



**US Army Corps  
of Engineers**  
Tulsa District

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# **Replace Crawl Space Piping Starship Barracks**

**Fort Sill, Oklahoma**

**VOLUME 1 OF 2 - Bidding Requirements  
Contract Forms  
Conditions of the Contract**

## **Project Specifications**

**INFORMATION**

For information regarding site conditions and the equipment ownership and operating expense schedule contact Mr. Rick West, Resident Engineer, Fort Sill Resident Office, US Army Corps of Engineers, P.O. Box 33159, Fort Sill, OK 73503-0159, Telephone: 580-355-6273.

For technical information regarding plans and specifications contact Ms. Sandra Egan, Tulsa District Office, Corps of Engineers, Tulsa, Oklahoma, Telephone: 918-669-7033.

For information regarding bidding procedures, bonds, plans and specifications, or compact disks, contact Contracting Division, Tulsa District Office, Corps of Engineers, Tulsa, Oklahoma, Telephone: 918-669-7275.

Plan holders list may be viewed at the Tulsa District Home Page:  
[//www.swt.usace.army.mil/~info/info.htm](http://www.swt.usace.army.mil/~info/info.htm)

Collect calls are not accepted.

ckd

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# SECTION 00010

|  |   |  |                                 |                         |
|--|---|--|---------------------------------|-------------------------|
| <b>SOLICITATION, OFFER AND AWARD</b><br><i>(Construction, Alteration, or Repair)</i> | 1. SOLICITATION NO.<br>DACA56-99-B-0039 | 2. TYPE OF SOLICITATION<br><input checked="" type="checkbox"/> SEALED BID (IFB)<br><input type="checkbox"/> NEGOTIATED (RFP) | 3. DATE ISSUED<br>3 AUGUST 1999 | PAGE OF PAGES<br>1 of 2 |
|--|---|--|---------------------------------|-------------------------|

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

|  |  |  |
|--|--|--|
| 4. CONTRACT NO.  | 5. REQUISITION/PURCHASE REQUEST NO.<br>W44XGQ    | 6. PROJECT NO.   |
| 7. ISSUED BY<br>Department of the Army<br>Corps of Engineers<br>Tulsa District |  | 8. ADDRESS OFFER TO<br>The Contracting Officer<br>Tulsa District, Corps of Engineers<br>ATTN: Contracting Division<br>PO Box 61 (1645 South 101st East Avenue)<br>Tulsa, OK 74121-0061 |
| 9. FOR INFORMATION CALL:   | A. NAME<br>See preceding page entitled "NOTICES" | B. TELEPHONE NO. <i>(Include area code)</i> (NO COLLECT CALLS)   |

## 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)*:

**REPLACE CRAWL SPACE PIPING  
STARSHIP BARRACKS  
FT SILL, OKLAHOMA**

**Approximate Value: \$1,000,000 to \$5,000,000**

**DIRECTIONS FOR SUBMITTING BIDS:**

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

MARKENVELOPE "BID UNDER SOLICITATION NO. \_\_\_\_\_ TO BE OPENED AT 2:00 P.M. \_\_\_\_\_  
RECEIPT OF AMENDMENTS NOS. \_\_\_\_\_ ACKNOWLEDGED"

ADDRESS BIDS TO: SEE BLOCK 8 ABOVE

HAND-CARRIED BIDS: HAND-CARRIED BIDS PRIOR TO 1:30 P.M. MUST BE DEPOSITED IN THE "BID DEPOSITORY" IN ROOM 130, 1645 SOUTH 101st EAST AVENUE, TULSA, OK 74128.  
HAND-CARRIED BIDS AFTER 1:30 P.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 many calendar days after award in item 12B)*

Yes  No

12B. CALENDAR DAYS

10

13 ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and no copies to perform the work required are due at the place specified in Item 8 by 2:00 p.m. local time

**2 SEP 99.** 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.**

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 90 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 <small>(Include ZIP Code)</small> | 15. TELEPHONE NO. <small>(Include Area Code)</small><br>FAX NO.  |
| CODE                      FACILITY CODE                           | 16. REMITTANCE ADDRESS <small>(Include only if different than Item 14)</small><br><br>CAGE Contractor Established No.<br>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 <small>(Type or Print)</small> | 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 <small>(4 copies unless otherwise specified)</small> | ITEM | 25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO<br><input type="checkbox"/> 10 U.S.C. 2304(c)( ) <input type="checkbox"/> 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**

|  |   |
|--|---|
| <input type="checkbox"/> 28. NEGOTIATED AGREEMENT <small>(Contractor is required to sign this document and return _____ copies to issuing Office.)</small> 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. | <input type="checkbox"/> 29. AWARD ( <small>Contractor is not required to sign this document.</small> ) 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. |
|--|---|

|   |   |
|---|---|
| 30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN <small>(Type or Print)</small> | 31A. NAME OF CONTRACTING OFFICER <small>(Type or Print)</small> |
| 30B. SIGNATURE  | 31B. UNITED STATES OF AMERICA                                   |
| 30C. DATE   | BY  |
|   | 31C. AWARD DATE   |

**BIDDING SCHEDULE**

| <b>Item No.</b>       | <b>Description</b>  | <b>Qty</b> | <b>Unit</b> | <b>Unit Price</b> | <b>Amount</b>   |
|-----------------------|---|------------|-------------|-------------------|-----------------|
| <b>BASE BID</b>       |   |            |             |                   |                 |
| 1.                    | Phase 1 - All Work Associated With Buildings 5955 and 5970 (complete) Except as Noted | Sum        | Job         | xxx               | \$ _____        |
| 2.                    | Phase 2 - All Work Associated With Building 6007 (complete) Except as Noted           | Sum        | Job         | xxx               | \$ _____        |
| <b>TOTAL BASE BID</b> |   |            |             |                   | <b>\$ _____</b> |

-----  
**OPTIONAL BID ITEMS**

|    |  |     |     |     |          |
|----|--|-----|-----|-----|----------|
| 3. | Option 1 - All Work Associated With Building 5960 (complete) Except as Noted | Sum | Job | xxx | \$ _____ |
| 4. | Option 2 - All Work Associated With Building 6050 (complete) Except as Noted | Sum | Job | xxx | \$ _____ |
| 5. | Option 3 - Shotcrete Floor Surface in Crawl Space of Building 5955           | Sum | Job | xxx | \$ _____ |
| 6. | Option 4 - Shotcrete Floor Surface in Crawl Space of Building 5970           | Sum | Job | xxx | \$ _____ |

7. Option 5 –  
 Shotcrete Floor Surface  
 in Crawl Space of  
 Building 6007                      Sum              Job              xxx              \$ \_\_\_\_\_

8. Option 6 –  
 Shotcrete Floor Surface  
 in Crawl Space of  
 Building 5960                      Sum              Job              xxx              \$ \_\_\_\_\_

9. Option 7 –  
 Shotcrete Floor Surface  
 in Crawl Space of  
 Building 6050                      Sum              Job              xxx              \$ \_\_\_\_\_

**TOTAL OPTION ITEMS**              \$ \_\_\_\_\_

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**TOTAL BASE BID AND OPTION ITEMS**              \$ \_\_\_\_\_

\_\_\_\_\_

**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. AWARD OF OPTIONAL BID ITEMS

Optional bid items may, at the option of the Government, be added to the contract at any time within 18 months after notice to Proceed. All options or any combination thereof may be exercised by the Government. Optional Bid Item Work shall be as indicated on the drawings.

4. EVALUATION OF OPTIONS

The Government will evaluate offers for award purposes by adding the total price for options to the total price for the Base Bid. (Total Base Bid and Optional Bid Items). Evaluation of options will not obligate the Government to exercise the options.

**5. OPTIONS 1 & 2**

**If awarded, Buildings 5960 and 6050 will be occupied and operational during construction.**

## 6. PHASING

a. Phase 1 shall consist of all work associated with Buildings 5955 and 5970. Building 5955 **dining hall will be** shut down during the months of October 1999 through 24 April 2000. Building 5970 **dining hall will be** shut down during the months of November 1999 through 24 April 2000. The Contractor may work on buildings 5955 and 5970 consecutively or concurrently (during November 1999 through 24 April 2000) at his option. All work must be completed on Buildings 5955 and 5970 by 24 April 2000.

b. Phase 2 shall consist of all work associated with Building 6007. **Building 6007 will be turned over to the Contractor on 1 January 2000 and all work shall be completed by 24 April 2000 (building occupancy date). Building 6007 dining hall will be shut down during the months of January 2000 through 31 March 2000. Building 6007 dining hall must be operational on 1 April 2000.**

**CAUTION TO OFFERORS**

All information required by the terms of the Solicitation must be furnished. **MISTAKES OR OMISSIONS CAN BE COSTLY**. Important items for you to check are included in but not limited to, those listed below. This checklist is furnished only to assist you in submitting a proper offer. Check as you read.

- ( ) Have you acknowledged all amendments?
- ( ) Have you completed the "Representations and Certifications?"
- ( ) Is your offer properly signed?
- ( ) If a bid guarantee is required, is it included with your offer?  
(A late bid guarantee is treated the same as a late offer.)
- ( ) Is your bid guarantee in the proper amount? (Usually 20 percent of total price.)
- ( ) If your bid guarantee is in the form of a bid bond, is the bond properly signed by both the bidder and surety and are all required seals affixed?
- ( ) Is the name in which you submitted the offer the same on your offer as on bid bond?
- ( ) If required, have you entered a unit price in for each bid item?  
(The Solicitation will specifically state when this is necessary.)
- ( ) Are decimals in unit prices in the proper places? Are your figures legible?
- ( ) Are the extensions of your unit prices, and your total price correct?
- ( ) Are all erasures or corrections initialed by the person signing the offer?
- ( ) Have you not restricted your offer by altering the provisions of the Solicitation?
- ( ) Is the envelope containing your offer properly identified that it is a sealed offer and does it contain the correct Solicitation number and bid opening time?

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SECTION 00100

INSTRUCTIONS, CONDITIONS, AND NOTICES TO BIDDERS

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>

(End of provision)

2 52. 204- 6 DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER (JUN 1999)

(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.customerservice@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](mailto:globalinfo@mail.dnb.com).

(End of provision)

3 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)

4 52.214-1 SOLICITATION DEFINITIONS--SEALED BIDDING (JUL 1987)

"Government" means United States Government.

"Offer" means "bid" in sealed bidding.

"Solicitation" means an invitation for bids in sealed bidding.

(End of provision)

5 52.214-3 AMENDMENTS TO INVITATIONS FOR BIDS (DEC 1989)

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date in the space provided for this purpose on the form for submitting a bid, (3) by letter or telegram, or (4) by facsimile, if facsimile bids are authorized in the solicitation. The Government must receive the acknowledgment by the time and at the place specified for receipt of bids.

(End of provision)

6 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))

7 52.214-5 SUBMISSION OF BIDS (MAR 1997)

(a) Bids and bid modifications shall be submitted in sealed envelopes or packages (unless submitted by electronic means) (1) addressed to the office specified in the solicitation, and (2) showing the time and date specified for receipt, the solicitation number, and the name and address of the bidder.

(b) Bidders using commercial carrier services shall ensure that the bid is addressed and marked on the outermost envelope or wrapper as prescribed in subparagraphs (a) (1) and (2) of this provision when delivered to the office specified in the solicitation.

(c) Telegraphic bids will not be considered unless authorized by the solicitation; however, bids may be modified or withdrawn by written or telegraphic notice.

(d) Facsimile bids, modifications, or withdrawals, will not be considered unless authorized by the solicitation.

(e) Bids submitted by electronic commerce shall be considered only if the electronic commerce method was specifically stipulated or permitted by the solicitation.

(End of provision)

8 52. 214-6 EXPLANATION TO PROSPECTIVE BIDDERS (APR 1984)

Any prospective bidder desiring an explanation or interpretation of the solicitation, drawings, specifications, etc., must request it in writing soon enough to allow a reply to reach all prospective bidders before the submission of their bids. Oral explanations or instructions given before the award of a contract will not be binding. Any information given a prospective bidder concerning a solicitation will be furnished promptly to all other prospective bidders as an amendment to the solicitation, if that information is necessary in submitting bids or if the lack of it would be prejudicial to other prospective bidders.

(End of provision)  
(R SF 33A, Para 3, 1978 JAN)

9 52. 214-7 LATE SUBMISSIONS, MODIFICATIONS, AND WITHDRAWALS OF BIDS  
(MAY 1997)

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

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

(2) 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;

(3) 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 bids. The term "working days" excludes weekends and U.S. Federal holidays; or

(4) 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 bids.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal 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 bid, modification, or withdrawal 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, bidders should request the postal clerk to place a legible hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the Government installation is the time/date stamp of that installation on the bid wrapper or other documentary evidence of receipt maintained by the installation.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by U. S. Postal Service 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 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) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

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

(g) Bids may be withdrawn by written notice or telegram (including mailgram) received at any time before the exact time set for receipt of bids. If the solicitation authorizes facsimile bids, bids may be withdrawn via facsimile received at any time before the exact time set for receipt of bids, subject to the conditions specified in the provision entitled "Facsimile Bids." A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for receipt of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

(h) If an emergency or unanticipated event interrupts normal Government processes so as to cause postponement of the scheduled bid opening, and urgent Government requirements preclude amendment of the solicitation or other notice of an extension of the opening date, the time specified for receipt of bids 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.

(End of provision)

10 52.214-18 PREPARATION OF BIDS--CONSTRUCTION (APR 1984)

(a) Bids 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 bid must initial each erasure or change appearing on any bid form.

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

- (1) Lump sum bidding;
- (2) Alternate prices;
- (3) Units of construction; or
- (4) Any combination of subparagraphs (1) through (3) above.

(c) If the solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "no bid" in the space provided for any item on which no price is submitted.

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

(End of provision)  
(R SF 22, Para 5, 1978 FEB)

11 52.214-19 CONTRACT AWARD--SEALED BIDDING--CONSTRUCTION (AUG 1996)

(a) The Government will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the Government, considering only price and the price-related factors specified elsewhere in the solicitation.

(b) The Government may reject any or all bids, and waive informalities or minor irregularities in bids received.

(c) The Government may accept any item or combination of items, unless doing so is precluded by a restrictive limitation in the solicitation or the bid.

(d) The Government may reject a bid as nonresponsive if the prices bid are materially unbalanced between line items or subline items. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated in relation to cost for other work, and if there is a reasonable doubt that the bid will result in the lowest overall cost to the Government even though it may be the low evaluated bid, or if it is so unbalanced as to be tantamount to allowing an advance payment.

(End of provision)

12 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)

13 52.215-15 PENSION ADJUSTMENTS AND ASSET REVERSIONS (DEC 1998)

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

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

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

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

(End of clause)

14 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)

15 52. 222- 23 D NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (APR 1984) (DEVIATION)

(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 |
|---|---|
| 14. 8%  | 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 Deputy Assistant Secretary for 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/Comanche/Lawton.

(End of provision)

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

(b) 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 52.225-5.

(c) Evaluation of offers.

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

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

(d) Alternate offers.

(1) When an offer includes foreign construction material not listed by the Government in the solicitation at paragraph (b)(2) of FAR clause 52.225-5, offerors also may submit alternate offers 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 52.225-5, shall be submitted for each offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception to apply.

