.13 - 2.44 J-3 3.35 - 3.66 J-4 5.79 - 6.10 C-1 8.50 - 8.78 C-2 9.11 - 9.36 C-3 9.88 - 10.06 C-4 10.97 - 11.25
367.48	2		CLAY (CL) (1.22 - 2.44) REDDISH BROWN WITH SAND, MOIST		J-2	4" FLIGHT AUGER: 0.00m - 6.61m ROCK BIT: 6.61m - 7.22m 4" CORE BARREL: 7.22m - 11.40m
365.87	3 4		SANDY CLAY (CL) (2.44 - 4.05) REDDISH BROWN, MOIST, TRACE OF GRAVEL		J-3	
364.74	5		SANDSTONE (SS) (4.05 - 5.18) BROWN, SHALEY, VERY SOFT			
363.31	6		CLAY SHALE (SH) (5.18 - 6.61) REDDISH BROWN, WEATHERED, TRACE OF GRAVEL		J-4	
358.52	7 8 9 10 11		SANDSTONE (SS) (6.61 - 11.31) BROWN, FINE-GRAINED, WEATHERED, WET, SOFT TO HARD	73.0% 100.0% 90.0%	C-1 C-2 C-3 C-4	

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE.
MAR 71

PROJECT 144 PERSON DORMITORY | HOLE NO. 9802AC

Hole No. 9803AC

DRILLING LOG	DIVISION SOUTHWESTERN DIVISION	INSTALLATION TINKER AFB	SHEET 1 OF 1 SHEETS

1. PROJECT 144 PERSON DORMITORY PROJECT	10. SIZE AND TYPE OF BIT 4" FLIGHT AUGER/ 4" CORE
2. LOCATION (Coordinates or Station) 652,418.7 E 48,107.7 N	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) N.G.V.D.
3. DRILLING AGENCY COE, TULSA DISTRICT	12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 1500
4. HOLE NO. (As shown on drawing title and file number) 9803AC	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 4 UNDISTURBED 2
5. NAME OF DRILLER T. BEAVERS	14. TOTAL NUMBER CORE BOXES
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER 365.38 meters (4.75 m)
	16. DATE HOLE STARTED 3-23-98 COMPLETED 3-23-98
7. THICKNESS OF OVERBURDEN 6.89 meters	17. ELEVATION TOP OF HOLE 370.13 meters
8. DEPTH DRILLED INTO ROCK 4.45 meters	18. TOTAL CORE RECOVERY FOR BORING 79.3 %
9. TOTAL DEPTH OF HOLE 11.34 meters	19. INSPECTOR C. TRANSUE

ELEVATION (m) a	DEPTH (m) b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
368.91	1		CLAY (CH) (0.0 - 1.22) BROWN WITH SAND, MOIST		J-1	SAMPLE DEPTH J-1 0.91 - 1.22 J-2 2.13 - 2.44 J-3 3.35 - 3.66 J-4 4.57 - 4.88 C-1 9.08 - 9.27 C-2 11.00 - 11.34
367.08	2, 3		CLAY (CL) (1.22 - 3.05) BROWN AND GRAY MOTTLED, WITH SAND, MOIST		J-2	4" FLIGHT AUGER: 0.00m - 7.32m 4" CORE BARREL: 7.32m - 11.34m
363.24	4, 5, 6		SANDY CLAY (CL) (3.05 - 6.89) REDDISH BROWN TO BROWN, MOIST, INCREASING SAND CONTENT WITH DEPTH.		J-3 J-4	
358.79	7, 8, 9, 10, 11		SANDSTONE (SS) (6.89 - 11.34) BROWN, FINE-GRAINED, WEATHERED, WET, SOFT TO HARD, SHALEY IN AREAS. ZONE OF HARD, SANDY PEBBLE CONGLOMERATE FROM 10.79 m TO 10.91 m.	44.1% 108.3% 80.0%	C-1 C-2	

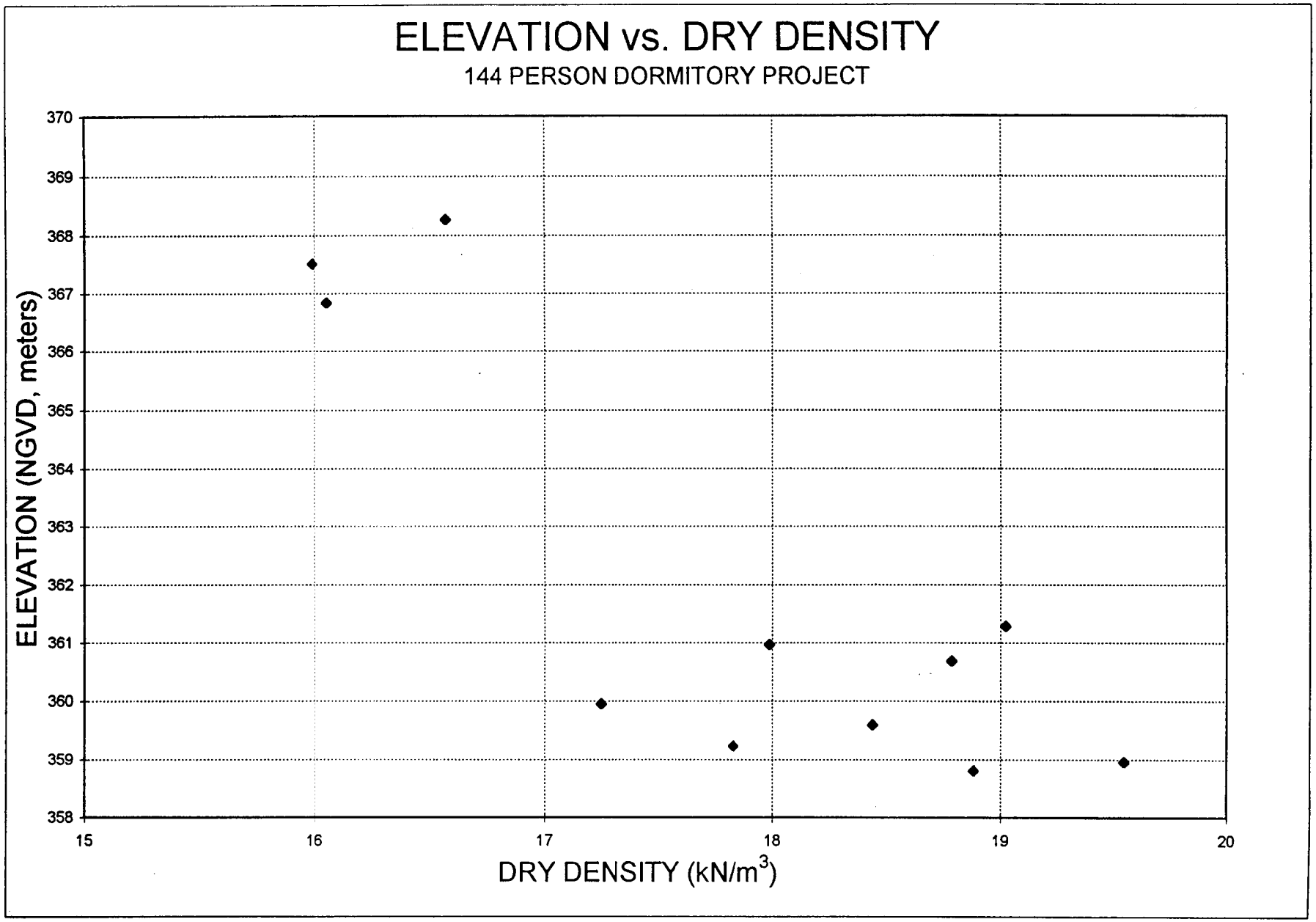
ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE.
MAR 71