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

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

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

(End of provision)

17 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 twenty (20%) percent of the bid price or \$3,000,000, 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)

18 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)

T0: (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)

19 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)

20 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)

21 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  
1645 S. 101 E. Avenue  
Tulsa, OK 74128-4609

(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)

22 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 SPECIFICATION SECTION 01040, PARAGRAPH 1.7.1

(c) Participants will meet at-- SEE SPECIFICATION SECTION 01040, PARAGRAPH 1.7.1

(End of provision)

23 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)

24 52.204-7004 REQUIRED CENTRAL CONTRACTOR REGISTRATION (MAR 1998)

(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 submitting an application through a method other than the Internet may take up to 30 days. Therefore, offerors that are not registered should consider applying for registration immediately upon receipt of this solicitation.

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

25 52.0-4010 SMALL BUSINESS SIZE STANDARD (APR 1984) FAR 19.102

The size standard of Small Business Concerns for this procurement is a concern whose average annual sales or receipts for its preceding three fiscal years does not exceed \$7.0 million. Standard Industrial Classification (SIC): 1711.

(End of Clause)

26 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.

27 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 technical organization, financial resources, and plant available to be used in performing the work.

28 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.")

29 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.

30 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)

END OF SECTION 00100

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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 (OCT 1998)

(a) Definitions.

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

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

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

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

(d) Taxpayer Identification Number (TIN).

TIN: \_\_\_\_\_

TIN has been applied for.

TIN is not required because:

Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

Offeror is an agency or instrumentality of a foreign government;

Offeror is an agency or instrumentality of the Federal Government.

(e) Type of organization.

Sole proprietorship;

Partnership;

Corporate entity (not tax-exempt);

Corporate entity (tax-exempt);

Government entity (Federal, State, or local);

Foreign government;

International organization per 26 CFR 1.6049-4;

Other \_\_\_\_\_

(f) Common parent.

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

Name and TIN of common parent:

Name \_\_\_\_\_

TIN \_\_\_\_\_

(End of provision)

4 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)

(a)(1) The standard industrial classification (SIC) code for this acquisition is 1711

(2) The small business size standard is \$7.0 million.

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

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

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

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

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

\_\_\_Black American.

\_\_\_Hispanic American.

\_\_\_Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

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

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

\_\_\_Individual/concern, other than one of the preceding.

(5) [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--

(i) It \_\_\_ is, \_\_\_ is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal place of ownership, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It \_\_\_ is, \_\_\_ is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b)(5)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the

joint venture. [The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture: \_\_\_\_\_.] Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(c) Definitions.

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

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

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

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

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

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

6 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)

7 52. 222- 21 D PROHIBITION OF SEGREGATED FACILITIES (APR 1984) (DEVIATION)

(a) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex or national origin because of written or oral policies, or employee custom. The term does not include separate or single-user rest rooms and necessary dressing or sleeping areas, which shall be provided to assure privacy between the sexes.

(b) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(c) The Contractor shall include this clause in every subcontract that contains the clause of this contract entitled "Equal Opportunity."

(End of clause)

8 52. 222- 22 D PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (APR 1984) (DEVIATION)

The offeror represents that--

(a) It /\_/ has, /\_/ has not, participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation.

(b) It /\_/ has, /\_/ has not filed all required compliance reports; and

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

(End of provision)

9 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)

10 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  
(If none, insert None)

Identification No.

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

(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)

11 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)

12 52.209-7001 DISCLOSURE OF OWNERSHIP OR CONTROL BY THE GOVERNMENT OF A  
TERRORIST COUNTRY (MAR 1998)

(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 or, in the case of a subsidiary, the firm that owns the 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)

13 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<br>(Name and Phone Number with Country Code, City Code and<br>Area Code, as applicable) |   |
| Name and Address of Offeror   |   |
| Name and Address of Entity  | Description of Interest,                |
| Controlled by a Foreign   | Ownership Percentage, and               |
| Government  | Identification of Foreign<br>Government |

(End of provision)

14 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)

15 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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52 52.228-12 PROSPECTIVE SUBCONTRACTOR REQUESTS FOR BONDS (OCT 1995)

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79 52.245-1 PROPERTY RECORDS (APR 1984)

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(SEP 1996)--ALTERNATE I (SEP 1996)

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90 52.225-7026 REPORTING OF CONTRACT PERFORMANCE OUTSIDE THE UNITED STATES  
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92 52.231-7000 SUPPLEMENTAL COST PRINCIPLES (DEC 1991)

93 52.236-7000 MODIFICATION PROPOSALS--PRICE BREAKDOWN (DEC 1991)

94 52.236-7008 CONTRACT PRICES--BIDDING SCHEDULES (DEC 1991)

95 52.242-7000 POSTAWARD CONFERENCE (DEC 1991)

96 52.243-7001 PRICING OF CONTRACT MODIFICATIONS (DEC 1991)

97 52.247-7023 TRANSPORTATION OF SUPPLIES BY SEA (NOV 1995)

98 52.247-7024 NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA (NOV 1995)

99 52.0-4513 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE  
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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>  
(End of clause)

2 52. 203-9 reserved

(Reference )

3 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)

4 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)

5 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)

6 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)

7 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)

8 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)

9 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)

10 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)

11 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)

12 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 debar 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)

13 52.211-2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE DOD INDEX OF SPECIFICATIONS AND STANDARDS (DODISS) AND DESCRIPTIONS LISTED IN THE ACQUISITION MANAGEMENT SYSTEMS AND DATA REQUIREMENTS CONTROL LIST, DOD 5010.12-L (AUG 1998)

(a) Copies of specifications, standards, and data item descriptions cited in this solicitation may be obtained for a fee by submitting a request to the Department of Defense Single Stock Point (DoDSSP), Building 4, Section D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Telephone (215) 697-2667/2179, Facsimile (215) 697-1462.

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

- (1) By telephone at (215) 697-2667/2179; or
  - (2) Through the DoDSSP Internet site at <http://www.dodssp.daps.mil>.
- (End of provision)

14 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)

15 52.214-26 AUDIT AND RECORDS--SEALED BIDDING (OCT 1997)

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

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

- (1) The proposal for the modification;
- (2) The discussions conducted on the proposal(s), including those related to negotiating;
- (3) Pricing of the modification; or
- (4) Performance of the modification.

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

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

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

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

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

(End of clause)

PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA--  
MODIFICATIONS--SEALED BIDDING (OCT 1997)

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

(b) If any price, including profit, negotiated in connection with any modification under this clause, was increased by any significant amount because (1) the Contractor or a subcontractor furnished cost or pricing data that were not complete, accurate, and current as certified in its Certificate of Current Cost or Pricing Data, (2) a subcontractor or prospective subcontractor furnished the Contractor cost or pricing data that were not complete, accurate, and current as certified in the Contractor's Certificate of Current Cost or Pricing Data, or (3) any of these parties furnished data of any description that were not accurate, the price shall be reduced accordingly and the contract shall be modified to reflect the reduction. This right to a price reduction is limited to that resulting from defects in data relating to modifications for which this clause becomes operative under paragraph (a) above.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(End of clause)

17 52. 214- 28 SUBCONTRACTOR COST OR PRICING DATA-- MODIFICATIONS-- SEALED BIDDING (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 aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4(a)(1), and (2) be limited to such modifications.

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

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

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

(End of clause)

18 52.214-29 ORDER OF PRECEDENCE--SEALED BIDDING (JAN 1986)

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; and (e) the specifications.

(End of clause)

19 52.219-8 UTILIZATION OF SMALL BUSINESS CONCERNS (JUN 1999)

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

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

(c) Definitions. As used in this contract

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

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

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

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

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

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

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

small business concern, a HUBZone small business concern, a small business concern owned and controlled by socially and economically disadvantaged individuals, or a small business concern owned and controlled by women.

(End of clause)

20 52.219-9 I SMALL BUSINESS SUBCONTRACTING PLAN (JAN 1999)--ALTERNATE I  
(JAN 1999)

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

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

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

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

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

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

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

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

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

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

share of products and services that are normally allocated as indirect costs.

(2) A statement of--

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

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

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

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

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

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

(i) Small business concerns;

(ii) HUBZone small business concerns;

(iii) Small disadvantaged business concerns; and

(iv) Women-owned small business concerns.

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

(5) A description of the method used to identify potential sources for solicitation purposes (e.g., existing company source lists, the Procurement Marketing and Access Network (PRO-Net) of the Small Business Administration (SBA), the list of certified small disadvantaged business concerns of the SBA, the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce, or small, HUBZone small, small disadvantaged, and women-owned small business trade associations). A firm may rely on the information contained in PRO-Net as an accurate representation of a concern's size and ownership characteristics for the purposes of maintaining a small and women-owned small business source list. A firm shall rely on the information contained in SBA's list of small disadvantaged business concerns as an accurate representation of a concern's size and ownership characteristics for the purposes of maintaining a small disadvantaged business source list. Use of PRO-Net and/or the SBA list of small disadvantaged business concerns as its source lists does not relieve a firm of its responsibilities (e.g., outreach, assistance, counseling, publicizing subcontracting opportunities) in this clause.

(6) A statement as to whether or not the offeror included indirect costs in establishing subcontracting goals, and a description of the method used to determine the proportionate share of indirect costs to be incurred with--

(i) Small business concerns;

(ii) HUBZone small business concerns;

(iii) Small disadvantaged business concerns; and

(iv) Women-owned small business concerns.

(7) The name of the individual employed by the offeror who will

administer the offeror's subcontracting program, and a description of the duties of the individual.

(8) A description of the efforts the offeror will make to assure that small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns have an equitable opportunity to compete for subcontracts.

(9) Assurances that the offeror will include the clause of this contract entitled "Utilization of Small Business Concerns" in all subcontracts that offer further subcontracting opportunities, and that the offeror will require all subcontractors (except small business concerns) that receive subcontracts in excess of \$500,000 (\$1,000,000 for construction of any public facility) to adopt a subcontracting plan that complies with the requirements of this clause.

(10) Assurances that the offeror will--

(i) Cooperate in any studies or surveys as may be required;

(ii) Submit periodic reports so that the Government can determine the extent of compliance by the offeror with the subcontracting plan;

(iii) Submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or SF 295, Summary Subcontract Report, in accordance with the instructions on the forms or as provided in agency regulations and in paragraph (j) of this clause; and

(iv) Ensure that its subcontractors agree to submit SF 294 and SF 295.

(11) A description of the types of records that will be maintained concerning procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of the offeror's efforts to locate small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns and award subcontracts to them. The records shall include at least the following (on a plant-wide or company-wide basis, unless otherwise indicated):

(i) Source lists (e.g., PRO-Net), guides, and other data that identify small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

(ii) Organizations contacted in an attempt to locate sources that are small business, HUBZone small business, small disadvantaged business, or women-owned small business concerns.

(iii) Records on each subcontract solicitation resulting in an award of more than \$100,000, indicating--

(A) Whether small business concerns were solicited and, if not, why not;

(B) Whether HUBZone small business concerns were solicited and, if not, why not;

(C) Whether small disadvantaged business concerns were solicited and, if not, why not;

(D) Whether women-owned small business concerns were solicited and, if not, why not; and

(E) If applicable, the reason award was not made to a small business concern.

(iv) Records of any outreach efforts to contact--

- (A) Trade associations;
- (B) Business development organizations; and
- (C) Conferences and trade fairs to locate small, HUBZone small, small disadvantaged, and women-owned small business sources.
- (v) Records of internal guidance and encouragement provided to buyers through--
  - (A) Workshops, seminars, training, etc.; and
  - (B) Monitoring performance to evaluate compliance with the program's requirements.
- (vi) On a contract-by-contract basis, records to support award data submitted by the offeror to the Government, including the name, address, and business size of each subcontractor. Contractors having commercial plans need not comply with this requirement.
- (e) In order to effectively implement this plan to the extent consistent with efficient contract performance, the Contractor shall perform the following functions:
  - (1) Assist small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation by such concerns. Where the Contractor's lists of potential small business, HUBZone small business, small disadvantaged business, and women-owned small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.
  - (2) Provide adequate and timely consideration of the potentialities of small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all "make-or-buy" decisions.
  - (3) Counsel and discuss subcontracting opportunities with representatives of small business, HUBZone small business, small disadvantaged business, and women-owned small business firms.
  - (4) Provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small, HUBZone 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 plan on a plant or division-wide basis that contains all the elements required by paragraph (d) of this clause, except goals, may be incorporated by reference as a part of the subcontracting plan required of the offeror by this clause; provided-- (1) the master plan has been approved, (2) the offeror ensures that the master plan is updated as necessary and provides copies of the approved master plan, including evidence of its approval, to the Contracting Officer, and (3) goals and any deviations from the master plan deemed necessary by the Contracting Officer to satisfy the requirements of this contract are set forth in the individual subcontracting plan.
- (g) A commercial plan is the preferred type of subcontracting plan for contractors furnishing commercial items. The commercial plan shall relate to the offeror's planned subcontracting generally, for both commercial and Government business, rather than solely to the Government contract. Commercial plans are also preferred for

subcontractors that provide commercial items under a prime contract, whether or not the prime contractor is supplying a commercial item.

(h) Prior compliance of the offeror with other such subcontracting plans under previous contracts will be considered by the Contracting Officer in determining the responsibility of the offeror for award of the contract.

(i) The failure of the Contractor or subcontractor to comply in good faith with (1) the clause of this contract entitled "Utilization Of Small Business Concerns," or (2) an approved plan required by this clause, shall be a material breach of the contract.

(j) The Contractor shall submit the following reports:

(1) Standard Form 294, Subcontracting Report for Individual Contracts. This report shall be submitted to the Contracting Officer semiannually and at contract completion. The report covers subcontract award data related to this contract. This report is not required for commercial plans.

(2) Standard Form 295, Summary Subcontract Report. This report encompasses all the contracts with the awarding agency. It must be submitted semi-annually for contracts with the Department of Defense and annually for contracts with civilian agencies. If the reporting activity is covered by a commercial plan, the reporting activity must report annually all subcontract awards under that plan. All reports submitted at the close of each fiscal year (both individual and commercial plans) shall include a breakout, in the Contractor's format, of subcontract awards, in whole dollars, to small disadvantaged business concerns by Standard Industrial Classification (SIC) Major Group. For a commercial plan, the Contractor may obtain from each of its subcontractors a predominant SIC Major Group and report all awards to that subcontractor under its predominant SIC Major Group.

(End of clause)

21 52. 219- 16 LIQUIDATED DAMAGES--SUBCONTRACTING PLAN (JAN 1999)

(a) "Failure to make a good faith effort to comply with the subcontracting plan," as used in this clause, means a willful or intentional failure to perform in accordance with the requirements of the subcontracting plan approved under the clause in this contract entitled "Small Business Subcontracting Plan," or willful or intentional action to frustrate the plan.

(b) Performance shall be measured by applying the percentage goals to the total actual subcontracting dollars or, if a commercial plan is involved, to the pro rata share of actual subcontracting dollars attributable to Government contracts covered by the commercial plan. If, at contract completion or, in the case of a commercial plan, at the close of the fiscal year for which the plan is applicable, the Contractor has failed to meet its subcontracting goals and the Contracting Officer decides in accordance with paragraph (c) of this clause that the Contractor failed to make a good faith effort to comply with its subcontracting plan, established in accordance with the clause in this contract entitled "Small Business Subcontracting Plan," the Contractor shall pay the Government liquidated damages in an amount stated. The amount of probable

damages attributable to the Contractor's failure to comply shall be an amount equal to the actual dollar amount by which the Contractor failed to achieve each subcontract goal.

(c) Before the Contracting Officer makes a final decision that the Contractor has failed to make such good faith effort, the Contracting Officer shall give the Contractor written notice specifying the failure and permitting the Contractor to demonstrate what good faith efforts have been made and to discuss the matter. Failure to respond to the notice may be taken as an admission that no valid explanation exists. If, after consideration of all 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 plans, the Contracting Officer who approved the plan will perform the functions of the Contracting Officer under this clause on behalf of all agencies with contracts covered by the commercial 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)

22 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)

23 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)

24 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)

25 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)

26 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)

27 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)

28 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)

29 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)

30 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)

31 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)

32 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)

33 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)

34 52.222-26 D EQUAL OPPORTUNITY (APR 1984) (DEVIATION)

(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. Note: It shall not be a violation of E. O. 11246 for a contractor to extend a publicly announced preference in employment to Indians living on or near an Indian reservation in connection with employment opportunities on or near an Indian reservation. See 22.807(b)(4).

(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. The Contractor shall, within 30 days following the award, file Standard Form 100 (EEO-1), or any successor form, unless filed within 12 months preceding the date of award.

(8) The Contractor shall permit access to its premises by the contracting officer or the Office of Federal Contract Compliance Programs (OFCCP) for the purpose of conducting on-site compliance reviews and inspecting such books, records, accounts, and other materials as may be relevant to an 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; in the rules, regulations, and orders of the Secretary of Labor;

or as otherwise provided by law.

(10) The Contractor shall include the terms and conditions of 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 officer may direct as a means of enforcing these terms and conditions, including sanctions for noncompliance; provided, that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of any direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

(c) Notwithstanding any other clause in this contract, disputes relative to this clause will be governed by the procedures in 41 CFR 60-1.1.

(End of clause)

35 52. 222- 27 D AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION  
(APR 1984) (DEVIATION)

(a) Definitions.

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

"Deputy Assistant Secretary," as used in this clause, means the Deputy Assistant Secretary for Federal Contract Compliance Programs, United States Department of Labor or a designee.

"Employer's identification number," as used in this clause, means the Federal Social Security number used on the employer's quarterly federal tax return, U. S. Treasury Department Form 941.

"Minority," as used in this clause, means--

(1) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(2) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands);

(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 Deputy Assistant Secretary when the union or unions with which the Contractor has a collective bargaining agreement has not referred back to the Contractor a minority or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area that expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under subparagraph (g) (2) 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 rest rooms and necessary dressing or sleeping areas 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 Deputy Assistant Secretary shall take action as prescribed in 41 CFR 60-4.8.

(n) The Contractor shall designate a responsible official to--

(1) Monitor all employment-related activity to ensure that the Contractor's equal employment policy is being carried out;

(2) Submit reports as may be required by the Government; and

(3) Keep records that shall at least include for each employee the name, address, telephone number, construction trade, union affiliation (if any), employee identification number, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, separate records are not required to be maintained.

(o) Nothing contained herein shall be construed as a limitation upon the application of other laws that establish different standards of compliance or upon the requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

(End of clause)

(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)

37 52. 222- 36 AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES (JUN 1998)

(a) General. (1) Regarding any position for which the employee or applicant for employment is qualified, the Contractor shall not discriminate against any employee or applicant because of physical or mental disability. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified individuals with disabilities without discrimination based

upon their physical or mental disability in all employment practices such as--

(i) Recruitment, advertising, and job application procedures;

(ii) Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff, and rehiring;

(iii) Rates of pay or any other form of compensation and changes in compensation;

(iv) Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;

(v) Leaves of absence, sick leave, or any other leave;

(vi) Fringe benefits available by virtue of employment, whether or not administered by the Contractor;

(vii) Selection and financial support for training, including apprenticeships, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;

(viii) Activities sponsored by the Contractor, including social or recreational programs; and

(ix) Any other term, condition, or privilege of employment.

(2) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor (Secretary) issued under the Rehabilitation Act of 1973 (29 U. S. C. 793) (the Act), as amended.

(b) Postings. (1) The Contractor agrees to post employment notices stating--

(i) The Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified individuals with disabilities; and

(ii) The rights of applicants and employees.

(2) These notices shall be posted in conspicuous places that are available to employees and applicants for employment. The Contractor shall ensure that applicants and employees with disabilities are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled individual, or may lower the posted notice so that it might be read by a person in a wheelchair). The notices shall be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance of the U. S. Department of Labor (Deputy Assistant Secretary) and shall be provided by or through the Contracting Officer.

(3) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Act and is committed to take affirmative action to employ, and advance in employment, qualified individuals with physical or mental disabilities.

(c) Noncompliance. If the Contractor does not comply with the requirements of this clause, appropriate actions may be taken under the rules, regulations, and relevant orders of the Secretary issued pursuant to the Act.

(d) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order in excess of \$10,000

unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Deputy Assistant Secretary to enforce the terms, including action for noncompliance.  
(End of clause)

38 52. 222-37 EMPLOYMENT REPORTS ON DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA (JAN 1999)

(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 September 30 of each year beginning September 30, 1988.

(d) The employment activity report required by paragraph (a)(2) of this clause shall reflect total hires during the most recent 12-month period as of the ending 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)

39 52. 223-2 CLEAN AIR AND WATER (APR 1984)

(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)

40 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)

41 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)

42 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)

43 52.225-5 BUY AMERICAN ACT--CONSTRUCTION MATERIALS (JUN 1997)

(a) The Buy American Act (41 U.S.C. 10) provides that the Government give preference to domestic construction material.

"Components," means those articles, materials, and supplies incorporated directly into construction materials.

"Construction materials," means an article, material, or supply brought to the construction site for incorporation into the building or work. Construction material also includes an item brought to the site pre-assembled from articles, materials or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, which are discrete systems incorporated into a public building or work and which are produced as a complete system, shall be evaluated as a single and distinct construction material regardless of when or how the individual parts or components of such systems are delivered to the construction site.

"Domestic construction material," means (1) an unmanufactured construction material mined or produced in the United States, or (2) a construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as the construction materials determined to be unavailable pursuant to subparagraph 25.202(a)(2) of the Federal Acquisition Regulation (FAR) shall be treated as domestic.

(b)(1) The Buy American Act (41 U.S.C. 10a-10d) requires that only domestic construction material be used in performing this contract, except as provided in paragraphs (b)(2) and (b)(3) of this clause.

(2) This requirement does not apply to the excepted construction material or components listed by the Government as follows:

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

none

(3) Other foreign construction material may be added to the list in paragraph (b)(2) of this clause if the Government determines that--

(i) The cost would be unreasonable (the cost of a particular domestic construction material shall be determined to be unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent, unless the agency head determines a higher percentage to be appropriate);

(ii) The application of 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.

(4) The Contractor agrees that only domestic construction material will be used by the Contractor, subcontractors, material men, and suppliers in the performance of this contract, except for foreign construction materials, if any, listed in paragraph (b)(2) of this clause.

(c) Request for determination. (1) Contractors requesting to use foreign construction material under paragraph (b)(3) of this clause shall provide adequate information for Government evaluation of the request for a determination regarding the inapplicability of the Buy American Act. Each submission shall include a description of the foreign and domestic construction materials, including unit of measure, quantity, price, time of delivery or availability, location of the construction project, name and address of the proposed contractor, and a detailed justification of the reason for use of foreign materials cited in accordance with paragraph (b)(3) of this clause. A submission based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison

table in the format in paragraph (d) of this clause. The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(2) If the Government determines after contract award that an exception to the Buy American Act applies, the contract shall be modified to allow use of the foreign construction material, and adequate consideration shall be negotiated. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration shall not be less than the differential established in paragraph (b)(3)(i) of this clause.

(3) If the Government does not determine that an exception 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:<br>Foreign construction material<br>Domestic construction material |                 |          |                  |
| Item 2:<br>Foreign construction material<br>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)

44 52.225-11 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (AUG 1998)

(a) Unless advance written approval of the Contracting Officer is obtained, the Contractor shall not acquire, for use in the performance of this contract, any supplies or services originating from sources within, or that were located in or transported from or through, countries whose products are banned from importation into the United States by Executive order or regulations of the Office of Foreign Assets Control, Department of the Treasury. Those countries include Cuba, Iran, Iraq, Libya, North Korea, and Sudan.

(b) The Contractor shall not acquire for use in the performance of this contract any supplies or services from entities controlled by the Government of Iraq.

(c) The Contractor agrees to insert the provisions of this clause, including this paragraph (c), in all subcontracts hereunder.

(End of clause)

## UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES (MAY 1999)

(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 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 representation of an Indian organization or Indian-owned economic enterprise as to its eligibility, unless an interested party challenges its status or the Contracting Officer has independent reason to question that status. In the event of a challenge to the representation of a subcontractor, the Contracting Officer shall refer the matter to the U.S. Department of the Interior, Bureau of Indian Affairs (BIA), Attn: Chief, Division of Contracting and Grants Administration, 1849 C Street, NW, MS-334A-SIB, Washington, DC 20245. The BIA will determine the eligibility and notify the Contracting Officer. The 5 percent incentive payment will not be made within 50 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)

46 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)

47 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)

48 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)

(R 7-602.16 1964 JUN)

49 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)

50 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)

51 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 promulgated by the Appraisal Foundation.

(End of clause)

52 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)

53 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)

54 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)

55 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)

56 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)

57 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)

58 52. 232-34 PAYMENT BY ELECTRONIC FUNDS TRANSFER--OTHER THAN CENTRAL  
CONTRACTOR REGISTRATION (MAY 1999)

(a) Method of payment. (1) All payments by the Government under this contract shall be made by electronic funds transfer (EFT) except as provided in paragraph (a)(2) of this clause. As used in this clause, the term "EFT" refers to the funds transfer and may also include the payment information transfer.

(2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either--

(i) Accept payment by check or some other mutually agreeable method of payment; or

(ii) Request the Government to extend payment due dates until such time as the Government makes payment by EFT (but see paragraph (d) of this clause).

(b) Mandatory submission of Contractor's EFT information. (1) The Contractor is required to provide the Government with the information required to make payment by EFT (see paragraph (j) of this clause). The Contractor shall provide this information directly to the office designated in this contract to receive that information (hereafter: "designated office") by no later than 15 days prior to the submission of the first request for payment. If not otherwise specified in this contract, the payment office is the designated office for receipt of the Contractor's EFT information. If more than one designated 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 updated information to the designated office(s).

(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 designated office. However, EFT information supplied to a designated office shall be applicable only to contracts that identify that designated office as the office to receive EFT information for that contract.

(c) Mechanisms for EFT payment. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Clearing House

Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.

(d) Suspension of payment. (1) The Government is not required to make any payment under this contract until after receipt, by the designated office, of the correct EFT payment information from the Contractor. Until receipt of the correct EFT information, any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

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

(e) Liability for uncompleted or erroneous transfers. (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for--

- (i) Making a correct payment;
- (ii) Paying any prompt payment penalty due; and
- (iii) Recovering any erroneously directed funds.

(2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and--

(i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or

(ii) If the funds remain under the control of the payment office, the Government shall not make payment and the provisions of paragraph (d) shall apply.

(f) EFT and prompt payment. A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.

(g) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall provide the EFT information required by paragraph (j) of this clause to the designated office, and shall be paid by EFT in accordance with the terms of this clause. In all respects, the requirements of this

clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.

(h) Liability for change of EFT information by financial agent. The Government is not liable for errors resulting from changes to EFT information provided by the Contractor's financial agent.

(i) Payment information. The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Government makes payment by check in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address in the contract.

(j) EFT information. The Contractor shall provide the following information to the designated office. The Contractor may supply this data for this or multiple contracts (see paragraph (b) of this clause). The Contractor shall designate a single financial agent per contract capable of receiving and processing the EFT information using the EFT methods described in paragraph (c) of this clause.

(1) The contract number (or other procurement identification number).

(2) The Contractor's name and remittance address, as stated in the contract(s).

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

(4) The name, address, and 9-digit Routing Transit Number of the Contractor's financial agent.

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

(6) If applicable, the Fedwire Transfer System telegraphic abbreviation of the Contractor's financial agent.

(7) If applicable, the Contractor shall also provide the name, address, telegraphic abbreviation, and 9-digit Routing Transit Number of the correspondent financial institution receiving the wire transfer payment if the Contractor's financial agent is not directly on-line to the Fedwire Transfer System; and, therefore, not the receiver of the wire transfer payment.

(End of clause)

(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) The Contractor shall provide the certification specified in paragraph (d)(2)(iii) of this clause when submitting any claim exceeding \$100,000.

(ii) The certification requirement does not apply to issues in controversy that have not been submitted as all or part of a claim.

(iii) The certification shall state as follows:

"I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Government is liable; and that I am duly authorized to certify the claim on behalf of the Contractor."

(3) The certification may be executed by any person duly authorized to bind the Contractor with respect to the claim.

(e) For Contractor claims of \$100,000 or less, the Contracting Officer must, if requested in writing by the Contractor, render a decision within 60 days of the request. For Contractor-certified claims over \$100,000, the Contracting Officer must, within 60 days, decide the claim or notify the Contractor of the date by which the decision will be made.

(f) The Contracting Officer's decision shall be final unless the Contractor appeals or files a suit as provided in the Act.

(g) If the claim by the Contractor is submitted to the Contracting Officer or a claim by the Government is presented to the Contractor, the parties, by mutual consent, may agree to use alternative dispute resolution (ADR). If the Contractor refuses an offer for ADR, the Contractor shall inform the Contracting Officer, in writing, of the Contractor's specific reasons for rejecting the offer.

(h) The Government shall pay interest on the amount found due and unpaid from (1) the date that the Contracting Officer receives the claim (certified, if required); or (2) the date that payment otherwise would be due, if that date is later, until the date of payment. With regard to claims having defective 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)

60 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)

61 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)

62 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)

63 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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64 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)

65 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)

66 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)

67 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)

68 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)

69 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)

70 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)

71 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)

72 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)

73 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)

74 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)

75 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)

76 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)

77 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)

78 52.244-2 SUBCONTRACTS (AUG 1998)

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

Approved purchasing system means a Contractor's purchasing system that has been reviewed and approved in accordance with Part 44 of the Federal Acquisition Regulation (FAR).

Consent to subcontract means the Contracting Officer's written consent for the Contractor to enter into a particular subcontract.

Subcontract means any contract, as defined in FAR Subpart 2.1, entered into by a subcontractor to furnish supplies or services for performance of the prime contract or a subcontract. It includes, but is not limited to, purchase orders, and changes and modifications to purchase orders.

(b) This clause does not apply to subcontracts for special test equipment when the contract contains the clause at FAR 52.245-18, Special Test Equipment.

(c) When this clause is included in a fixed-price type contract, consent to subcontract is required only on unpriced contract actions (including unpriced modifications or unpriced delivery orders), and only if required in accordance with paragraph (d) or (e) of this clause.

(d) If the Contractor does not have an approved purchasing system, consent to subcontract is required for any subcontract that--

(1) Is of the cost-reimbursement, time-and-materials, or labor-hour type; or

(2) Is fixed-price and exceeds--

(i) For a contract awarded by the Department of Defense, the Coast Guard, or the National Aeronautics and Space Administration, the greater of the simplified acquisition threshold or 5 percent of the total estimated cost of the contract; or

(ii) For a contract awarded by a civilian agency other than the Coast Guard and the National Aeronautics and Space Administration,

either the simplified acquisition threshold or 5 percent of the total estimated cost of the contract.

(e) If the Contractor has an approved purchasing system, the Contractor nevertheless shall obtain the Contracting Officer's written consent before placing the following subcontracts:

(f)(1) The Contractor shall notify the Contracting Officer reasonably in advance of placing any subcontract or modification thereof for which consent is required under paragraph (c), (d), or (e) of this clause, including the following information:

(i) A description of the supplies or services to be subcontracted.