PROJECT 144 PERSON DORMITORY | HOLE NO. 9803AC

ATTACHMENT B

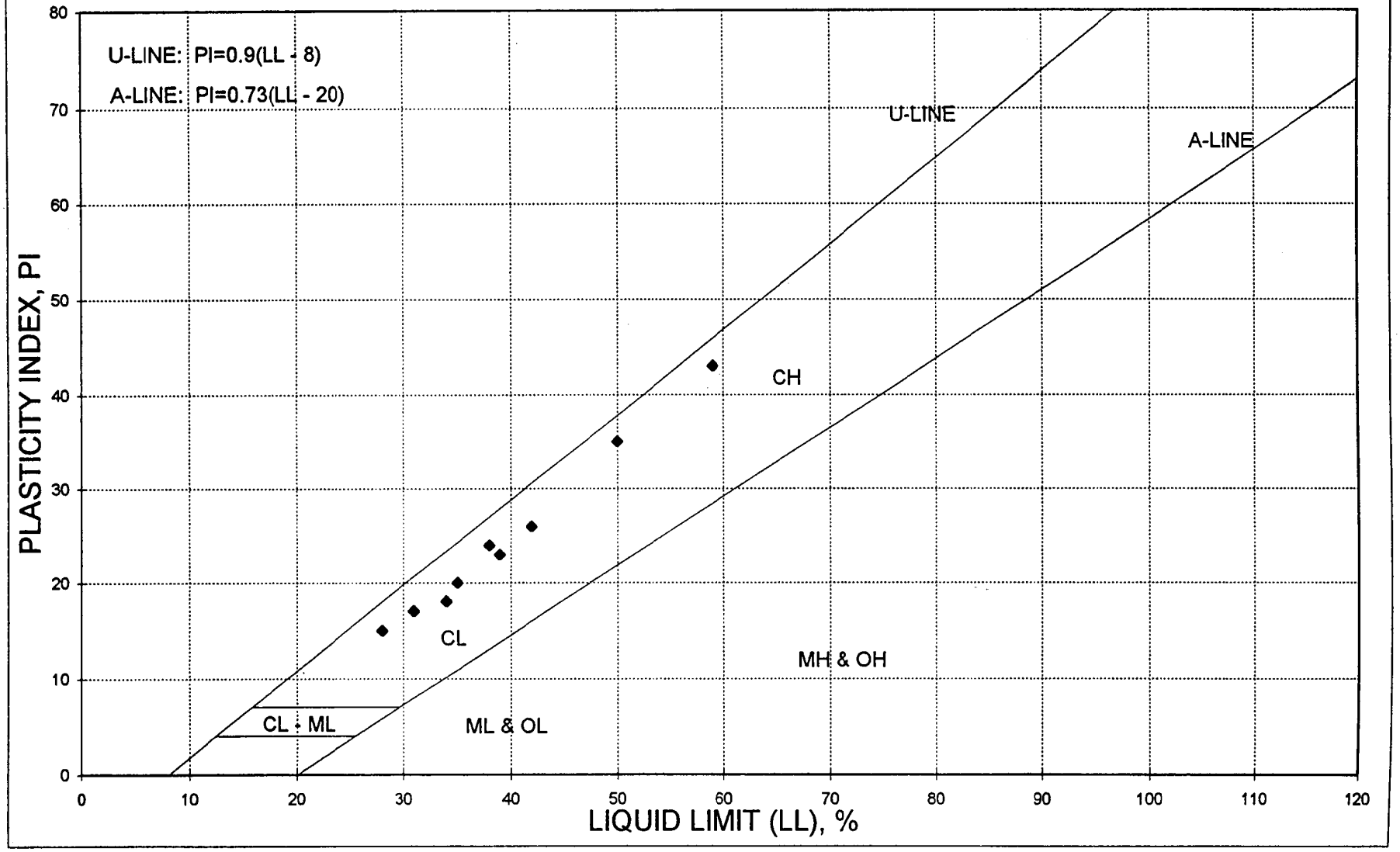
LABORATORY TEST RESULTS

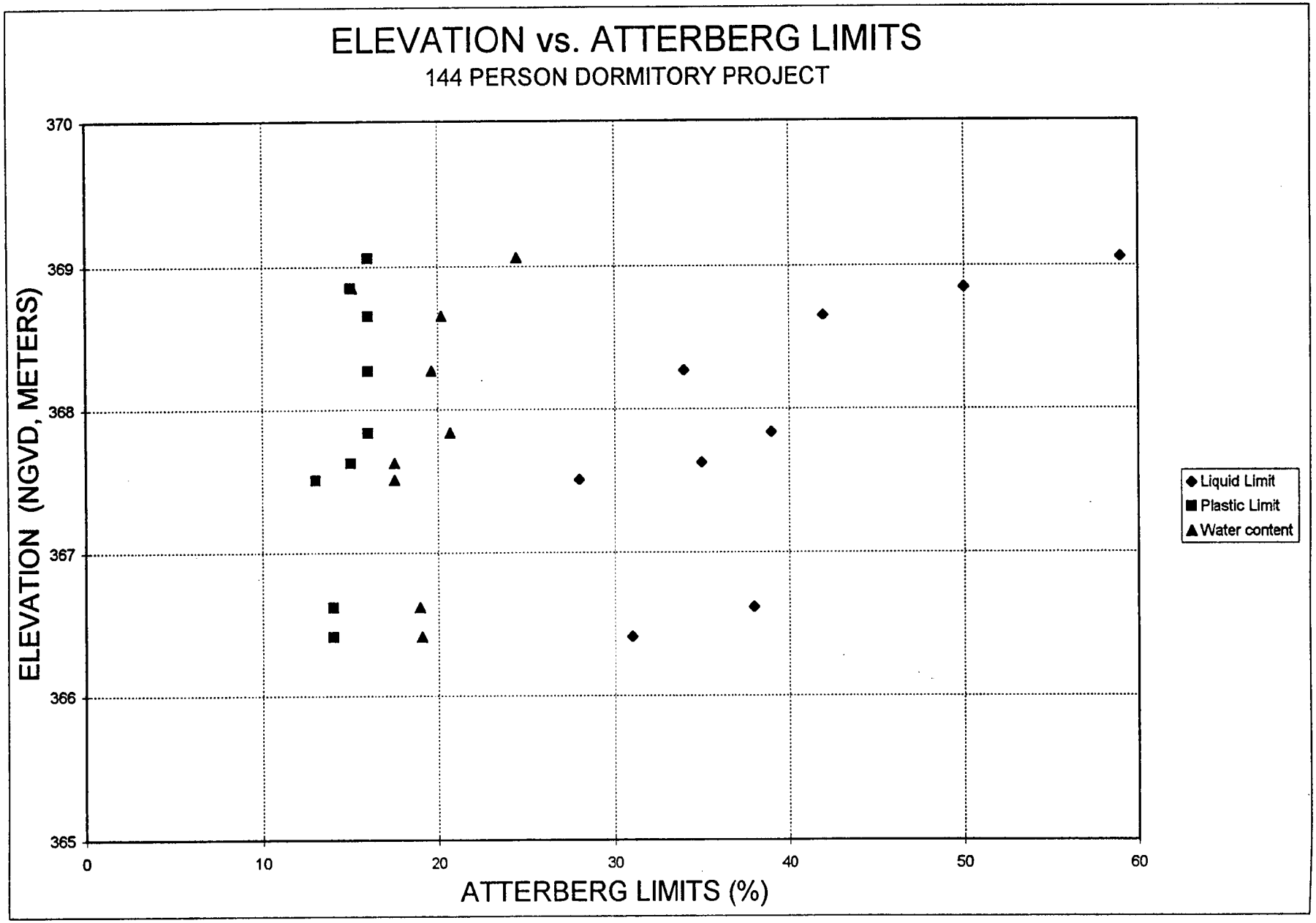
(SEE FILE ATTACHB.DGN
and ATTACHB.RLE)


ELEVATION vs. DRY DENSITY
144 PERSON DORMITORY PROJECT
ELEVATION (NGVD, meters)
370
369
368
367
366
365
364
363
362
361
360
359
358
15
16
17
18
19
20
DRY DENSITY (kN/m3)