(ii) Identification of the type of subcontract to be used.

(iii) Identification of the proposed subcontractor.

(iv) The proposed subcontract price.

(v) 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.

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

(vii) A negotiation memorandum reflecting--

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

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

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

(D) 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;

(E) The extent 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 the subcontractor; and the effect of any such defective data on the total price negotiated;

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

(G) 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.

(2) The Contractor is not required to notify the Contracting Officer in advance of entering into any subcontract for which consent is not required under paragraph (c), (d), or (e) of this clause.

(g) 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 allowability of any cost under this contract; or

(3) To relieve the Contractor of any responsibility for performing this contract.

(h) No subcontract or modification thereof placed under this contract shall provide for payment on a cost-plus-a-percentage-of-cost basis, and any fee payable under cost-reimbursement type subcontracts shall not exceed the fee limitations in FAR 15.404-4(c)(4)(i).

(i) The Contractor shall give the Contracting Officer immediate written notice of any action or suit filed and prompt notice of any claim made against the Contractor by any subcontractor or vendor that, in the opinion of the Contractor, may result in litigation related in any way to this contract, with respect to which the Contractor may be entitled to reimbursement from the Government.

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

(k) Paragraphs (d) and (f) of this clause do not apply to the following subcontracts, which were evaluated during negotiations:

\_\_\_\_\_ (End of clause)

79 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)

80 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)

81 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)

82 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 (1) 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 (1), 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.

(1) 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)

(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)

84 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)

(a) Definitions.

As used in this clause--

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

(i) Attempting to obtain;

(ii) Obtaining; or

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

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

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

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

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

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

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

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

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

(d) 10 U.S.C. 2408 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 prohibition in paragraph (b) of this clause to the Contracting Officer. Requests shall clearly identify--

(1) The person involved;

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

(3) The reasons for the requested waiver; and

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

(g) The Contractor agrees to include the substance of this clause, appropriately modified to reflect the 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 Federal Benefits Office, U.S. Department of Justice, telephone (202) 616-3507.

(End of clause)

86 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)

87 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)

88 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)

89 52.225-7012 PREFERENCE FOR CERTAIN DOMESTIC COMMODITIES (MAY 1999)

(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 fibers and yarns that are for use in synthetic fabric or coated synthetic fabric (but does apply to the synthetic or coated synthetic fabric itself), if--

(i) The 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--

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

(B) 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;

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

(D) Parachutes (Federal Supply Class 1670); or

(ii) The fibers and yarns are para-aramid fibers and yarns manufactured in the Netherlands.

(End of clause)

90 52.225-7026 REPORTING OF CONTRACT PERFORMANCE OUTSIDE THE UNITED STATES  
(MAR 1998)

(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 the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation 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 \$500,000, 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--

(1) Subcontracts;

(2) Purchases; and

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

(End of clause)

91 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)

92 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)

93 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)

94 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)

95 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)

96 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)

97 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)

98 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)

99 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.

END OF SECTION 00700

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SECTION 00800

SPECIAL CONTRACT REQUIREMENTS

1 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 \$483.12 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)

2 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)

3 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 twenty-five (25%) 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)

4 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)

5 52. 236- 7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (DEC 1991)

(a) The Government--

(1) Will provide the Contractor, without charge, one (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 reproducible, 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. |
|----------------------------|------|-----|-------------|
| Replace Crawl Space Piping |      |     |             |
| Starship Barracks          |      |     |             |
| Fort Sill, OK              |      |     |             |

(End of clause)

6 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.

7 52. 0- 4002 WAGE RATES

The following Wage Determination No. (s) are attached and made a part hereof: General Decision OK990014, with 4 modifications, dated 06/04/1999

8 52. 0- 4020 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (OCT 1989)  
(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 |
| 2   | 2   | 3   | 3   | 4   | 4   | 3   | 3   | 3   | 3   | 1   | 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)

9 52. 0- 4021 INCLUSION OF LABOR PROVISIONS IN SUBCONTRACTS (JUN 1984)  
(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)

10 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)

11 52.0-4030 BASIS FOR SETTLEMENT OF PROPOSALS (EFARS 52.249-5000)  
(MAR 1995)

"Actual costs will be used to determine equipment cost for a settlement proposal submitted on the total cost basis under FAR 49.206-2b. In evaluating a termination settlement proposal using the total cost basis, the following principles will be applied to determine allowable equipment costs:

(1) Actual costs for each piece of equipment, or groups of similar serial or series equipment, need not be available in the contractor's accounting records to determine total actual equipment costs.

(2) If equipment costs have been allocated to a contract using predetermined rates, those charges will be adjusted to actual costs.

(3) Recorded job costs adjusted for unallowable and unallocable expenses will be used to determine equipment operating expenses.

(4) Ownership costs (depreciation) will be determined using the contractor's depreciation schedule (subject to the provisions of FAR 31.205-11).

(5) License, taxes, storage and insurance costs are normally recovered as an indirect expense and unless the contractor charges these costs directly to contracts, they will be recovered through the indirect expense rate."

(End of Clause)

12 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 for each day of delay in completing turfing.

(End of Clause)

13 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.

14 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 Bid item 1 = 174 calendar days OR Not Later Than 01 May 2000 (see bidding schedule note, Section 00010), Bid item 2 = 124 calendar days OR Not Later Than 24 April 2000 (see bidding schedule notes, Section 00010), (Bid items 1 and 2 are concurrent, not sequential), TOTAL BASE BID = 174 calendar days, OR Not Later Than 24 April 2000; Option 1 (Bid item 3) = 124 calendar days, Option 2 (Bid item 4) = 124 calendar days, Option 3 (Bid item 5) = 65 calendar days, Option 4 (Bid item 6) = 150 calendar days, Option 5 (Bid item 7) = 50 calendar days, Option 6 (Bid item 8) = 65 calendar days, Option 7 (Bid item 9) = 50 calendar days. Note that Bid Items 1 and 2 (Phase 1 and 2) MUST be completed no later than 24 April 2000 OR 174 calendar days, whichever comes first. calendar days. The time stated for completion shall include final cleanup of the premises.

15 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.

16 52.0-4440 YEAR 2000 COMPLIANCE (CEPR-P memorandum dtd JUL 1998)

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.

END OF SECTION 00800

GENERAL DECISION OK990014 08/13/99 OK14  
Superseded General Decision No. OK980014

State: Oklahoma

Construction Type:  
BUILDING

County(ies):

|          |            |             |
|----------|------------|-------------|
| ALFALFA  | GRADY      | MAJOR       |
| BECKHAM  | GRANT      | MARSHALL    |
| BLAINE   | GREER      | MURRAY      |
| CADDO    | HARMON     | NOBLE       |
| CARTER   | HARPER     | PONTOTOC    |
| COMANCHE | JACKSON    | ROGER MILLS |
| COTTON   | JEFFERSON  | STEPHENS    |
| CUSTER   | JOHNSTON   | TILLMAN     |
| DEWEY    | KAY        | WASHITA     |
| ELLIS    | KINGFISHER | WOODS       |
| GARFIELD | KIOWA      | WOODWARD    |
| GARVIN   | LOVE       |             |

BUILDING CONSTRUCTION PROJECTS (does not include residential construction consisting of single family homes and apartments up to and including 4 stories)

| Modification Number | Publication Date |
|---------------------|------------------|
| 0                   | 03/12/1999       |
| 1                   | 04/16/1999       |
| 2                   | 06/04/1999       |
| 3                   | 08/06/1999       |
| 4                   | 08/13/1999       |

DACA56-99-B-0039, STARSHIP BARRACKS UPGRADE - REPLACE CRAWLSPACE PIPING, FORT SILL, COMANCHE COUNTY, OKLAHOMA

OK990014 - 1

08/13/1999

Amend 1

00800-8

ASBE0064C 07/16/1997

|                            | Rates | Fringes |
|----------------------------|-------|---------|
| KAY COUNTY                 |       |         |
| ASBESTOS/INSULATOR WORKERS | 15.00 | 4.64    |

SCOPE OF WORK:  
Includes application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems.

ASBE0066C 07/01/1996

|  | Rates | Fringes |
|--|-------|---------|
| BECKHAM, ELLIS, GREER, HARMON, HARPER AND ROGER MILLS COUNTIES |       |         |
| ASBESTOS/INSULATOR WORKERS                                     | 15.13 | 4.24    |

Scope of Work:  
Includes application of all insulation materials, protective coverings, coatings and finishings to all types of mechanical systems.

ASBE0094C 07/16/1997

|                            | Rates | Fringes |
|----------------------------|-------|---------|
| REMAINING COUNTIES         |       |         |
| 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.

BOIL0592A 08/01/1998

|             | Rates | Fringes |
|-------------|-------|---------|
| BOILERMAKER | 18.98 | 6.51    |

BROK0005Q 06/01/1999

|   | Rates | Fringes |
|---|-------|---------|
| BECKHAM, CADDO, CARTER, COMANCHE, COTTON, CUSTER, DEWEY, GARVIN, GRADY, GREER, HARMON, JACKSON, JEFFERSON, JOHNSTON, KIOWA, LOVE, MARSHALL, PONTOTOC, ROGER MILLS, STEPHENS, TILLMAN AND WASHITA COUNTIES |       |         |
| BRICKLAYERS & STONEMASONS   | 18.16 | 3.50    |

BROK0005R 06/01/1999

|   | Rates | Fringes |
|---|-------|---------|
| ALFALFA, BLAINE, ELLIS, GARFIELD, GRANT, HARPER, KINGFISHER, MAJOR, WOODS AND WOODWARD COUNTIES |       |         |
| BRICKLAYERS & STONEMASONS   | 18.16 | 3.50    |

BROK0005S 06/01/1999

|                           | Rates | Fringes |
|---------------------------|-------|---------|
| KAY AND NOBLE COUNTIES    |       |         |
| BRICKLAYERS & STONEMASONS | 18.16 | 3.50    |

CARP0329G 06/01/1997

|   | Rates | Fringes |
|---|-------|---------|
| BECKHAM, BLAINE, CADDO, COMANCHE, COTTON, DEWEY, GARVIN (Remainder of County), GRADY, GREER, HARMON, JACKSON, JEFFERSON, KINGFISHER (South of the Cimmarron River), KIOWA, STEPHENS, TILLMAN AND WASHITA COUNTIES |       |         |
| CARPENTERS & POWER SAW OPERATORS  | 15.50 | 2.80    |
| MILLWRIGHTS & PILEDRIVERMEN   | 16.90 | 2.80    |

CARP1362C 01/01/1995

|  | Rates | Fringes |
|--|-------|---------|
| CARTER, GARVIN ( Northern half of Garvin including the Towns of Pauls Valley and Wynnwood), JOHNSTON, LOVE, MARSHALL, MURRAY AND PONTOTOC COUNTIES |       |         |
| CARPENTERS   | 13.40 | 2.85    |
| PILEDRIVERMEN  | 13.65 | 2.85    |
| MILLWRIGHTS  | 15.50 | 2.85    |

-----  
CARP1686D 06/11/1994

|   | Rates | Fringes |
|---|-------|---------|
| NOBLE COUNTY (East of Interstate #35 and South of Black Bear Creek) |       |         |
| CARPENTERS  | 14.40 | .80     |
| MILLWRIGHTS   | 15.05 | .80     |
| PILEDRIVERMEN   | 14.40 | .80     |
| POWER SAW OPERATOR  | 14.40 | .80     |

-----  
CARP1894A 06/01/1993

|   | Rates  | Fringes |
|---|--------|---------|
| ELLIS, HARPER, ROGER MILLS, WOODS AND WOODWARD COUNTIES |        |         |
| CARPENTERS  | 11.55  | 1.40    |
| MILLWRIGHTS   | 12.425 | 1.40    |
| PILEDRIVERMEN   | 12.425 | 1.40    |
| POWER SAW OPERATOR                                      | 11.85  | 1.40    |

-----  
CARP2008A 06/01/1994

|  | Rates | Fringes |
|--|-------|---------|
| ALFALFA, GARFIELD, GRANT, KAY, MAJOR, NOBLE (West of Interstate # 35 and North of Black Bear Creek) COUNTIES |       |         |
| CARPENTERS, MILLWRIGHTS AND PILEDRIVERMEN  | 12.30 | .30     |

-----  
CARP2008B 06/01/1994

|   | Rates | Fringes |
|---|-------|---------|
| ALFALFA, GARFIELD, GRANT AND MAJOR COUNTIES |       |         |
| LATHERS                                     | 12.30 | .30     |

-----  
ELEC0059G 06/01/1998

|                 | Rates | Fringes  |
|-----------------|-------|----------|
| MARSHALL COUNTY |       |          |
| ELECTRICIANS    | 18.90 | 2.20+11% |

-----  
ELEC0444B 12/01/1995

|                        | Rates | Fringes   |
|------------------------|-------|-----------|
| KAY AND NOBLE COUNTIES |       |           |
| ELECTRICIANS           | 17.65 | 4.05+3.5% |

-----  
ELEC0590A 01/01/1999

|  | Rates | Fringes   |
|--|-------|-----------|
| COMANCHE, COTTON, GREER, HARMON, JACKSON, JEFFERSON, KIOWA, STEPHENS AND TILLMAN |       |           |
| ELECTRICIANS   | 16.70 | 4.05+3.5% |

-----  
ELEC1002B 07/01/1996

|                    | Rates | Fringes      |
|--------------------|-------|--------------|
| LINE CONSTRUCTION: |       |              |
| Lineman            | 21.53 | 2.00+16-1/4% |
| Cable Splicer      | 23.25 | 2.00+16-1/4% |

OK990014 - 3

08/13/1999

|  |       |              |
|--|-------|--------------|
| Hole Digger, Heavy Equipment Op.,<br>(Pole Cat Equivalent) | 19.16 | 2.00+16-1/4% |
| Powderman<br>1.75+9%                                       | 18.52 | 2.00+16-1/4% |
| Line Truck Driver (Winch op.)                              | 16.79 | 2.00+16-1/4% |
| Truck Driver (Flat Bed, Ton &<br>1/2) and Under)           | 14.43 | 2.00+16-1/4% |
| Jackhammer Op.   | 15.07 | 2.00+16-1/4% |
| Groundman  | 13.56 | 2.00+16-1/4% |

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ELEC1141E 12/01/1998

|  | Rates | Fringes      |
|--|-------|--------------|
| ALFALFA, BECKHAM, BLAINE, CADDO, CARTER, CUSTER, DEWEY, ELLIS,<br>GARFIELD, GARVIN, GRADY, GRANT, HARPER, JOHNSON, KINGFISHER,<br>LOVE, MAJOR, MURRY, PONTOTOC, ROGER MILLS, WASHITA, WOODS AND<br>WOODWARD COUNTIES |       |              |
| ELECTRICIANS   | 19.04 | 14-1/4%+2.50 |

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\* ELEC1141G 09/01/1998

|   | Rates | Fringes |
|---|-------|---------|
| ALFALFA, BECKHAM, BLAINE, CADDO, CARTER, CUSTER, DEWEY, ELLIS,<br>GARFIELD, GARVIN, GRADY, GRANT, HARPER, JOHNSON, KINGFISHER,<br>LOVE, MAJOR, MURRAY, PONTOTOC, ROGER MILLS, WASHITA, WOODS AND<br>WOODWARD COUNTIES |       |         |
| ELECTRICIANS:<br>Sound & Communication<br>Technicians   | 16.69 | 3%+1.35 |

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ELEV0063C 04/01/1998

|                                    | Rates  | Fringes |
|------------------------------------|--------|---------|
| ELEVATOR CONSTRUCTORS:<br>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; Christmas 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.

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ENGI0627I 06/01/1999

|   | Rates | Fringes |
|---|-------|---------|
| POWER EQUIPMENT OPERATORS:<br>GROUP 1:  | 19.95 | 5.90    |
| GROUP 2:  | 19.20 | 5.90    |
| GROUP 3:  | 18.70 | 5.90    |
| GROUP 4:  | 18.20 | 5.90    |
| GROUP 5:  | 17.70 | 5.90    |
| GROUP 6:  | 17.45 | 5.90    |
| GROUP 7:  | 17.05 | 5.90    |
| GROUP 8:  | 15.45 | 5.90    |
| GROUP 9:  | 14.95 | 5.90    |
| GROUP 10:   | 14.45 | 5.90    |
| GROUP 1: All crane type equipment with at least 300 feet of boom<br>and over (including jib)                                  |       |         |
| GROUP 2: All crane type equipment with at least 200 feet and less<br>than 300 feet of boom (including jib)                    |       |         |
| GROUP 3: All crane type equipment with at least 100 feet and less<br>than 200 feet of boom (including jib); all tower cranes; |       |         |

OK990014 - 4

08/13/1999

- crane equipment (as rated by mfg.) 3 cu. yd. and over; guy derrick; whirley; power driven hole digger (with 30 feet and longer mast)
- GROUP 4: Cranes with less than 100 feet of boom with jib and cranes (as rated by mfg.) less than 3 cu. yd.; heavy duty mechanic; overhead monorail type crane; panel board batch plant op.; piledriver engineer; dragline; clamshell; backhoe (3/4 yd. and over); sideboom or similar type equipment; gradall; cherry picker; hoist (while operating two or more drums); all hoist (while doing stack and chimney work); power driven hole digger with less than 30 ft. mast; motor patrol (boom type)
- GROUP 5: Dozer (engine r.p. 65 or over); roller and compactors with dozer blade; backhoe under 3/4 yd., all scraper type equipment; water wagons under the jurisdiction of this craft; loader of hi-lift (engine h.p. 65 or over); asphalt laying machine; conveyor-multiple, panel board central; trenching machine; concrete pump (boom type)
- GROUP 6: Rollers, all types; oil distributor; pulvimixer; screed operator; concrete pump (trailer type); rotary drilling machine when operated from console; greaser; tilt top trailer operator.
- GROUP 7: Greaser; tilt top trailer operator
- GROUP 8: Locomotive engineer; boring machine; tug boat; mixer - 18 cu. ft. and over; sand barge; dredging machine; tugger; hoist (operating one drum); air compressor - 3 to 6 - size 500 cu. ft. and under; air compressor - over 500 cu. ft. (1); pump, battery - 3 to 6; all fork-lift, bobcat and similar equipment; generator plant engineer, diesel elect; winch truck with A frame; concrete buster buster or tamper; heater under jurisdiction of operating engineers; fireman; boiler operator; crushing plants; farm tractor with or without attachments; batch plant operator - (portable); conveyor operator - continuous belt bulking handling; form grader; screening plant; well point pump operator; signal man on whirley when and if required; outside, side elevator or construction type hoist personel.
- GROUP 9: Concrete mixers, less than 18 cu. ft.; air compressor, 500 cu. ft. and under (1 or 2); fuelman; asphalt lay machine backend man.
- GROUP 10: Truck crane oiler and driver; crane oiler; permanent building type elevator operator.

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 IRON0048B 06/01/1999

|  | Rates | Fringes |
|--|-------|---------|
| BLAINE, CADDO, CARTER, COMANCHE, CUSTER, DEWEY, GARFIELD, GARVIN, GRADY, JOHNSTON, KINGFISHER, KIOWA, MAJOR, MURRAY, NOBLE, PONTOTOC, ROGER MILLS, STEPHENS, WASHITA AND WOODWARD COUNTIES |       |         |
| IRONWORKERS  | 16.80 | 7.15    |

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 IRON0263F 06/01/1997

|                 | Rates | Fringes |
|-----------------|-------|---------|
| MARSHALL COUNTY |       |         |
| IRONWORKERS     | 15.00 | 3.75    |

-----  
 IRON0263G 06/01/1998

|  | Rates | Fringes |
|--|-------|---------|
|--|-------|---------|

BECKHAM, COTTON, ELLIS, GREER, HARMON, HARPER, JACKSON  
 JEFFERSON, LOVE AND TILLMAN COUNTIES  
 IRONWORKERS 15.04 3.75

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 IRON0584H 06/01/1998

|   | Rates | Fringes |
|---|-------|---------|
| KAY COUNTY (The southern portion to a line running east and west at the South City limits of Ponca City), |       |         |
| IRONWORKERS   | 16.30 | 6.87    |

-----  
 IRON0606D 06/01/1998

|   | Rates | Fringes |
|---|-------|---------|
| ALFALFA, GRANT, KAY (Remainder of County), AND WOODS COUNTIES |       |         |
| IRONWORKERS   | 15.55 | 5.09    |

-----  
 LABO0462C 06/01/1993

|  | Rates | Fringes |
|--|-------|---------|
| JOHNSTON, KAY, NOBILE AND PONTOTOC<br>COUNTIES |       |         |
| LABORERS:                                      |       |         |

|         |      |      |
|---------|------|------|
| GROUP 1 | 8.00 | 1.31 |
| GROUP 2 | 8.50 | 1.31 |

ALFALFA, BECKHAM, BLAINE, CADDO, CARTER, COMANCHE,  
 COTTON, CUSTER, DEWEY, ELLIS, GARFIELD, GARVIN,  
 GRADY, GRANT, GREER, HARMON, HARPER, JACKSON,  
 JEFFERSON, KINGFISHER, KIOWA, LOVE, MAJOR,  
 MARSHALL, MURRAY, ROGER MILLS, STEPHENS, TILLMAN,  
 WASHITA, WOODS AND WOODWARD COUNTIES

|           |      |      |
|-----------|------|------|
| LABORERS: |      |      |
| GROUP 1   | 7.50 | 1.31 |
| GROUP 2   | 8.00 | 1.31 |

#### LABORER CLASSIFICATION

GROUP 1 - All digging and dirt work; Firing of salamanders and portable space heaters; All loading and unloading of the materials and equipment to and from hoist or cages for stock piling only; Wheeling and placing of concrete; Handling of lumber, steel, cement and distribution of materials; All cleaning including windows; All wrecking and razing of buildings and all structures; Cleaning and clearing of debris; Loading and unloading of materials, hoist or cages, except when the man is directly tending lathers, masons or plasterers; Water boys when used; Carpenters tenders.

GROUP 2 - All machine tool operators that come under the jurisdiction of the laborers; All sewer and drain tile layers and handling at the ditch, excluding distribution; Operators of water pumps up to four inches and slip form jackets; All men erecting scaffolds and directly tending lathers, masons, cement masons and plasterers, Mortar mixers, hod carriers and dry mixers; High work over 30 feet from ground or floors; Cement finisher tender; Work on swinging scaffold; All kettle and pot men; Tank cleaning; All pipe doping, treating and wrapping including all men working with dope; Mortar and plaster mixing machine pumpcrete machine and gunite mixing machines; including placing of

concrete; Handling creosoted or treated materials  
 liquid acid or like materials when  
 injurious to health, eyes, skin or clothes; All newly  
 developed mechanical equipment which replaces wheel-  
 barrows or buggies previously used by loaders; All  
 scale men on batch plants and tool crib men; All  
 laborers screening sand, running sand drier and feeding  
 operating sand blaster, except nozzle; Flaggers;  
 Concrete graders and cutting torch operators in  
 connection with laborers' work.

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PAIN0650B 05/15/1993

|   | Rates | Fringes |
|---|-------|---------|
| CARTER, COMANCHE, COTTON, GREER, HARMON, JACKSON, JEFFERSON,<br>JOHNSTON, KIOWA, LOVE, MARSHALL, PONTOTOC, STEPHENS AND<br>TILLMAN COUNTIES |       |         |
| PAINTERS:   |       |         |
| BRUSH & ROLLER  | 9.90  | 1.03    |
| BRUSH & ROLLER (STRL. STEEL)  | 10.15 | 1.03    |
| SPRAY   | 10.55 | 1.03    |
| SWING STAGE, BOSUN CHAIR)   | 10.15 | 1.03    |
| TAPING & BEDDING (HAND TOOLS)   | 10.20 | 1.03    |
| SANDBLASTING  | 10.25 | 1.03    |

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PAIN0807A 05/01/1997

|                            | Rates | Fringes |
|----------------------------|-------|---------|
| REMAINING COUNTIES         |       |         |
| PAINTERS:                  |       |         |
| Brush & Roller             | 13.55 | 2.53    |
| Spray under 30 ft.         | 14.05 | 2.53    |
| Spray over 30 ft.          | 14.55 | 2.53    |
| Paper Hanging              | 14.55 | 2.53    |
| Tapers using machine tools | 14.05 | 2.53    |

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PLAS0690B 06/01/1985

|                                | Rates | Fringes |
|--------------------------------|-------|---------|
| JOHNSTON AND MARSHALL COUNTIES |       |         |
| CEMENT MASONS                  | 13.70 | .76     |

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PLAS0786A 06/01/1993

|                | Rates | Fringes |
|----------------|-------|---------|
| KAY COUNTY     |       |         |
| CEMENT MASONS  | 10.80 |         |
| POWER TOOL OP. | 11.05 |         |

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PLAS0807A 06/01/1990

|   | Rates | Fringes |
|---|-------|---------|
| ALFALFA, BECKHAM, BLAINE, CADDO, CARTER, COMANCHE, COTTON,<br>CUSTER, DEWEY, ELLIS, GARFIELD, GARVIN, GRADY, GRANT, GREER,<br>HARMON, HARPER, JACKSON, JEFFERSON, JOHNSTON, KINGFISHER,<br>KIOWA, LOVE, MAJOR, MARSHALL, MURRAY, NOBLE, ROGER MILLS,<br>STEPHENS, TILLMAN, WASHITA, WOODS AND WOODWARD COUNTIES |       |         |
| PLASTERERS  | 15.60 | .95     |

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\* PLUM0344F 07/01/1999

|                       | Rates | Fringes |
|-----------------------|-------|---------|
| REMAINING COUNTIES    |       |         |
| PLUMBERS, PIPEFITTERS | 20.50 | 6.15    |

| PLUM0430F 06/01/1999                         |  | Rates | Fringes |
|--|--|-------|---------|
| KAY COUNTY                                   |  |       |         |
| PLUMBERS AND PIPEFITTERS                     |  | 18.58 | 6.47    |
| -----  |  |       |         |
| ROOF0143A 06/01/1998                         |  | Rates | Fringes |
| ROOFERS                                      |  | 14.50 | 3.20    |
| -----  |  |       |         |
| SHEE0124A 07/01/1998                         |  | Rates | Fringes |
| SHEET METAL WORKERS<br>(Including Duct Work) |  | 19.76 | 5.07    |
| -----  |  |       |         |
| TEAM0516A 06/01/1993                         |  | Rates | Fringes |
| MARSHALL COUNTY:                             |  |       |         |
| TRUCK DRIVERS:                               |  |       |         |
| GROUP 1:                                     |  | 10.43 |         |
| GROUP 2:                                     |  | 10.53 |         |
| GROUP 3:                                     |  | 10.63 |         |
| GROUP 4:                                     |  | 10.58 |         |
| GROUP 5:                                     |  | 10.73 |         |

TRUCK DRIVER CLASSIFICATIONS

- GROUP 1 - Pick-up, 1-1/2 tons or 2-1/2 yards and up to but not including 3 tons or 4 yards, such as dump trucks, flat beds, stake bodies and buses.
- GROUP 2 - 3 tons or 4 yards and up to but not including 4 tons or 6 yards.
- GROUP 3 - 5 tons or 6 yards and over including heavy equipment such as pole trucks, winch trucks, euclids, mississippi wagons, semi-dumps, turner pulls or other heavy material moving equipment, tractor trailer drivers and similar equipment such as tractors, ten wheelers.
- GROUP 4 - Ready mix concrete trucks up to but not including 3 yards and over.
- GROUP 5 - Ready mix concrete truck 3 yards and over.

| TEAM0523A 06/01/1993   |  | Rates | Fringes |
|------------------------|--|-------|---------|
| KAY AND NOBLE COUNTIES |  |       |         |
| TRUCK DRIVERS:         |  |       |         |
| GROUP 1:               |  | 12.80 |         |
| GROUP 2:               |  | 12.85 |         |
| GROUP 3:               |  | 12.95 |         |

TRUCK DRIVER CLASSIFICATION

- GROUP 1 - Truck Drivers, Including pick-up, 1- 1/2 tons to 2-1/2 yards up to but not including 3 tons or 4 yards, such as dump trucks, flat beds, stake body or bus driver.
- GROUP 2 - 3 tons or 4 yards up to but not including 4 tons or 6 yards.
- GROUP 3 - Ready mix concrete truck, tractor trailer and similar equipment.

Rates Fringes

TRUCK DRIVERS:

ALFALFA, BECKHAM, BLAINE, CADDO, CARTER, COMANCHE, COTTON, CUSTER, DEWEY, ELLIS, GARFIELD, GARVIN, GRADY, GRANT, GREER, HARMON, HARPER, JACKSON, JEFFERSON, JOHNSTON, KINGFISHER, KIOWA, LOGAN, LOVE, MAJOR, MURRAY, PONTOTOC, ROGER MILLS, STEPHENS, TILLMAN, WASHITA, WOOD AND WOODWARD COUNTIES.

TRUCK DRIVERS:

GROUP 1: 9.70
GROUP 2: 9.40

TRUCK DRIVER CLASSIFICATION

GROUP 1 - Truck Drivers for heavy equipment such as lowboys, heavy winch and floats, heavy earth moving equipment such as dump trucks and euclids.
GROUP 2 - Truck Drivers and swampers, such as dump trucks, flat beds, stakebodies and 3/4 and 1/2 ton pick-up trucks.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

- 1.) Has there been an initial decision in the matter? This can be:
\* an existing published wage determination
\* a survey underlying a wage determination
\* a Wage and Hour Division letter setting forth a position on a wage determination matter
\* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U. S. Department of Labor  
200 Constitution Avenue, N. W.  
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N. W.  
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U. S. Department of Labor  
200 Constitution Avenue, N. W.  
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.  
END OF GENERAL DECISION





**US Army Corps  
of Engineers**  
Tulsa District

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# **Replace Crawl Space Piping Starship Barracks**

**Fort Sill, Oklahoma**

**VOLUME 2 OF 2 – Divisions 1 thru 16**

## **Project Specifications**

**August 1999**

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SECTION 01040

COORDINATION, FIELD ENGINEERING, AND MEETINGS

1 GENERAL

1.1 WORK SCHEDULE

Contractor shall work between 7:30 a.m. and 4:00 p.m. Monday through Friday unless otherwise directed by the Contracting Officer.

1.2 UTILITY OUTAGE COORDINATION

1.2.1 Approval

The Contractor shall obtain written permission/approval from the Contracting Officer 21 days prior to:

- a. performing any work that will close any runway or street or interrupt any utility service.
- b. making any excavation. Any damage to underground utilities, communication lines, etc., will be the responsibility of the Contractor if the approval is not obtained.
- c. any utility outage. The proposed outage request shall indicate the reason for and length of each proposed outage.