PLASTICITY CHART

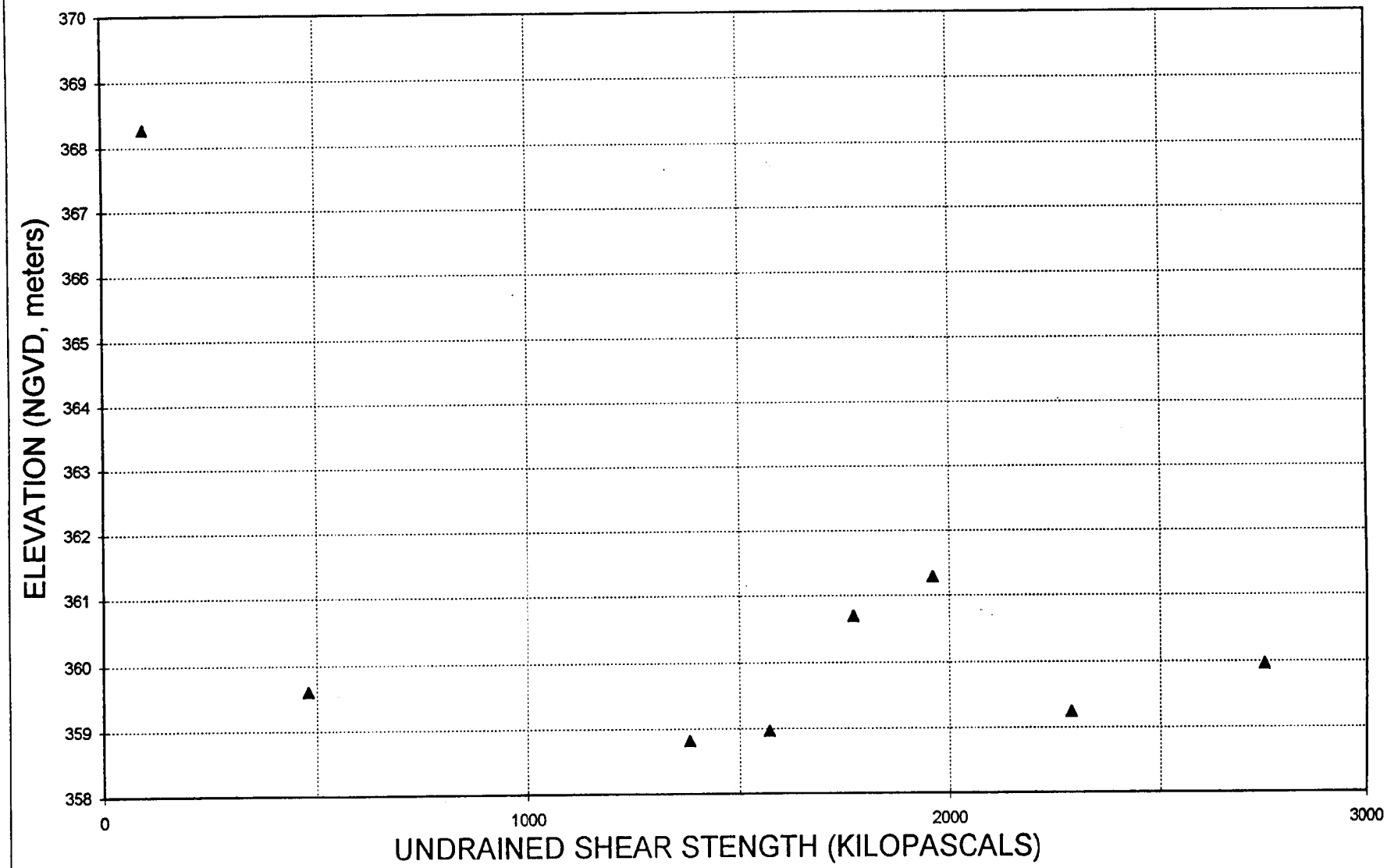
144 PERSON DORMITORY PROJECT

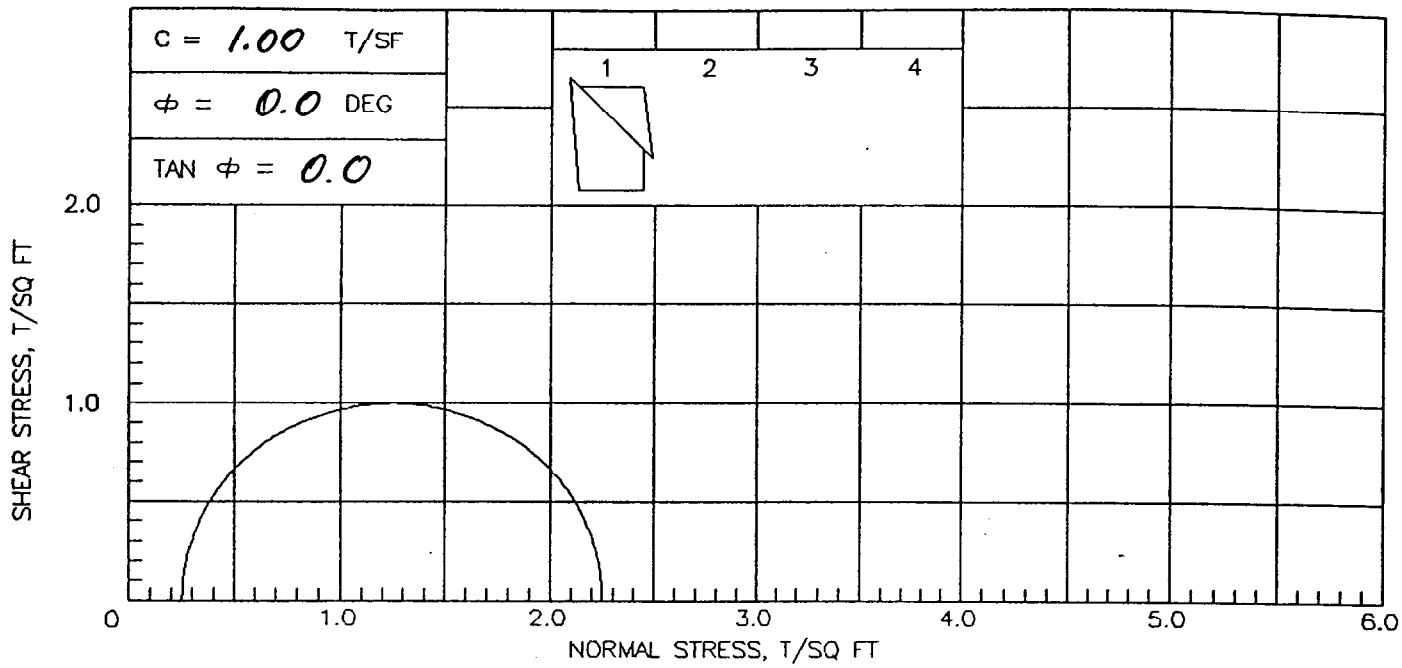


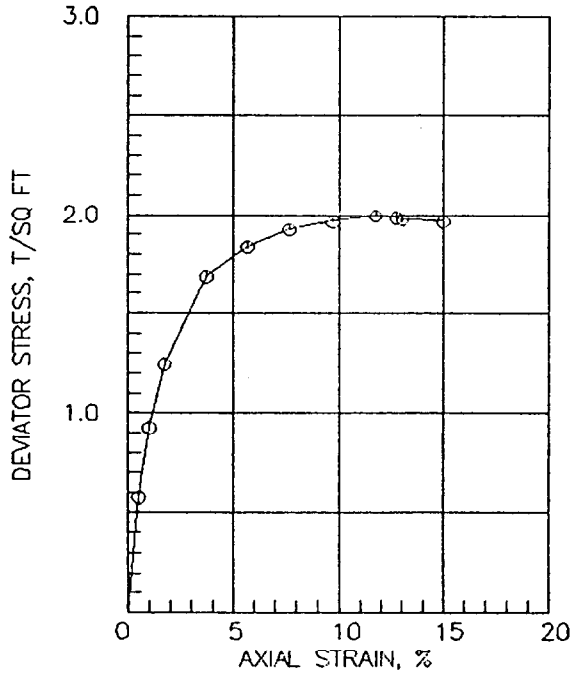

ELEVATION vs. ATTERBERG LIMITS
144 PERSON DORMITORY PROJECT
ELEVATION (NGVD, METERS)
370
369
368
367
366
365
0
10
20
30
40
50
60
ATTERBERG LIMITS (%)
Liquid Limit
Plastic Limit
Water content

ELEVATION vs. UNDRAINED SHEAR STRENGTH

144 PERSON DORMITORY PROJECT







SPECIMEN NO.		⊙ 1	2	3	4
INITIAL	WATER CONTENT, %	19.2			
	DRY DENSITY, PCF	107.6			
	SATURATION, %	91.5			
	VOID RATIO	.566			
BEFORE SHEAR	WATER CONTENT, %				
	DRY DENSITY, PCF				
	SATURATION, %				
	VOID RATIO				
	BACK PRESSURE, TSF				
CHAMBER PRESSURE, TSF		.25			
MAX. DEV. STRESS, TSF		2.00			
TIME TO FAILURE, MIN.		32			
STRAIN RATE INCR., %					
INITIAL DIAMETER, IN.		1.41			
INITIAL HEIGHT, IN.		3.00			

CONTROLLED-STRAIN TEST

DESCRIPTION OF SPECIMENS: CLAY (~~CH~~ CL), REDDISH BROWN

LL 34	PL 16	PI 18	GS 2.70 (ESTIMATED)	UNDISTURBED SPECIMEN	Q TEST

REMARKS:

PROJECT TINKER AFB 144 PERSON DORMITORY

BORING NO. 9801AC — SAMPLE NO. DB-2

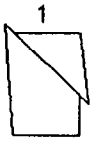
DEPTH/ELEV 2.5-4.5 — TECH. UCS

LABORATORY USAE WES - STF/GL — DATE 08 APR 98

TRIAXIAL COMPRESSION TEST REPORT

C =	T/SF
Φ =	DEG
TAN Φ =	

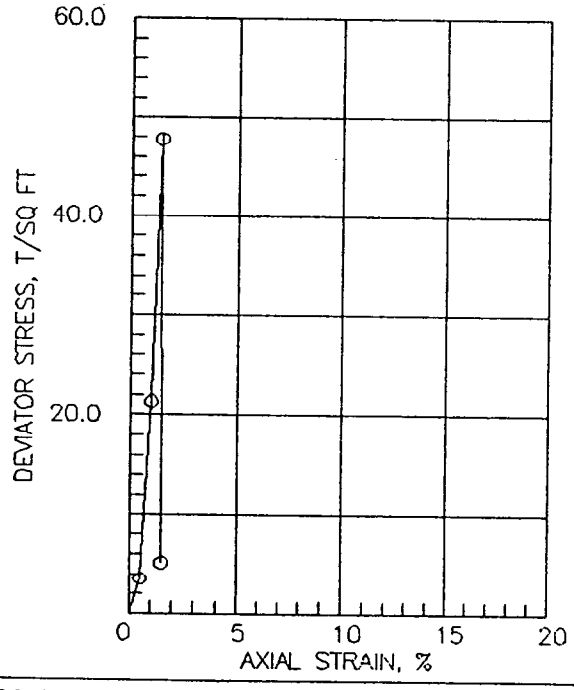
1 2 3 4



SHEAR STRESS, T/SQ FT

UNCONFINED COMPRESSION TEST

NORMAL STRESS, T/SQ FT



SPECIMEN NO.		⊙ 1	2	3	4
INITIAL	WATER CONTENT, %	18.5			
	DRY DENSITY, PCF	109.9			
	SATURATION, %	93.4			
	VOID RATIO	.534			
BEFORE SHEAR	WATER CONTENT, %				
	DRY DENSITY, PCF				
	SATURATION, %				
	VOID RATIO				
	BACK PRESSURE, TSF				
CHAMBER PRESSURE, TSF		.00			
MAX. DEV. STRESS, TSF		47.86			
TIME TO FAILURE, MIN.		3			
STRAIN RATE INCR., %					
INITIAL DIAMETER, IN.		3.94			
INITIAL HEIGHT, IN.		8.40			

CONTROLLED-STRAIN TEST

DESCRIPTION OF SPECIMENS: SANDY WEATHERED ROCK, BROWN

LL	PL	PI	GS 2.70 (ESTIMATED)	UNDISTURBED SPECIMEN	UC TEST

REMARKS:

PROJECT	TINKER AFB 144 PERSON DORMITORY
BORING NO. 9801AC	SAMPLE NO. C-1
DEPTH/ELEV 32.5-33.8	TECH. UCS
LABORATORY USAE WES - STF/GL	DATE 13 APR 98

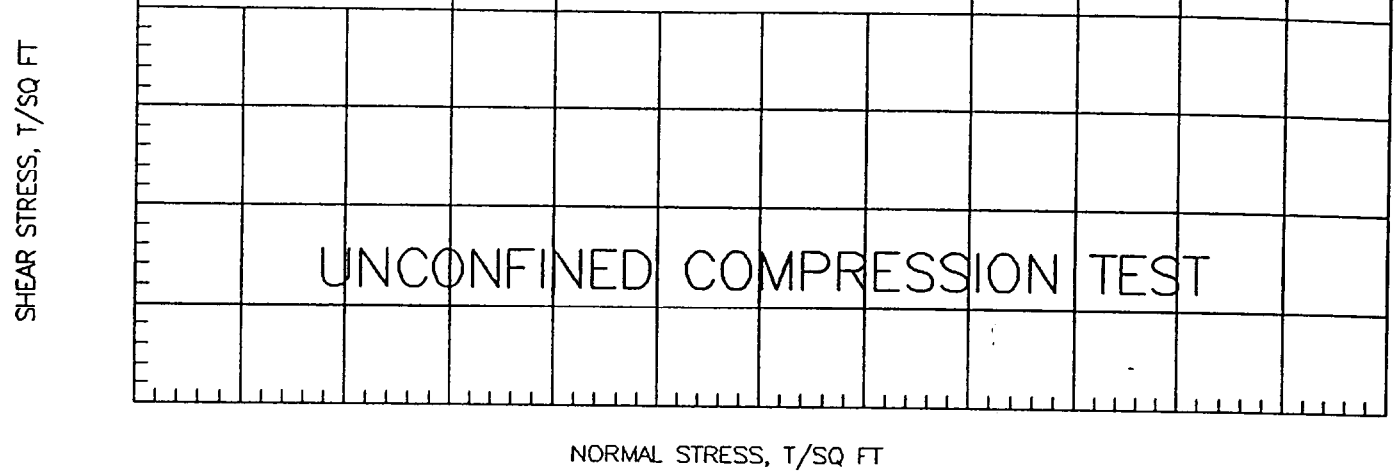
UNCONFINED COMPRESSION TEST REPORT

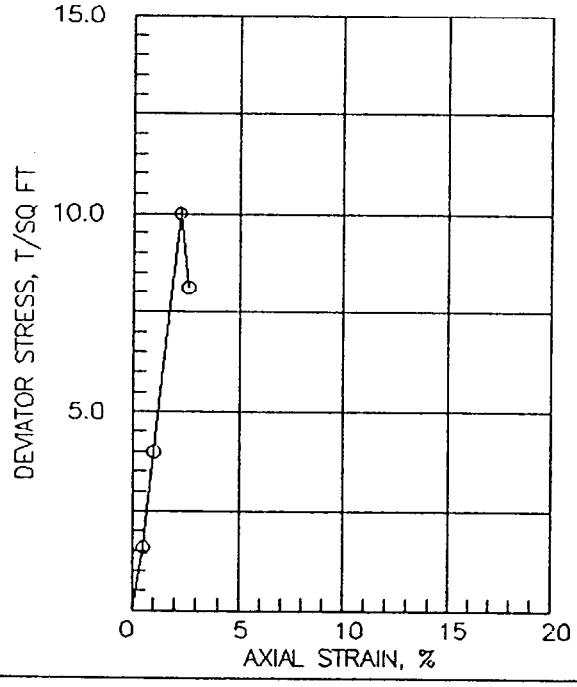
C = T/SF

ϕ = DEG

TAN ϕ =

1 2 3 4





SPECIMEN NO.		⊙ 1	2	3	4
INITIAL	WATER CONTENT, %	11.7			
	DRY DENSITY, PCF	129.3			
	SATURATION, %	100+			
	VOID RATIO	.304			
BEFORE SHEAR	WATER CONTENT, %				
	DRY DENSITY, PCF				
	SATURATION, %				
	VOID RATIO				
	BACK PRESSURE, TSF				
CHAMBER PRESSURE, TSF		.00			
MAX. DEV. STRESS, TSF		10.03			
TIME TO FAILURE, MIN.		4			
STRAIN RATE INCR., %					
INITIAL DIAMETER, IN.		3.95			
INITIAL HEIGHT, IN.		8.70			

CONTROLLED-STRAIN TEST

DESCRIPTION OF SPECIMENS: SANDY WEATHERED ROCK, BROWN

LL	PL	PI	GS 2.70 (ESTIMATED)	UNDISTURBED SPECIMEN	UC TEST

REMARKS:

PROJECT TINKER AFB 144 PERSON DORMITORY

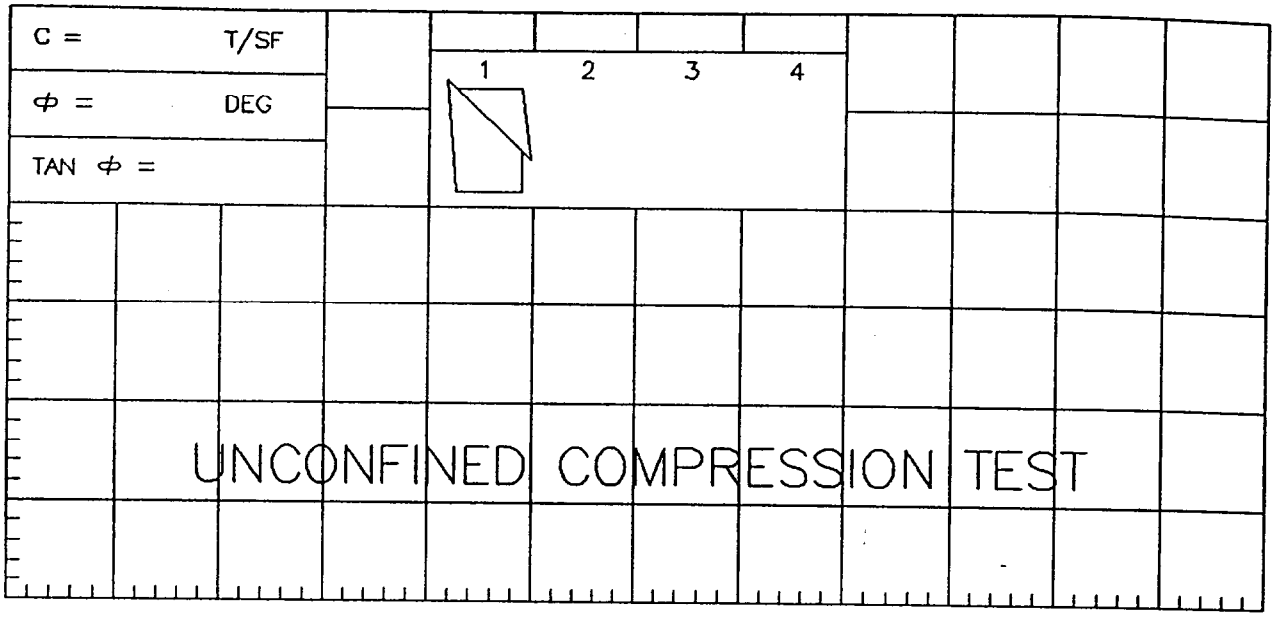
BORING NO. 9801AC | SAMPLE NO. C-2

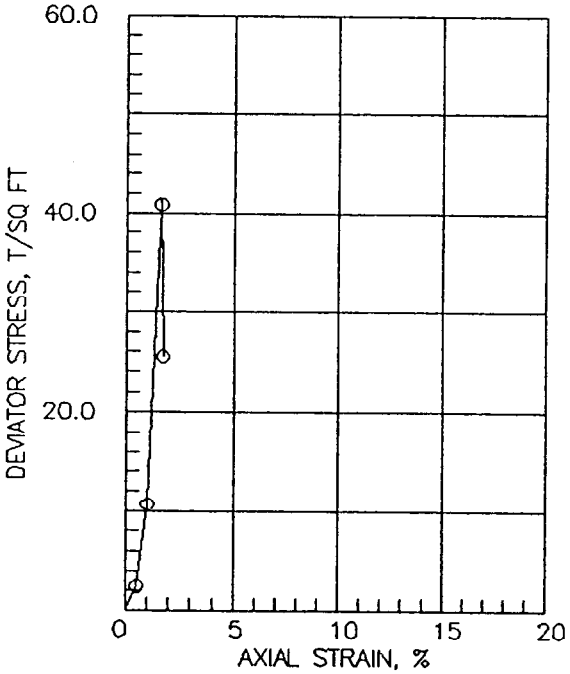
DEPTH/ELEV 31.4-32.5 | TECH. UCS

LABORATORY USAE WES - STF/GL | DATE 12 APR 98

UNCONFINED COMPRESSION TEST REPORT

C =	T/SF
Φ =	DEG
TAN Φ =	





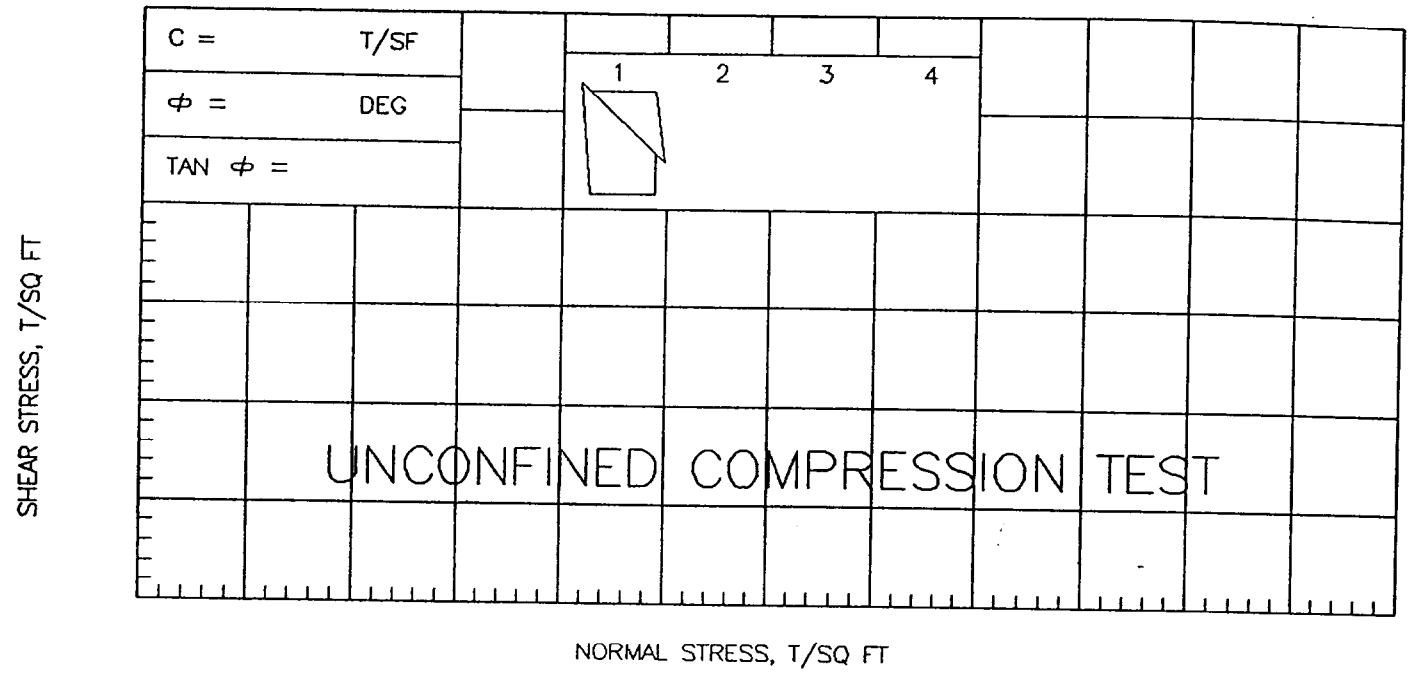
	SPECIMEN NO.	⊙ 1	2	3	4
INITIAL	WATER CONTENT, %	16.3			
	DRY DENSITY, PCF	116.5			
	SATURATION, %	98.4			
	VOID RATIO	.447			
BEFORE SHEAR	WATER CONTENT, %				
	DRY DENSITY, PCF				
	SATURATION, %				
	VOID RATIO				
	BACK PRESSURE, TSF				
CHAMBER PRESSURE, TSF		.00			
MAX. DEV. STRESS, TSF		40.95			
TIME TO FAILURE, MIN.		3			
STRAIN RATE INCR., %					
INITIAL DIAMETER, IN.		3.92			
INITIAL HEIGHT, IN.		9.50			