1.2.2 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.

1.2.3 Operation of Valves and Switches

Government personnel shall perform all shutting off and turning on of valves and switches necessary to accomplish the scheduled outage.

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.

## FT. SILL STARSHIP BARRACKS

### 1.4 MONUMENT REPLACEMENT

#### 1.4.1 General

Horizontal and vertical control monuments 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. Surveys shall be performed by a Registered Land Surveyor.

#### 1.4.2 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.

#### 1.4.3 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)

#### 1.4.4 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 hardback field book or Total Station documentation 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 or computer records shall be turned in at the completion of the work and shall become the property of the Government.

#### 1.4.5 Monuments

Concrete monuments shall be set as control monuments, where required. The monuments shall consist of 6-inch diameter concrete posts of standard mix and a Government-furnished bronze disk flush with the top, set at least 2.6 feet into solid ground and 0.4 foot 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 in length with a USCE sign attached shall be set in concrete within one foot of each control monument. Markers that 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.

### 1.5 ACCIDENT PREVENTION PREPLANNING (SWTCD)

In addition to the requirements of the CONTRACT CLAUSE entitled "Accident Prevention," the Contractor shall:

FT. SILL STARSHIP BARRACKS

- 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 Contractor's superintendent, Quality Control System Manager, and superintendent or foreman in charge of the operation, whether performed by the Contractor or any 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.

1.6 ACCIDENT PREVENTION MANAGEMENT (JAN 1985 OCE)

Full-time, on-site safety coverage shall be provided by the Contractor and the following conditions shall be met:

- a. The Contractor shall employ at the project site to cover all hours of work Safety and Occupational Health personnel to manage the Contractor's accident program. Duties that are not germane to the safety program shall not be assigned to Safety and Health personnel. 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. Safety and Health personnel shall have the authority to take immediate steps to correct unsafe or unhealthy conditions. The presence of Safety and Health personnel will not nullify safety responsibilities of other personnel.
- b. Safety and Health personnel shall have:
  - (a) a degree in engineering or safety in a four-year program from an accredited school; or
  - (b) 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) 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, 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.

## FT. SILL STARSHIP BARRACKS

First aid work is not a creditable experience.

c. The name and qualifications of the nominated safety personnel shall be furnished to the Contracting Officer for acceptability and a functional description of duties shall be provided prior to the pre-work conference.

### 1.7 WORK PERFORMED IN CONFINED SPACES

All work for this contract will be performed in confined spaces. No work shall be performed without the valid confined spaces permit. Contractor personnel shall be trained for working in confined spaces as required by the contract drawings. The successful bidder must have certified confined space training which will not be provided by the Government prior to starting work in the confined space work area. All work shall be in accordance to requirements for work performed in confined spaces as shown on the contract drawings.

#### 1.7.1 Inspection of Work Areas by Contractor During Advertisement

Contractors may inspect the work areas during the advertisement period during two prearranged site visits times. Site visits shall be limited to 1 hour maximum per building. Confined Space Safety Briefing/Site Visits are scheduled as follows:

Safety Briefing for Confined Spaces, 2:00 pm, 16 August 1999, Building 1945.

Site Visit, 10:00 am, 17 August 1999, Starting at Building 6007

Safety Briefing for Confined Spaces, 2:00 pm, 18 August 1999, Building 1945.

Site Visit, 10:00 am, 19 August 1999, Starting at Building 6007

Contractors shall make reservations for site visit(s) by contacting George Lumley, US Army Corps of Engineers, 580-355-6273.

Contractors shall complete confined space training prior to inspecting the work areas. Contractors having valid certificates for work in confined spaces will not be required to attend the safety briefing prior to going on the site visit but must present a copy of the certificate to Mr. Jerry Lacy, DPW, prior to the site visit. Contact Jerry Lacy or David Elliot, Ft. Sill DPW, 580-442-2939, for training or approval to inspect the site(s).

All Contractors wishing to inspect the areas shall provide proof of a current physical examination to include the following:

- Audiogram
- Blood Chemistry
- CVC
- Urinalysis
- Pulmonary Function Test
- Vision Screening
- Chest X-Ray
- EKG

FT. SILL STARSHIP BARRACKS

The Contractor shall provide documentation of mask-fit testing. Masks will be the responsibility of the Contractor. Contact DPW personnel, Jerry Lacy or David Elliot, 580-442-2939, for approved mask types.

Protective clothing (Tyvek) shall be required and shall be the responsibility of the Contractor.

1.8 OPTIONS

Options shall be as shown on the Bidding Schedule and in the contract drawings.

1.9 PHASING

Phasing for this project shall be as indicated in the Bidding Schedule.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION (NOT APPLICABLE)

--End of Section--

SECTION 01100

SPECIAL PROJECT PROCEDURES

1 GENERAL

1.1 SAFETY AND HEALTH REQUIREMENTS MANUAL (EM 385-1-1, SEPTEMBER 1996).

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 that 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

The Contractor shall submit a monthly report of accident and exposure data. 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.

1.4 HAZARDOUS WASTE AND MATERIALS REPORTING

The Contractor shall notify the Contracting Officer upon encountering existing unanticipated material on the site that could jeopardize the safety of workers. The Government will be responsible for disposition of the waste if required. Hazardous materials or waste transported onto or within the Base shall be reported to the Post Fire Department prior to movement on Government property.

1.5 SPILL REPORTING

Upon verification of a release of any petroleum product over one gallon or any other hazardous waste or material, regardless of amount, the contractor shall immediately notify the Post Fire Department at 911. The Post will determine the cleanup required. Upon release of a petroleum product less than one gallon and if no threat of fire or explosion exists, the Contractor shall clean the contaminated area to remove all contaminants. Contamination in excess of 100 ppm of Total Petroleum Hydrocarbons shall be removed from the site. Costs of soil tests required as a result of spills shall be the Contractor's responsibility. Contaminated material shall be disposed of properly.

1.6 RADIATION SOURCE COORDINATION

The Contractor shall coordinate with the Contracting Officer at least 7 days prior to bringing any radiation source onto any Army installation.

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2 PRODUCTS (NOT APPLICABLE)

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.

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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

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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.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

--End of Section--





SECTION 01310

PROJECT SCHEDULE

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.

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. In 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:

| Description       | Column Position | Max. len. | Reqd. 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           | 6- 12           | 7         |             | ddmmyy | See (2) |
| 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 "ddmmyy" 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   |

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(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 7-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:

Column            Max.    Reqd.

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| Description             | Position | Len. | 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:

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| 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<br>Position | Max.<br>Len. | Reqd.<br>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

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 (1994a) Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM E 329 (1993b) Use in the Evaluation of Testing and Inspection Agencies as Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

2 - PRODUCTS (NOT APPLICABLE)

3 - EXECUTION

3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause entitled "INSPECTION OF CONSTRUCTION." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both on-site and off-site, and shall be keyed to the proposed construction sequence.

3.2 QUALITY CONTROL PLAN

3.2.1 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.

### 3.2.2 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.

### 3.2.3 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.

### 3.2.4 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.

## 3.3 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.

## 3.4 QUALITY CONTROL ORGANIZATION

### 3.4.1 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.

### 3.4.2 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.

#### 3.4.2.1 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.

#### 3.4.2.2 CQC System Manager

The system manager shall be an experienced construction person with experience in related work. The CQC system manager may have duties as project superintendent in addition to quality control.

#### 3.4.2.3 Supplemental Personnel

A staff shall be maintained under the direction of the CQC system manager to perform all QC activities. The staff must be of sufficient size to ensure adequate QC coverage of all work phases, work shifts, and work crews involved in the construction. These personnel may perform other duties, but must be fully qualified by experience and technical training to perform their assigned QC responsibilities and must be allowed sufficient time to carry out these responsibilities. The QC plan shall clearly state the duties and responsibilities of each staff member.

#### 3.4.2.4 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.

### 3.5 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:

#### 3.5.1 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.

### 3.5.2 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.

### 3.5.3 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.

#### 3.5.4 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.

### 3.6 TESTS

#### 3.6.1 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.

#### 3.6.2 Testing Laboratories

##### 3.6.2.1 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 3740](#) and [ASTM E 329](#).

### 3.6.2.2 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.

### 3.6.3 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.

### 3.6.4 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 a laboratory as directed by the Contracting Officer.

Coordination for each specific test, exact delivery location and dates will be made through the Area Office.

## 3.7 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.

## 3.8 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.

### 3.9 SAMPLE FORMS

Sample forms are enclosed at the end of this section.

### 3.10 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.

### 3.11 RESIDENT MANAGEMENT SYSTEM (RMS)

The Contractor shall implement the Resident Management system (RMS) computer program software for generating and maintaining the Contractor's Daily

Quality Control Reports and other project information. The Government will provide the Contractor with the software at no charge and will assist in on-site training and program support.

The program shall be used to document and maintain the following information:

Prime Contractor staffing and subcontractor data

Insurance expiration dates

Definable features of work (items requiring a preparatory inspection) with pay activities and activity number, and the value, duration, start and finish dates, subcontractor, and bid item reference for each activity

Quality control tests

Planned training

Installed property list

Submittal information including specification section, description, time required for procurement and days of float for material need-by dates, all tied to activity number.

Progress earnings. The sum of all activity values shall equal the contract amount and bid items shall be separately identified in accordance with the Bidding Schedule and the total contract amount. All information shall be maintained current and submitted to the Government weekly.

The RMS shall document deficiency reports from the Government and shall state outstanding or future required corrections. The Contractor shall indicate the deficiency report on the Daily Quality Control Report and shall record corrections made in the RMS.

#### 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.)

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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 APPROVAL | CODE | GOVERNMENT |
|--------------------------------------|------|------------|
| 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.   |        |

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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:

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ATTACHED FOR:

- 1.
- 2.
- 3.

ON FILE FOR:

- 1.
- 2.
- 3.

Quality Control - Prime Contractor

Quality Control - Work Involved

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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

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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.

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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:

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CONTRACTOR'S INSPECTOR ROOFING CHECKLIST AND TEST REPORT

DATE:

WEATHER:

CONTRACT NO.:

All data required to be taken from labels on container.

1. Type of bitumen used with underlayment or insulation and area covered
2. Type of bitumen used with base sheet and area covered
3. Type of bitumen used for mopping 4 plies
4. Type of bitumen used for flood coat or surfacing gravel
5. Type and thickness of insulation or underlayment used
6. Type of base sheet used
7. Type of felt used
8. Source of surface gravel and condition, wet, dry, clean
9. Roofing sample(s), location and weight
10. Bitumen sample furnished to the Government, quantity and type
11. Bitumen temperature checks, type of asphalt, time taken, maximum temperature specified
12. Are brooms being used?            Yes            No.
13. Bituminous cement used, type and usage
14. Area covered

Contractor's Approved Authorized  
Representative

Quality Control Inspector

--End of Section--

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

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)

Water, gas, and electricity are available from Government-owned and -operated systems and will be charged to the Contractor at rates as provided below.

Utilities shall be paid for by the Contractor. Current rates for utilities shall be obtained from Ft. Sill Post Personnel as follows:

Contact Mr. Carl Tenbenschel, Telephone: 580-442-3048 for landfill rates.  
Contact Ms. Janet Nelson, Telephone: 580-442-5730 for gas, water and electric rates.

1.3 UTILITY SERVICES (APR 1984)

No utilities will be furnished by the Government.

1.4 IDENTIFICATION OF EMPLOYEES (APR 1985)

The Contractor shall furnish identification to each employee as directed by the Contracting Officer. Upon the release of any employee, the identification shall be delivered to the Contracting Officer for cancellation .

1.5 HAUL ROADS (CESWT-CT)

1.5.1 One-Way Roads

Whenever practical, one-way haul roads shall be used on this contract. One-way haul roads for off-the-road equipment (e.g., belly dumps, scrapers, and off-the-road trucks) shall have a minimum usable width of 25 feet. One-way

haul roads for over-the-road haulage equipment only (e.g., dump trucks, etc.) may be reduced to a usable width of 15 feet. When the Contracting Officer determines that it is impractical to obtain the required width for one-way haul roads (e.g., a road on top of a levee), a usable width of not less than 10 feet may be approved by the Contracting Officer, provided a positive means of traffic control is implemented. Such positive means shall be signs, signals, and/or signalman and an effective means of speed control.

#### 1.5.2 Two-Way Roads

Two-way haul roads for off-the-road haulage equipment shall have a usable width of 60 feet. Two-way haul roads for over-the-road haulage equipment only may be reduced to a usable width of 30 feet.

#### 1.5.3 Maintenance

Haul roads shall be graded and otherwise maintained to keep the surface free from potholes, ruts, and similar conditions that could result in unsafe operation.

#### 1.5.4 Design

Grades and curves shall allow a minimum sight distance of 200 feet for one-way roads and 300 feet for two-way roads. Sight distance is defined as the centerline distance an equipment operator (4.5 feet above the road surface) can see an object 4.5 feet above the road surface. When conditions make it impractical to obtain the required sight distance (e.g., ramps over levees), a positive means of traffic control shall be implemented.

#### 1.5.5 Dust Control

Dust abatement shall permit observation of objects on the roadway at a minimum distance of 300 feet.

#### 1.5.6 Markings

Haul roads shall have the edges of the usable portion marked with posts at intervals of 50 feet on curves and 200 feet maximum elsewhere. Such markers shall extend 6 feet above the road surface and, for nighttime haulage, be provided with reflectors in both directions.

#### 1.6 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.

#### 1.7 STAGING AREA PREPARATION (REQUEST BY DE, JUL 91)

The Contractor's staging area or areas shall be located within the boundaries of the project as shown. The construction trailer and storage area shall be fenced and screened. The Contractor shall be responsible for

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the maintenance of all completed or partially completed construction and shall repair any damage prior to acceptance of the project.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION (NOT APPLICABLE)

--End of Section--

SECTION 01561

ENVIRONMENTAL PROTECTION

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.

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 of this contract.

##### 1.4.1.5 Drawings

The Contractor shall include drawings showing locations of any proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, stockpiles of earth materials, and disposal areas for excess earth material and unsatisfactory earth materials.

##### 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.

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1.4.1.7 Traffic Control Plan

The Contractor shall include a traffic control plan for the job site.

1.4.1.8 Surface and Ground Water

The Contractor shall establish methods of protecting surface and ground water during construction activities.

1.4.1.9 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.

1.4.1.10 Method of Controlling Equipment

The Contractor shall include a plan of the method for controlling equipment maneuvering to avoid environmental damage.

1.4.1.11 Training of Contractor's Personnel

The Contractor shall include a plan for training and control of his personnel for environmental damage.

1.4.1.12 Prevention and Control of Spillage

The Contractor shall include a plan for prevention and control of damaging spillages.

1.4.1.13 Layout of Work Areas and Other Areas

The Contractor shall include a plan of his method for layout of work areas, haul roads, and waste areas.

1.4.1.14 Method and Location of Waste and Debris Disposal

The Contractor shall include the location for disposal of waste and debris.

1.4.1.15 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.

1.4.1.16 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.

1.4.1.17 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 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.

## 1.6 SUBCONTRACTORS

Assurance of compliance with this section by subcontractors will be the responsibility of the Contractor.

## 1.7 REGULATORY REQUIREMENTS

The Contractor shall comply with all federal, state, and local regulatory and statutory requirements.