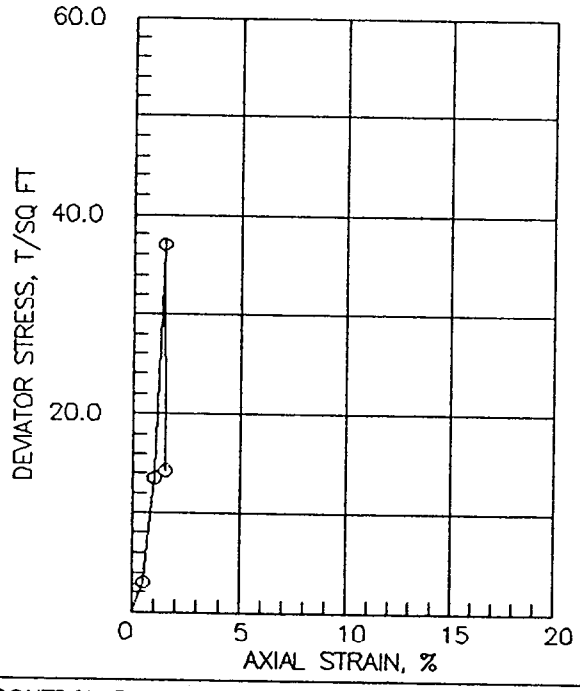
CONTROLLED-STRAIN TEST

DESCRIPTION OF SPECIMENS: SANDY WEATHERED ROCK, BROWN

LL	PL	PI	GS 2.70 (ESTIMATED)	UNDISTURBED SPECIMEN	UC TEST

REMARKS:	PROJECT TINKER AFB 144 PERSON DORMITORY	
	BORING NO. 9802AC	SAMPLE NO. C-1
	DEPTH/ELEV 27.9-28.8	TECH. UCS
	LABORATORY USAE WES - STF/GL	DATE 12 APR 98
	UNCONFINED COMPRESSION TEST REPORT	





SPECIMEN NO.		⊙ 1	2	3	4
INITIAL	WATER CONTENT, %	14.7			
	DRY DENSITY, PCF	120.4			
	SATURATION, %	99.2			
	VOID RATIO	.400			
BEFORE SHEAR	WATER CONTENT, %				
	DRY DENSITY, PCF				
	SATURATION, %				
	VOID RATIO				
	BACK PRESSURE, TSF				
CHAMBER PRESSURE, TSF		.00			
MAX. DEV. STRESS, TSF		37.03			
TIME TO FAILURE, MIN.		3			
STRAIN RATE INCR., %					
INITIAL DIAMETER, IN.		3.93			
INITIAL HEIGHT, IN.		9.30			

CONTROLLED-STRAIN TEST

DESCRIPTION OF SPECIMENS: SANDY WEATHERED ROCK, BROWN

LL	PL	PI	GS 2.70 (ESTIMATED)	UNDISTURBED SPECIMEN	UC TEST

REMARKS:

PROJECT TINKER AFB 144 PERSON DORMITORY

BORING NO. 9802AC | SAMPLE NO. C-2

DEPTH/ELEV 29.9-30.7 | TECH. UCS

LABORATORY USAE WES - STF/GL | DATE 12 APR 98

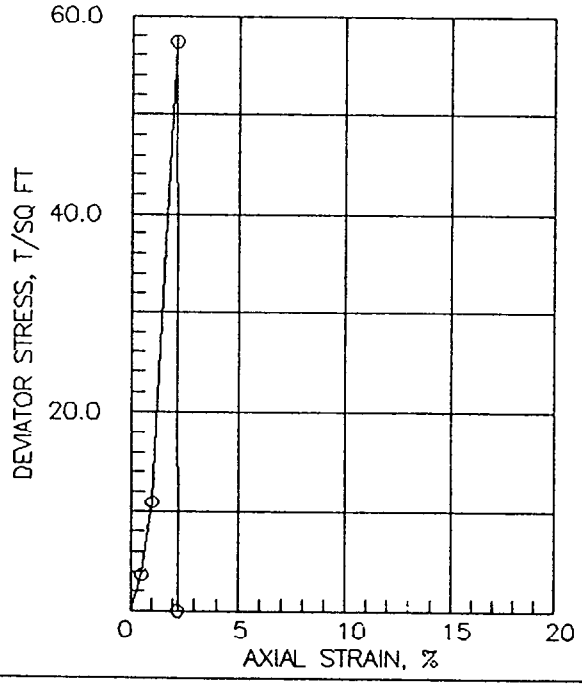
UNCONFINED COMPRESSION TEST REPORT

C =	T/SF	1	2	3	4
Φ =	DEG				
TAN Φ =					

SHEAR STRESS, T/SQ FT

UNCONFINED COMPRESSION TEST

NORMAL STRESS, T/SQ FT



	SPECIMEN NO.	⊙ 1	2	3	4
INITIAL	WATER CONTENT, %	24.1			
	DRY DENSITY, PCF	103.8			
	SATURATION, %	100+			
	VOID RATIO	.624			
BEFORE SHEAR	WATER CONTENT, %				
	DRY DENSITY, PCF				
	SATURATION, %				
	VOID RATIO				
	BACK PRESSURE, TSF				
CHAMBER PRESSURE, TSF		.00			
MAX. DEV. STRESS, TSF		57.46			
TIME TO FAILURE, MIN.		4			
STRAIN RATE INCR., %					
INITIAL DIAMETER, IN.		3.97			
INITIAL HEIGHT, IN.		6.30			

CONTROLLED-STRAIN TEST

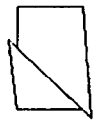
DESCRIPTION OF SPECIMENS: SANDY WEATHERED ROCK, BROWN

LL	PL	PI	GS 2.70 (ESTIMATED)	UNDISTURBED SPECIMEN	UC TEST

REMARKS:	PROJECT TINKER AFB 144 PERSON DORMITORY	
	BORING NO. 9802AC	SAMPLE NO. C-3
	DEPTH/ELEV 32.4-33.0	TECH. UCS
	LABORATORY USAE WES - STF/GL	DATE 12 APR 98
	UNCONFINED COMPRESSION TEST REPORT	

C =	T/SF
ϕ =	DEG
TAN ϕ =	

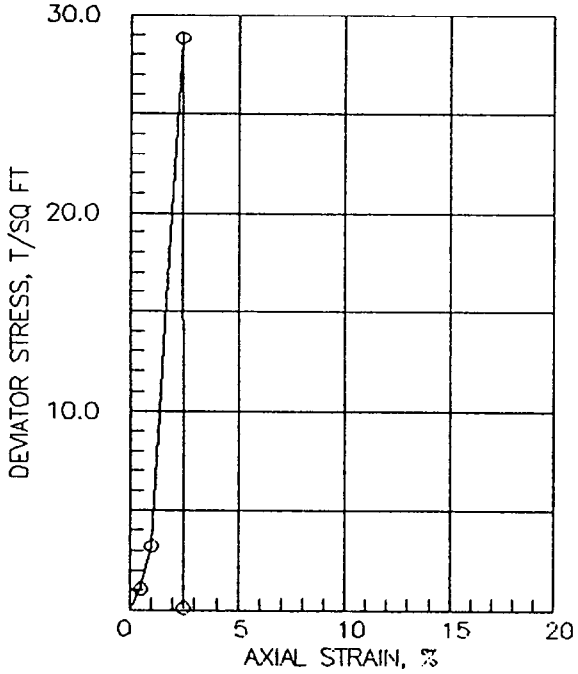
1 2 3 4



SHEAR STRESS, T/SQ FT

UNCONFINED COMPRESSION TEST

NORMAL STRESS, T/SQ FT



SPECIMEN NO.		⊙ 1	2	3	4
INITIAL	WATER CONTENT, %	14.4			
	DRY DENSITY, PCF	121.2			
	SATURATION, %	99.3			
	VOID RATIO	.391			
BEFORE SHEAR	WATER CONTENT, %				
	DRY DENSITY, PCF				
	SATURATION, %				
	VOID RATIO				
	BACK PRESSURE, TSF				
CHAMBER PRESSURE, TSF		.00			
MAX. DEV. STRESS, TSF		28.87			
TIME TO FAILURE, MIN.		5			
STRAIN RATE INCR., %					
INITIAL DIAMETER, IN.		3.94			
INITIAL HEIGHT, IN.		9.00			

CONTROLLED-STRAIN TEST

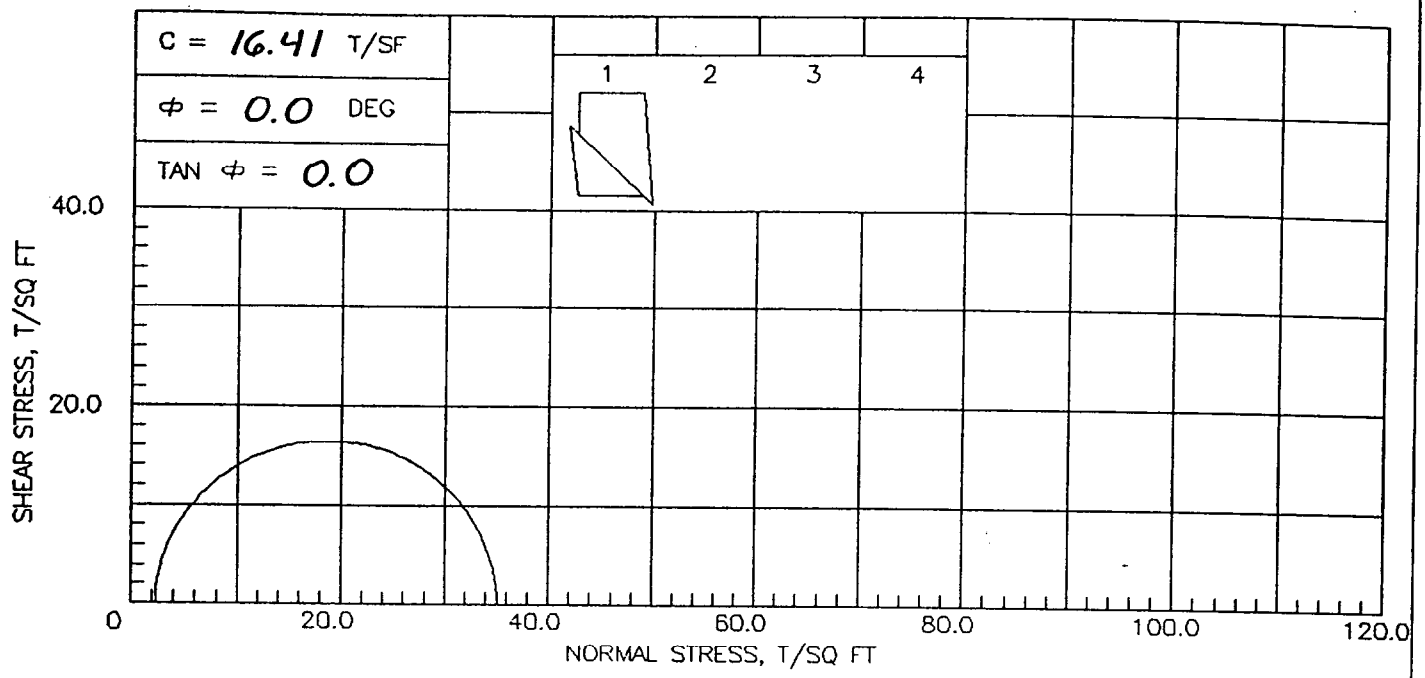
DESCRIPTION OF SPECIMENS: SANDY WEATHERED ROCK, BROWN

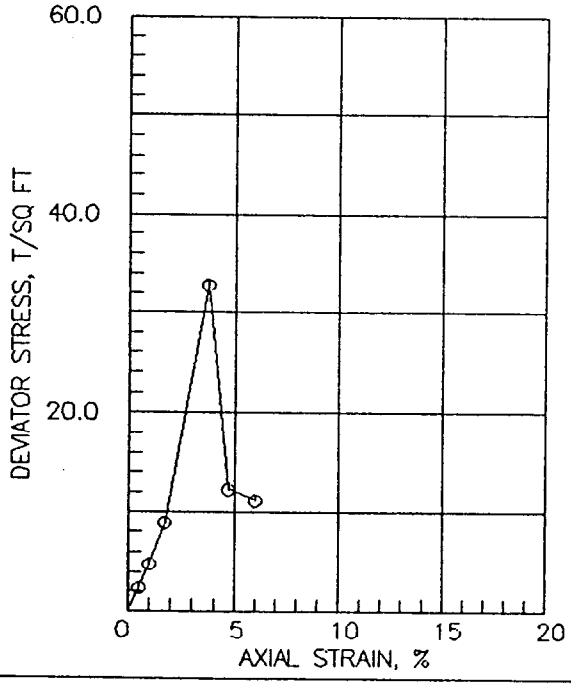
LL	PL	PI	GS 2.70 (ESTIMATED)	UNDISTURBED SPECIMEN	UC TEST

REMARKS:

PROJECT	TINKER AFB 144 PERSON DORMITORY
BORING NO. 9802AC	SAMPLE NO. C-4
DEPTH/ELEV 36.0-36.9	TECH. UCS
LABORATORY USAE WES - STF/GL	DATE 12 APR 98

UNCONFINED COMPRESSION TEST REPORT





SPECIMEN NO.		⊙ 1	2	3	4
INITIAL	WATER CONTENT, %	10.5			
	DRY DENSITY, PCF	132.5			
	SATURATION, %	100+			
	VOID RATIO	.272			
BEFORE SHEAR	WATER CONTENT, %				
	DRY DENSITY, PCF				
	SATURATION, %				
	VOID RATIO				
	BACK PRESSURE, TSF				
CHAMBER PRESSURE, TSF		2.30			
MAX. DEV. STRESS, TSF		32.82			
TIME TO FAILURE, MIN.		7			
STRAIN RATE INCR., %					
INITIAL DIAMETER, IN.		3.93			
INITIAL HEIGHT, IN.		10.10			

CONTROLLED-STRAIN TEST

DESCRIPTION OF SPECIMENS: SANDY WEATHERED ROCK, BROWN

LL	PL	PI	GS 2.70 (ESTIMATED)	UNDISTURBED SPECIMEN	Q TEST

REMARKS:

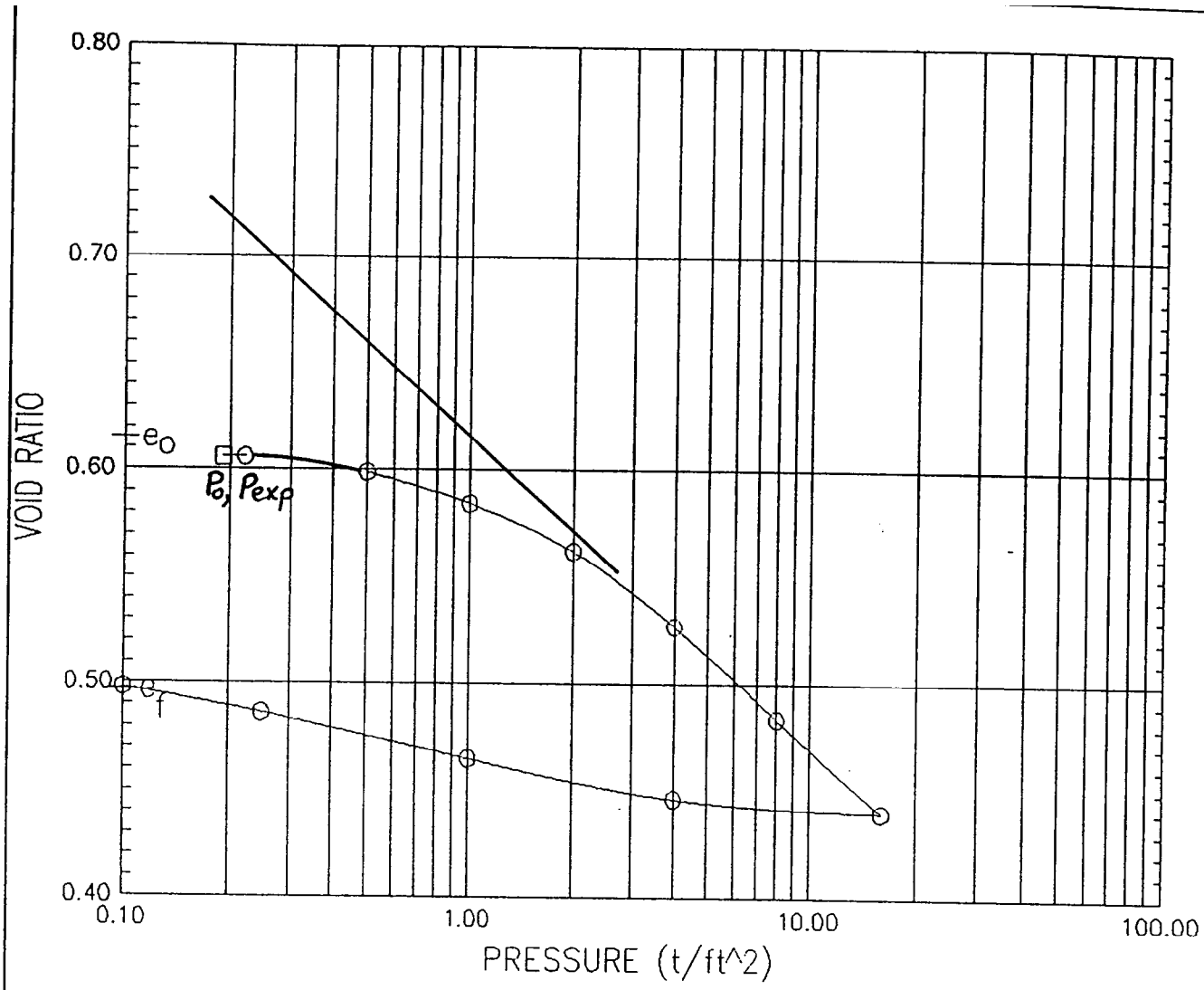
PROJECT TINKER AFB 144 PERSON DORMITORY

BORING NO. 9803AC | SAMPLE NO. C-2

DEPTH/ELEV 36.1-37.2 | TECH. UCS

LABORATORY USAE WES - STF/GL | DATE 12 APR 98

TRIAXIAL COMPRESSION TEST REPORT



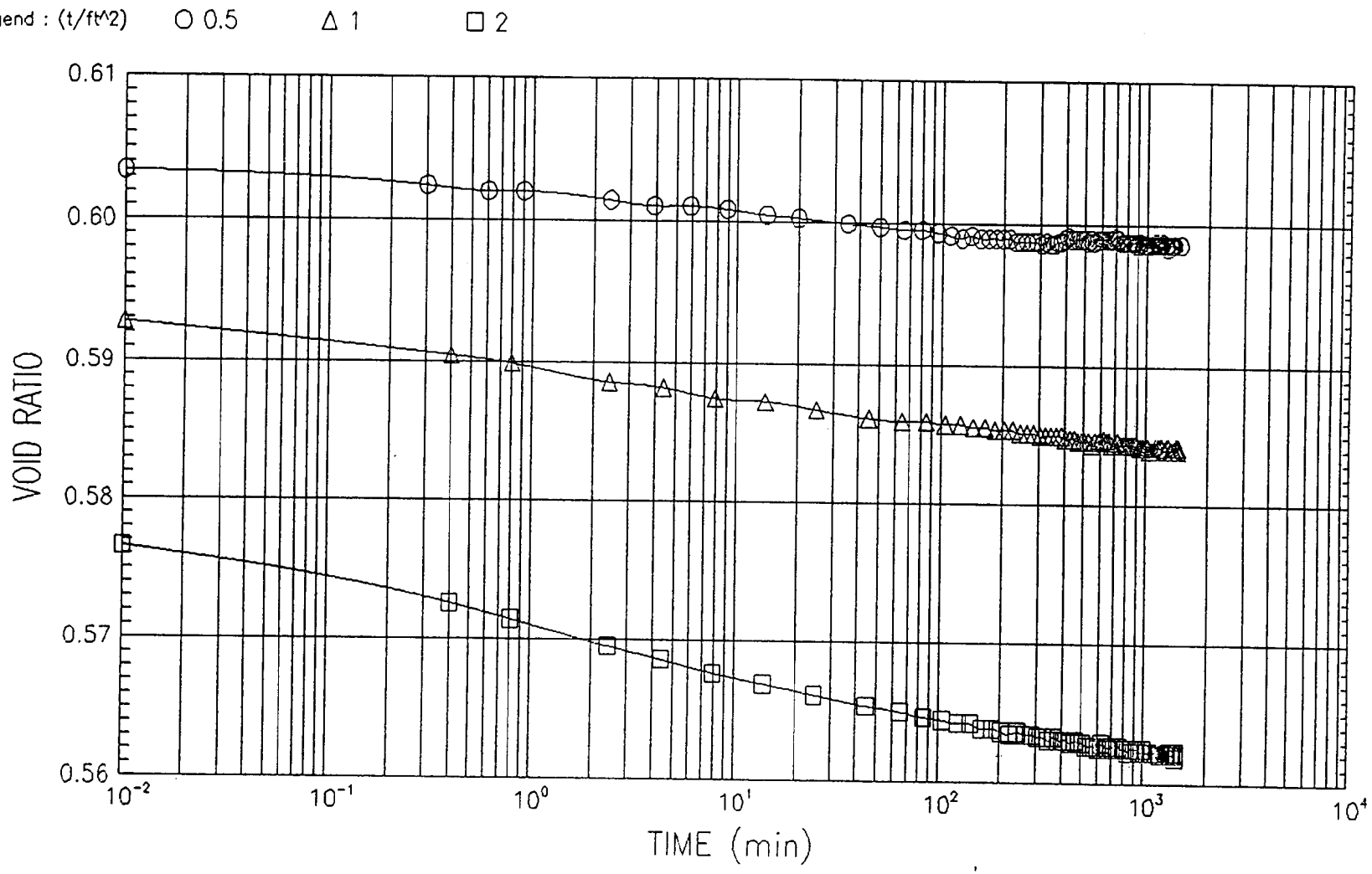
			BEFORE TEST	AFTER TEST
OVERBURDEN PRESSURE (t/ft^2) P_o	0.20	WATER CONTENT (%)	18.9	18.6
~~PRECONSOL. PRESSURE~~ (t/ft^2) P_{exp}	0.22	DRY DENSITY (lb/ft^3)	104.32	112.54
COMPRESSION INDEX	0.15	SATURATION (%)	82.91	100.66
TYPE SPECIMEN	UNDISTURBED	VOID RATIO	0.62	0.50
DIA. (in) 4.454	HT. (in) 0.859	BACK PRESSURE (t/ft^2)	---	---

CLASSIFICATION CLAY (CH), REDDISH BROWN; TRACE OF CALCIUM DEPOSIT

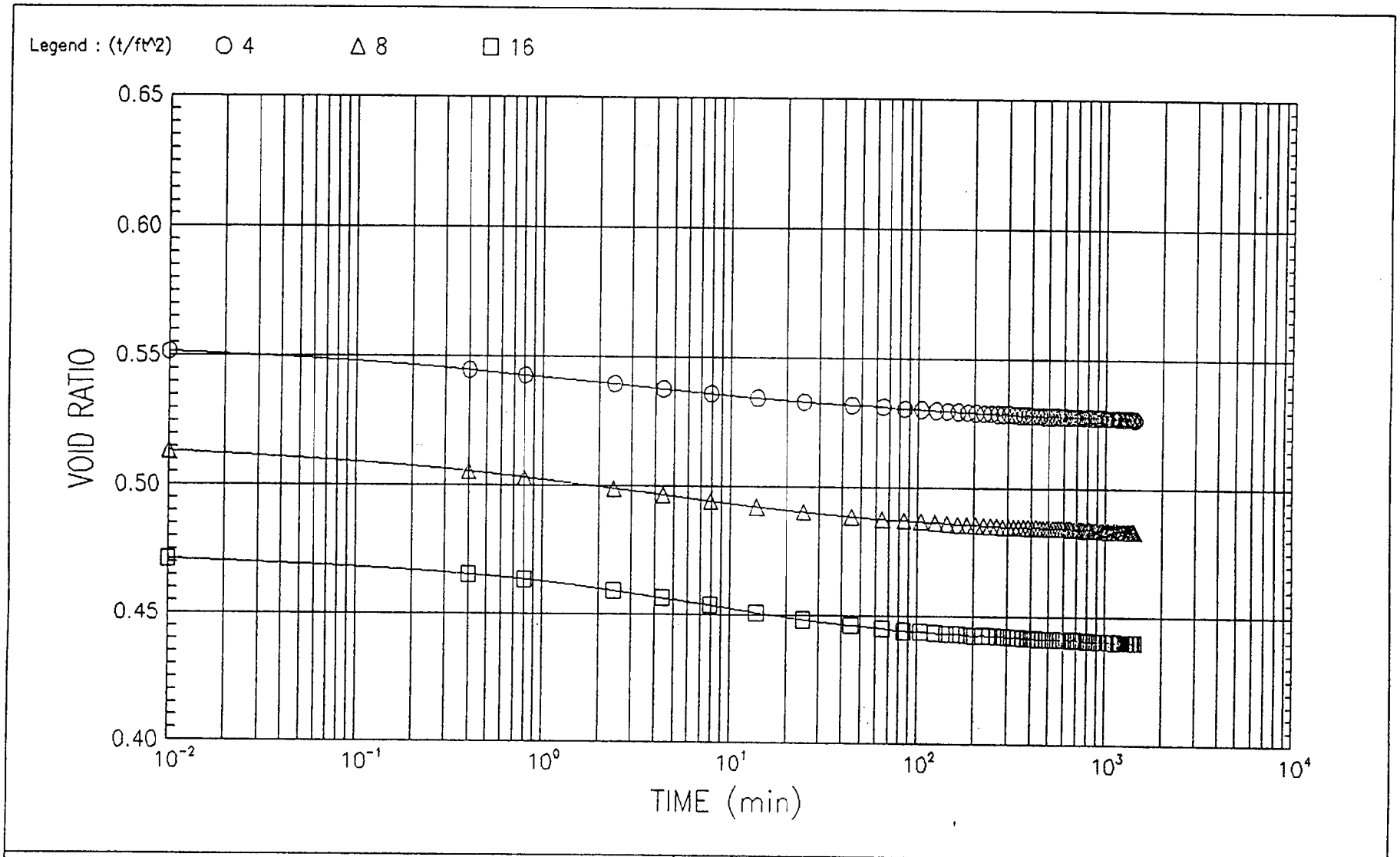
LL --- 34	PL --- 16	PI --- 18	PROJECT TINKER AFB 144 PERSON DORMITORY
GS 2.700	D_{10} ---		Data File: C:\LOADTRAC\1098.ASC
REMARKS			BORING NO. 9801AC / SAMPLE NO. DB-2
☐ Start-Swell ○ End-Swell			DEPTH 2.5-4.5 / DATE 04-01-98