## 2 PRODUCTS (NOT APPLICABLE)

## 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 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.

#### 3.1.1.4 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.

#### 3.1.1.5 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.

#### 3.1.1.6 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.] [Waste materials shall be hauled to the Government landfill site shown on the contract drawings. The Contractor shall comply with State and local regulations pertaining to the use of landfill areas.]

#### 3.1.1.7 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.

#### 3.1.1.8 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.

### 3.1.1.9 Disposal of Materials at Ft. Sill

Disposal of trash, garbage, or domestic waste shall be in the Ft. Sill Base Sanitary Landfill. Demolition rubble shall be disposed of in the Ft. Sill rubble pit. Disposal of metals shall be the responsibility of the Contractor off Government Property. Disposal of Contractor produced POL products, chemicals, or other hazardous or toxic compounds shall be in accordance with Ft. Sill Regulation USAFACFS Regulation 200-2. The Contracting Officer shall be advised of the type of Contractor produced POL products, chemicals, or other hazardous or toxic compounds and the amount of these products. The Contracting Officer will determine the methods of disposal of these products and such actions may require EPA or State permits.

## 3.2 HISTORICAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES

Existing historical, archaeological and cultural resources within the Contractor's work area will be so designated by the Contracting Officer and precautions shall be taken by the Contractor to preserve all such resources as they existed at the time they were pointed out to the Contractor. The Contractor shall install all protective devices such as off-limit markings, fencing, barricades, or other devices deemed necessary by the Contracting Officer for these resources so designated on the contract drawings and shall be responsible for their preservation during this contract. If during construction items of apparent archaeological or historical interest are discovered, they shall be left undisturbed and the Contractor shall report the find immediately to the Contracting Officer.

## 3.3 PROTECTION OF WATER RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters. Special management techniques as set out below shall be implemented to control water pollution by the listed construction activities which are included in this contract.

### 3.3.1 Monitoring of Water Areas Affected by Construction Activities

Monitoring of water areas affected by construction activities shall be the responsibility of the Contractor. All water areas affected by construction activities shall be monitored by the Contractor.

## 3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish and wildlife. Species that require specific attention along with measures for their protection shall be listed by the Contractor prior to beginning of construction operations.

## 3.5 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 of Oklahoma 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.

### 3.5.1 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.

### 3.5.2 Hydrocarbons and Carbon Monoxide

Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

### 3.5.3 Odors

Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

### 3.5.4 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.

## 3.6 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.

### 3.6.1 Laws, Regulations and Ordinances

The Contractor must comply with all Federal, State, and local laws, regulations and ordinances concerning pollution control.

### 3.6.2 Protection of Land Resources

The Contractor shall prevent landscape defacement and provide post-construction clean-up.

### 3.6.3 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.

### 3.6.4 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.

## 3.7 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.

## 3.8 POST CONSTRUCTION CLEANUP

The Contractor shall clean up all area(s) used for construction.

## 3.9 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.

## 3.10 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.

## 3.11 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.

## 3.12 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

1 GENERAL

1.1 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.

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 receive one 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.

3 EXECUTION (NOT APPLICABLE)

--End of Section--

Below are two samples of the construction project identification sign showing how this panel is adaptable for use to identify either military (top), or civil works projects (bottom). The graphic format for this 4' x 6' sign panel follows the legend guidelines and layout as specified below. The large

4' x 4' section of the panel on the right is to be white with black legend. The 2' by 4' section of the sign on the left with the full Corps Signature (reverse version) is to be screen printed Communications Red on the white background.

This sign is to be placed with the Safety Performance Sign shown on the following

page. Mounting and fabrication details are provided on page 16.4.

Special applications or situations not covered in these guidelines should be referred to the District/Division sign coordinator.

Legend Group 1: One- to two-line description of Corps relationship to project.

Color: White  
Typeface: 1.25" Helvetica Regular  
Maximum line length: 19"

Legend Group 2: Division or District Name (optional). Placed below 10.5" Reverse Signature (6" Castle).

Color: White  
Typeface: 1.25" Helvetica Regular

Legend Group 3: One- to three-line project title legend describes the work being done under this contract.

Color: Black  
Typeface: 3" Helvetica Bold  
Maximum line length: 42"

Legend Group 4: One- to two-line identification of project or facility (civil works) or name of sponsoring department (military).

Color Black  
Typeface: 1.5" Helvetica Regular  
Maximum line length: 42"

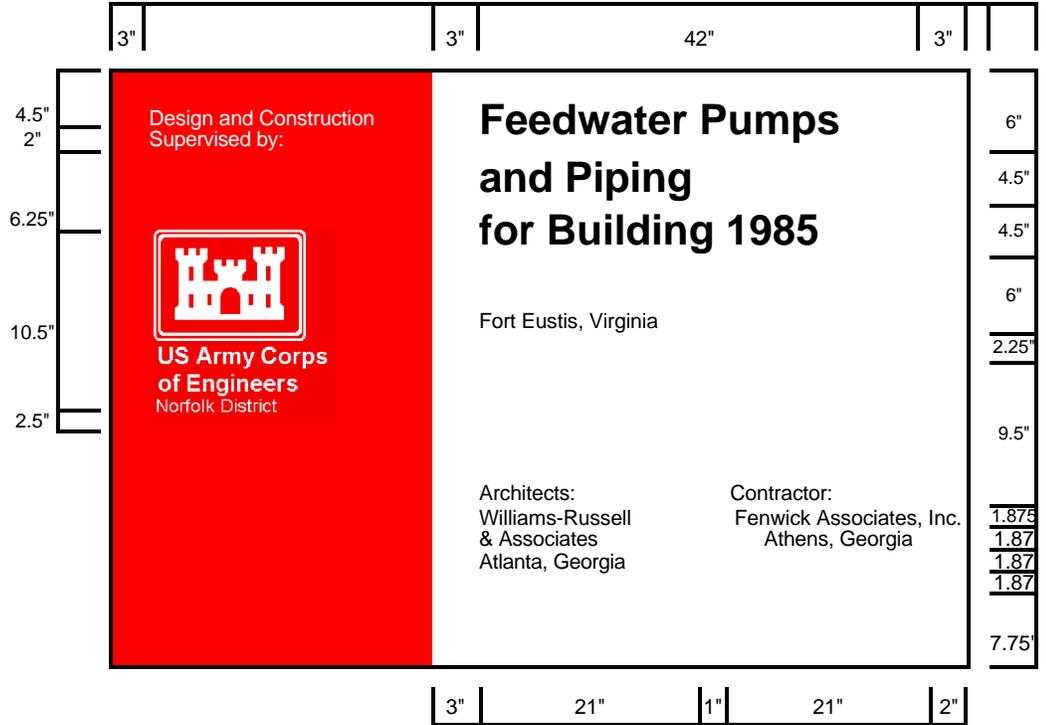
Cross-align the first line of Legend Group 4 with the first line of the Corps Signature (US Army Corps) as shown

Legend Groups 5a-b: One- to five-line identification of prime contractors including: type (architect, general contractor, etc), corporate or firm name, city, state. Use of Legend Group 5 is optional.

Color: Black  
Typeface: 1.25" Helvetica Regular  
Maximum line length: 21"

All typography is flush left and rag right, upper and lower case with initial capitals only as shown.

Letter- and word-spacing to follow Corps standards as specified in Appendix D.



Each contractor'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 screw-mounted 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

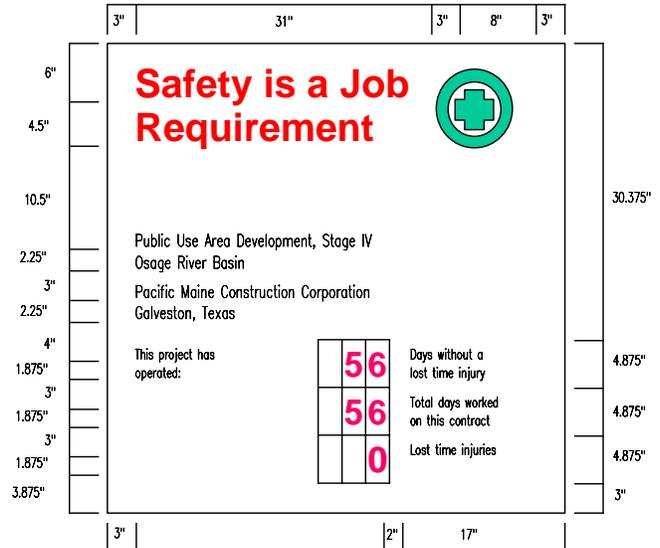
Legend Group 2: One to two-line project title legend describes the work being done under this contract and name of host project.  
Color: Black  
Typeface: 1.5" Helvetica Regular  
Maximum line length: 42"

Legend Group 3: One to two-line identification: name of prime contractor and city, state address.  
Color: Black  
Typeface: 1.5" Helvetica Regular  
Maximum line length: 42"

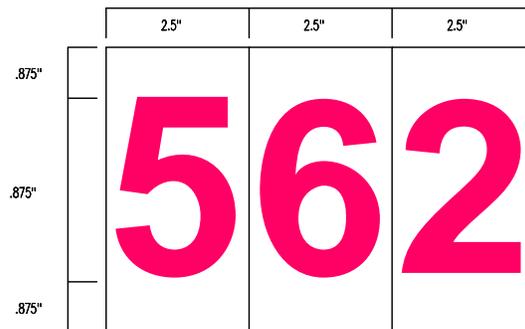
Legend Group 4: Standard safety record captions as shown.  
Color: Black  
Typeface: 12.5" Helvetica Regular

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

All Construction Project Identification signs and Safety Performance signs are to be fabricated and installed as described below. The signs are to be erected at a location designated by the contracting officer and shall conform to size, format, and typographic standards.

The sign panels are to be fabricated from .75" High Density Overlay Plywood.

Sign graphics to be prepared on a white non-reflective vinyl film with positionable adhesive backing.

All graphics except for the Communications Red background with Corps signature on the project sign are to die-cut or computer cut nonreflective vinyl, pre-spaced legends prepared in the sizes and typefaces specified and applied to the background panel following the graphic formats shown.

The 2' x 4' Communications Red panel (to match PMS-032) with full Corps signature (reverse version) is to be screen printed on the white background identification of the District / Division may be applied under the signature with white cut vinyl letters prepared to Corps standards

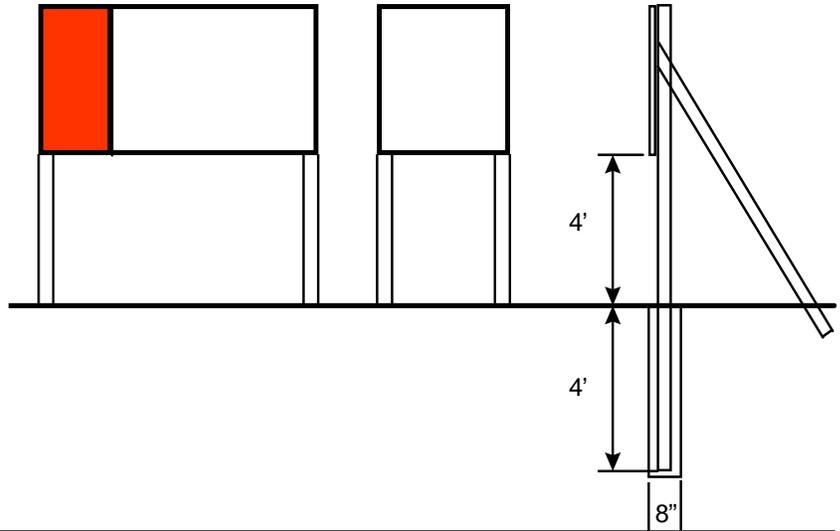
Drill and insert six (6) .375 T-nuts from the front face of the HDO sign panel. Position holes as shown. Flange of T-nut to be flush with sign face

Apply Graphic panel to prepared HDO plywood panel following manufactures instructions

Sign uprights to be structural grade 4" x 4" treated Douglas Fur or Southern Yellow Pine. No 1 or better. Post to be 12' long Drill six (6) .375" mounting holes in uprights to align with T-nuts in sign panel. Countersink (5") back of hole to accept socket head cap screw ( 4" x .375" ).

Assemble sign panel and uprights. Imbed assembled sign panel and uprights in 4' hole. Local soil conditions and/or wind loading may require bolting additional 2" x 4" structs on inside face of uprights to reinforce installation shown.

Shown below the mounting diagram is a panel layout grid with spaces provided for project information. Photocopy this page and use as a worksheet when preparing sign Legend orders.



Construction Project Sign  
Legend Group 1

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_

Legend Group 2 Division/District Names

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_

Legend Group 3 Project Title

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_

Legend Group 4 Facility Name

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_

Legend Group 5a: Contractor/A&E

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_
- 4 \_\_\_\_\_
- 5 \_\_\_\_\_

Legend Group 5b: Contractor/A&E

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_
- 4 \_\_\_\_\_
- 5 \_\_\_\_\_

Safety Performance Sign  
Legend Group 1: Project Title

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_

Legend Group 2: Contractor/A&E

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_

SECTION 01600

MATERIAL AND EQUIPMENT

1 GENERAL

1.1 INVENTORY OF INSTALLED PROPERTY

A list shall be made of equipment or units of equipment that require electrical power, water, or fuel, or that may require periodic or eventual removal or replacement. Such items shall include, but not limited to, air handling units; fans; air conditioners; compressors; condensers; boilers; thermal exchangers; pumps; cooling towers; tanks; fire hydrants; large plumbing fixtures such as sinks water closets, lavatories, urinals, and showers; fire suppression systems (sprinkler heads by type, etc.); and light fixtures. The list shall be kept up to date as items are installed or claimed for payment as material on hand. The list will be reviewed periodically by the Government to ensure completeness and accuracy. Partial payment may be withheld for equipment not incorporated in the list at the discretion of the Contracting Officer. The list shall include on each item as applicable: description, manufacturer, model or catalog No., serial No., input (power, voltage, BTU, tons, etc.), size or capacity (e.g. tanks), installation location, net inventory costs; any other data necessary to describe item. Final list shall be turned over to the Contracting Officer 60 days prior to prefinal inspection.

1.2 SCRAP MATERIAL

Materials specified to be removed and become the property of the contractor are designated as scrap, and the bidder should make due allowance in his bid for the value, if any, of such scrap.

1.3 MATERIALS FROM GOVERNMENT-OWNED AREAS

Subsequent to contract award, the Contractor may investigate Government-owned areas, not reserved for other purposes as potential sources of construction materials to be used only under this contract by him or by his subcontractors. Permission for the use of such additional sources shall be within the discretion of the Contracting Officer only, and if granted, shall be accomplished by separate negotiations in the form of a Change to this contract. It is understood, however, that the Government does not guarantee the availability of such additional sources nor the permission for use of same, if available, and therefore, the successful bidder's plan of operations should not include or be conditioned upon the prospective use of such additional sources. In the production of aggregate (sand or gravel), stone or riprap, or other materials from designated Government-owned land to satisfy the requirements of this contract, any excess materials which are produced by the Contractor over and above requirements for the work will become the property of the Government. Such materials will be left in the stockpiles or wasted in the designated waste areas as normal cleanup, as directed by the Contracting Officer. No materials produced from Government-owned land may be sold by the Contractor except where another Government contract provides for obtaining of material from the Government-owned land. Such sale of materials shall be subject to the approval of the Contracting Officer.

FT. SILL STARSHIP BARRACKS

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION (NOT APPLICABLE)

--End of Section--

SECTION 01700

CONTRACT CLOSEOUT

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 be responsible to prepare and maintain the as-built drawings for this project. "As-built" drawings are a specific and distinct deliverable item under the terms of the contract. Failure to maintain and deliver these drawings will be treated by the Government in a manner similar to the failure to provide a specified item of construction material or equipment.