USCOE
CONSOLIDATION TEST REPORT

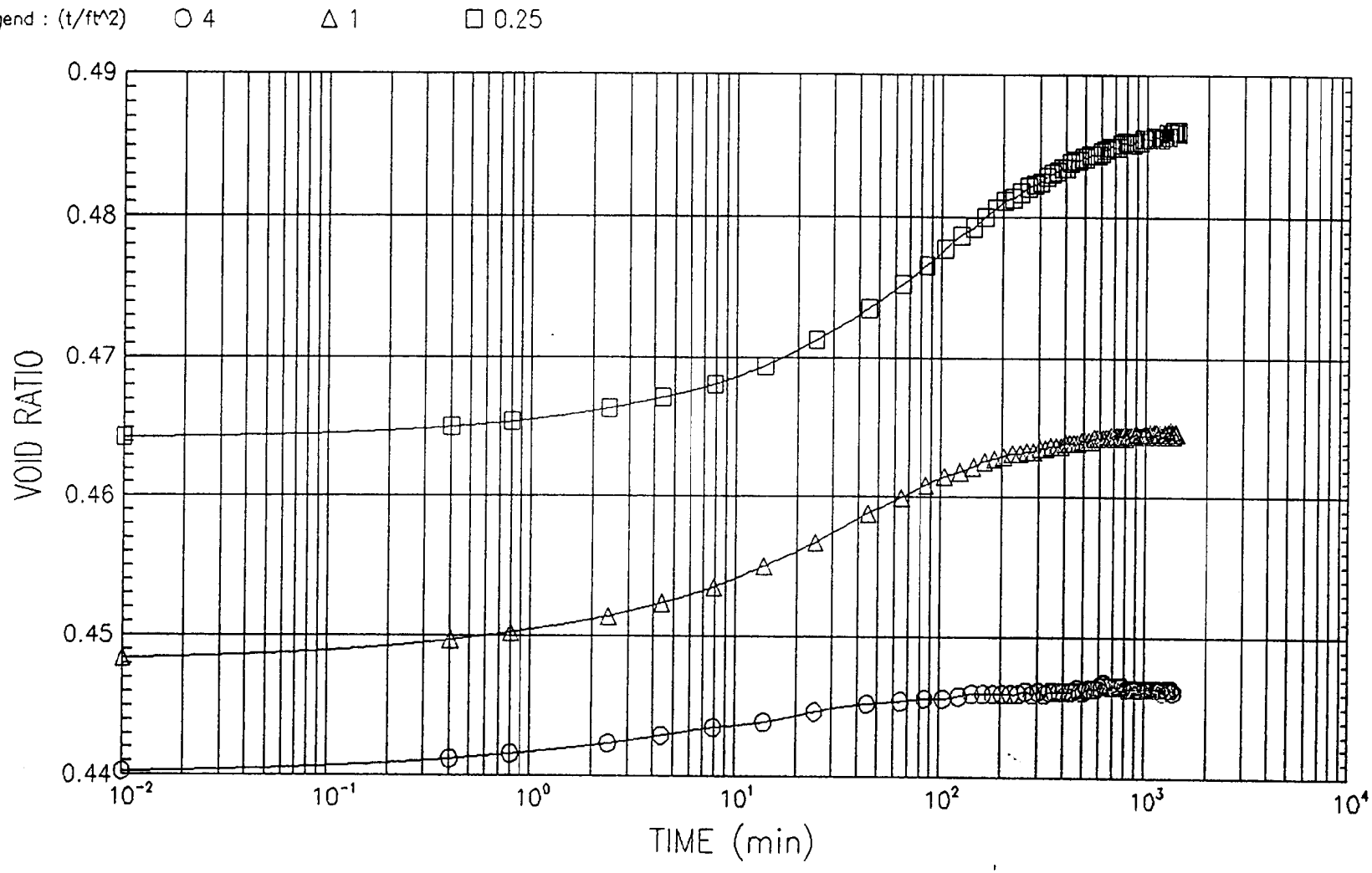
Wed 04-15-98, 15:57:57



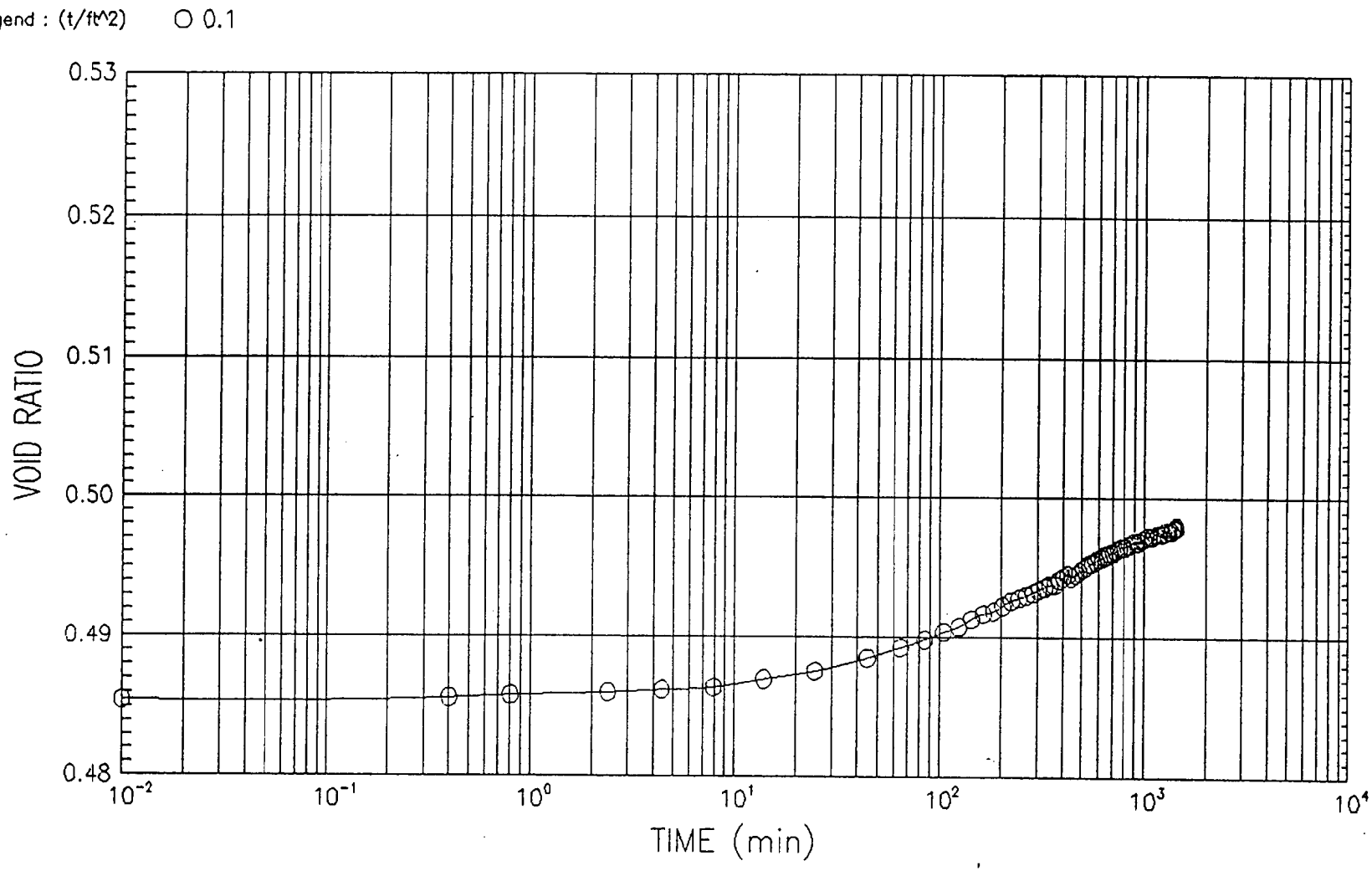
PROJECT	TINKER AFB 144 PERSON DORMITORY		USCOE CONSOLIDATION TEST TIME CURVES
Data File:	1098.ASC		
BORING	9801AC	SAMPLE NO. DB-2	
DEPTH	2.5-4.5	DATE 04-01-98	



PROJECT	TINKER AFB 144 PERSON DORMITORY		USCOE CONSOLIDATION TEST TIME CURVES
Data File:	1098.ASC		
BORING	9801AC	SAMPLE NO. DB-2	
DEPTH	2.5-4.5	DATE 04-01-98	



PROJECT	TINKER AFB 144 PERSON DORMITORY		USCOE– CONSOLIDATION TEST TIME CURVES
Data File:	1098.ASC		
BORING	9801AC	SAMPLE NO. DB-2	
DEPTH	2.5-4.5	DATE 04-01-98	



PROJECT	TINKER AFB 144 PERSON DORMITORY		USCOE CONSOLIDATION TEST TIME CURVES
Data File:	1098.ASC		
BORING	9801AC	SAMPLE NO. DB-2	
DEPTH	2.5-4.5	DATE 04-01-98	

APPENDIX H

DELIVERY & DISTRIBUTION SCHEDULE

DELIVERY AND DISTRIBUTION SCHEDULE

(1) Mr. Carmie Ashley
72 CEG/CECE
7535 Fifth Street, STE 201
Tinker AFB, OK 73145-9010

Plans: 6 sets
Specs: 6 sets
Modifications: 6 copies w/dwgs

(2) ATTN: Mr. Carl Sparks
US Army Corps of Engineers
Central Area Office
PO Box 45830
Tinker AFB 73145

Plans: 8 Set (6H) (2F)
Specs: 8 Set
Modifications: 8 Set w/dwgs

(3) Vincent J. Delli Carpini
HQ AFMC/CECC
4225 Logistics Avenue
Wright-Patterson AFB
Ohio 45433-5746

Plans: 1 Sets
Specs: 1 Sets
Modifications: 1 Copies w/dwgs

Corps of Engineers
Design Branch
Attn: CESWT-EC-DA (H. Harjo)

2 Set Plans as Amended
2 Set Approved Mods (Plans if any)
2 Set Specs Incl Amendments

Attn: CESWT-EC-DM (C. Altendorf)

1 Set Plans as Amended
1 Set Approved Mods (Plans if any)
1 Set Specs Including Amendments
1 Contract