1.3.2 As-Built Drawing Components

There shall be three (3) components to the as-built drawings:

- a. Working as-built drawings;
- b. Final as-built drawings (dimensionally stable mylar film);
- c. Digital as-built drawings (digital files saved to approved media).

1.3.3 Scope of As-Built Drawings.

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. Level of detail provided on as-built drawings shall match that of the original contract drawings. 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. Critical shop drawings or other submittal items, which exceed the level of detail of the as-built drawings and which are needed for the proper operation and maintenance of the project, shall be provided in Operations and Maintenance Manuals.

#### 1.3.4 Working As-Built Drawings

The Contractor shall maintain two sets of paper prints which shall show the as-built conditions and which shall be kept current and available on the jobsite at all times. One set shall be maintained in the Contractor's on-site office, and the second set will be maintained in the Corps of Engineers' Resident Office. 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. A representative of the Contractor and a representative of the government shall each sign and date the coversheet of the record drawings when reviewed. Failure to submit the working as-builts for review may be considered as an incomplete 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 100mm or 4 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. Accuracy of dimensions will match the level of accuracy of the original contract drawings. Items depicted symbolically shall use the same symbology of the original drawings. Items depicted on the original drawings without dimensions shall be shown in their approximate actual "as-constructed" location.
- 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. Information incorporated into as-built drawings shall be at a level of detail consistent with the original drawings.
- 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.
- i. Working as-built drawings 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.
- j. The title block for additional as-built drawings shall be similar to that used on the original drawings.

### 1.3.5 Final Working As-Built Prints for Review and Approval

Two copies of the working 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.

### 1.3.6 Final Drawings (CAD)

The original drawings have been prepared by Computer Aided Drafting (CAD). These digital files will be provided to the Contractor upon request. Upon approval of the working as-built prints, the Contractor shall modify the original CAD drawing files to bring them into agreement with the working as-built prints. If additional drawings are required, they shall be prepared in the MicroStation format. The Contractor shall submit final as-built CAD drawings in MicroStation Version 5.0.95 or later format.

#### 1.3.6.1 Media

Digital Data Format shall be as listed below in order of preference.

1. 5-1/4" Read/Write (R/W) Compact Disc (CD) (650, IBM compatible format) (non-compressed).
2. Bernoulli Removable Hard Disk utilizing native file format (non-compressed) (40mb or larger, IBM compatible format)
3. 3.5-in. High-density diskettes (1.44mb) utilizing Windows Backup or Pkzip software.

#### 1.3.6.2 Draftsmanship

Only personnel proficient in the preparation of digital engineering drawings to standards satisfactory and acceptable to the Government shall be employed to modify the original contract drawings or prepare additional new 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. The Contracting Officer will review all as-built drawings for accuracy and conformance to the above specified drafting standards. The Contractor shall make all corrections, changes, additions, and deletions required to meet these standards.

- 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.

### 1.3.7 Final Submittal

Not later than 60 days after the contract completion date, the Contractor shall submit to the Contracting Officer two sets of final as-built drawings on acceptable media as described in paragraph MEDIA above together with one

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set of approved working as-built marked-up prints, one set of as-built reproducible drawings (mylar), and one set of blue line prints, which will become the property of the Government upon final approval. Format for final as-built drawings shall be as specified in the paragraph FINAL DRAWINGS (CAD) above. 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 Manual, 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 non-applicable 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:

#### 1.4.2.1.1 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 diagrams, 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

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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 PAYMENT VALUES FOR O&M MANUALS AND AS-BUILT DRAWINGS (SWD LTR 8/2/90  
& MEMO ES-Q DTD 1 JUN 94)

1.5.1 O & M Manuals

The estimated value for O&M manuals is considered by the Government to be \$8,000. 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.

1.5.2 As-Built Drawings

The estimated value of as-built drawings is considered by the Government to be \$30,000. 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.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION (NOT APPLICABLE)

--End of Section--

## SECTION 03200

CONCRETE REINFORCEMENT  
09/97

## 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.

## ACI INTERNATIONAL (ACI)

- ACI 318/318R (1995) Building Code Requirements for Structural Concrete and Commentary
- ACI 318M (1995) Building Code Requirements for Structural Concrete and Commentary (Metric)

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM A 53 (1996) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
- ASTM A 82 (1995a) Steel Wire, Plain, for Concrete Reinforcement
- ASTM A 184/A 184M (1996) Fabricated Deformed Steel Bar Mats for Concrete Reinforcement
- ASTM A 185 (1994) Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
- ASTM A 496 (1995a) Steel Wire, Deformed, for Concrete Reinforcement
- ASTM A 497 (1995) Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement
- ASTM A 615/A 615M (1996a) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
- ASTM A 675/A 675M (1990a; R 1995) Steel Bars, Carbon, Hot-Wrought, Special Quality, Mechanical Properties
- ASTM A 706/A 706M (1995b) Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
- ASTM A 767/A 767M (1995) Zinc-Coated (Galvanized) Steel Bars in Concrete Reinforcement
- ASTM A 775/A 775M (1996) Epoxy-Coated Reinforcement Steel Bars

ASTM A 884/A 884M (1996a) Epoxy-Coated Steel Wire and Welded Wire Fabric for Reinforcement

ASTM C 1116 (1995) Fiber-Reinforced Concrete and Shotcrete

AMERICAN WELDING SOCIETY (AWS)

AWS D1.4 (1992) Structural Welding Code - Reinforcing Steel

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)

CRSI MSP-1 (1996) Manual of Standard Practice

## 1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

### SD-04 Drawings

Concrete Reinforcement System; GA.

Detail drawings showing reinforcing steel placement, schedules, sizes, grades, and splicing and bending details. Drawings shall show support details including types, sizes and spacing.

### SD-08 Statements

Welding; FIO.

A list of qualified welders names.

### SD-13 Certificates

Reinforcing Steel; FIO.

Certified copies of mill reports attesting that the reinforcing steel furnished contains no less than 25 percent recycled scrap steel and meets the requirements specified herein, prior to the installation of reinforcing steel.

## 1.3 WELDING

Welders shall be qualified in accordance with AWS D1.4. Qualification test shall be performed at the worksite and the Contractor shall notify the Contracting Officer 24 hours prior to conducting tests. Special welding procedures and welders qualified by others may be accepted as permitted by AWS D1.4.

#### 1.4 DELIVERY AND STORAGE

Reinforcement and accessories shall be stored off the ground on platforms, skids, or other supports.

### 2 PRODUCTS

#### 2.1 DOWELS

Dowels shall conform to [ASTM A 675/A 675M](#), Grade 80. Steel pipe conforming to [ASTM A 53](#), Schedule 80, may be used as dowels provided the ends are closed with metal or plastic inserts or with mortar.

#### 2.2 FABRICATED BAR MATS

Fabricated bar mats shall conform to [ASTM A 184/A 184M](#).

#### 2.3 REINFORCING STEEL

Reinforcing steel shall be deformed bars conforming to [ASTM A 615/A 615M](#) or [ASTM A 706/A 706M](#), grades and sizes as indicated. Cold drawn wire used for spiral reinforcement shall conform to [ASTM A 82](#). In highly corrosive environments or when directed by the Contracting Officer, reinforcing steel shall conform to [ASTM A 767/A 767M](#) or [ASTM A 775/A 775M](#) as appropriate.

#### 2.4 WELDED WIRE FABRIC

Welded wire fabric shall conform to [ASTM A 185](#). When directed by the Contracting Officer for special applications, welded wire fabric shall conform to [ASTM A 884/A 884M](#).

#### 2.5 WIRE TIES

Wire ties shall be 16 gauge or heavier black annealed steel wire.

#### 2.6 SUPPORTS

Bar supports for formed surfaces shall be designed and fabricated in accordance with [CRSI MSP-1](#) and shall be steel or precast concrete blocks. Precast concrete blocks shall have wire ties and shall be not less than 4 inches square when supporting reinforcement on ground. Precast concrete block shall have compressive strength equal to that of the surrounding concrete. Where concrete formed surfaces will be exposed to weather or where surfaces are to be painted, steel supports within 1/2 inch of concrete surface shall be galvanized, plastic protected or of stainless steel. Concrete supports used in concrete exposed to view shall have the same color and texture as the finish surface. For slabs on grade, supports shall be precast concrete blocks, plastic coated steel fabricated with bearing plates, or specifically designed wire-fabric supports fabricated of plastic.

#### 2.7 SYNTHETIC FIBER REINFORCEMENT

Synthetic fiber shall be polypropylene with a denier less than 100 and a nominal fiber length of 2 inches.

### 3 EXECUTION

#### 3.1 REINFORCEMENT

Reinforcement shall be fabricated to shapes and dimensions shown and shall conform to the requirements of [ACI 318/318R](#). Reinforcement shall be cold bent unless otherwise authorized. Bending may be accomplished in the field or at the mill. Bars shall not be bent after embedment in concrete. Safety caps shall be placed on all exposed ends of vertical concrete reinforcement bars that pose a danger to life safety. Wire tie ends shall face away from the forms.

##### 3.1.1 Placement

Reinforcement shall be free from loose rust and scale, dirt, oil, or other deleterious coating that could reduce bond with the concrete. Reinforcement shall be placed in accordance with [ACI 318/318R](#) at locations shown plus or minus one bar diameter. Reinforcement shall not be continuous through expansion joints and shall be as indicated through construction or contraction joints. Concrete coverage shall be as indicated or as required by [ACI 318/318R](#). If bars are moved more than one bar diameter to avoid interference with other reinforcement, conduits or embedded items, the resulting arrangement of bars, including additional bars required to meet structural requirements, shall be approved before concrete is placed.

##### 3.1.2 Splicing

Splices of reinforcement shall conform to [ACI 318/318R](#) and shall be made only as required or indicated. Splicing shall be by lapping or by mechanical or welded butt connection; except that lap splices shall not be used for bars larger than No. 11 unless otherwise indicated. Welding shall conform to [AWS D1.4](#). Welded butt splices shall be full penetration butt welds. Lapped bars shall be placed in contact and securely tied or spaced transversely apart to permit the embedment of the entire surface of each bar in concrete. Lapped bars shall not be spaced farther apart than one-fifth the required length of lap or 6 inches. Mechanical butt splices shall be in accordance with the recommendation of the manufacturer of the mechanical splicing device. Butt splices shall develop 125 percent of the specified minimum yield tensile strength of the spliced bars or of the smaller bar in transition splices. Bars shall be flame dried before butt splicing. Adequate jigs and clamps or other devices shall be provided to support, align, and hold the longitudinal centerline of the bars to be butt spliced in a straight line.

#### 3.2 WELDED-WIRE FABRIC PLACEMENT

Welded-wire fabric shall be placed in slabs as indicated. Fabric placed in slabs on grade shall be continuous between expansion, construction, and contraction joints. Fabric placement at joints shall be as indicated. Lap splices shall be made in such a way that the overlapped area equals the distance between the outermost crosswires plus 2 inches. Laps shall be staggered to avoid continuous laps in either direction. Fabric shall be wired or clipped together at laps at intervals not to exceed 4 feet. Fabric shall be positioned by the use of supports.

### 3.3 DOWEL INSTALLATION

Dowels shall be installed in slabs on grade at locations indicated and at right angles to joint being doweled. Dowels shall be accurately positioned and aligned parallel to the finished concrete surface before concrete placement. Dowels shall be rigidly supported during concrete placement. One end of dowels shall be coated with a bond breaker.

## SECTION 03371

SHOTCRETE  
05/95

## 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.

## ACI INTERNATIONAL (ACI)

ACI 506.3R (1991) Certification of Shotcrete Nozzlemen

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 820 (1990) Steel Fibers for Fiber Reinforced Concrete

ASTM C 33 (1993) Concrete Aggregates

ASTM C 42 (1990) Obtaining and Testing Drilled Cores and Sawed Beam of Concrete

ASTM C 94 (1994) Ready-Mixed Concrete

ASTM C 136 (1993) Sieve Analysis of Fine and Coarse Aggregates

ASTM C 150 (1995) Portland Cement

ASTM C 171 (1992) Sheet Materials for Curing Concrete

ASTM C 231 (1991b) Air Content of Freshly Mixed Concrete by the Pressure Method

ASTM C 266 (1989) Time of Setting of Hydraulic-Cement Paste by Gillmore Needles

ASTM C 309 (1993) Liquid Membrane-Forming Compounds for Curing Concrete

ASTM C 566 (1989) Total Moisture Content of Aggregate by Drying

ASTM C 595 (1994a) Blended Hydraulic Cements

ASTM C 618 (1994a) Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

ASTM C 685 (1994) Concrete Made by Volumetric Batching and Continuous Mixing

|             |  |
|-------------|--|
| ASTM C 881  | (1990) Epoxy-Resin-Base Bonding Systems for Concrete   |
| ASTM C 989  | (1993) Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars  |
| ASTM C 1018 | (1994b) Flexural Toughness and First-Crack Strength of Fiber-Reinforced Concrete (Using Beam with Third-Point Loading)       |
| ASTM C 1077 | (1995a) Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation |
| ASTM C 1140 | (1989) Preparing and Testing Specimens from Shotcrete Test Panels  |
| ASTM C 1141 | (1994) Admixtures for Shotcrete  |
| ASTM C 1240 | (1993) Silica Fume for Use in Hydraulic-Cement Concrete and Mortar   |

#### CORPS OF ENGINEERS (COE)

|               |  |
|---------------|--|
| COE CRD-C 400 | (1963) Requirements for Water for Use in Mixing or Curing Concrete |
|---------------|--|

## 1.2 UNIT PRICES

### 1.2.1 Shotcrete

#### 1.2.1.1 Payment

Payment will be made as a lump sum for costs associated with furnishing, delivering, and placing shotcrete.

## 1.3 QUALITY ASSURANCE

The Contractor shall provide facilities and labor as may be necessary for obtaining and testing representative test samples. Shotcrete shall be sampled and tested by the method given in paragraph STRENGTH TESTING.

## 1.4 MIXTURE PROPORTIONS

Mixture proportions and test data from prior experience within 5 years, if available, may be submitted for approval. If test data from experience are not available or accepted, specimens shall be made and tested from mixtures having three or more different proportions. The recommended mixture proportions, sources of materials, and all test results shall be submitted for acceptance. Mixture proportions for nonfiber-reinforced shotcrete shall be selected on the basis of compressive strength tests of cores obtained from test panels fabricated in accordance with ASTM C 1140 and having minimum dimensions of 30 by 30 by 4 inches. Cores shall be continuously moist cured until testing at 28 days age. For mixture acceptance purposes, the average compressive strength of at least three cores shall be at least equal to 1.2 times the required compressive strength specified in paragraph COMPRESSIVE STRENGTH.

## 1.5 EVALUATION AND ACCEPTANCE

### 1.5.1 Strength

Final acceptance of the shotcrete will be based on compressive strength results obtained from cores.

#### 1.5.1.1 Compressive Strength

The required compressive strength of cores shall not be less than 3500 psi at 28 days age when tested in accordance with [ASTM C 42](#). The average compressive strength of cores taken from the crawl space floor structure, representing a shift or not more than 50 cubic yards of shotcrete tested at 7 days of age, shall equal or exceed the required compressive strength specified with no individual core less than 85 percent of the required compressive strength. When the length of a core is less than 1.94 times the diameter, the correction factors given in [ASTM C 42](#) will be applied to obtain the compressive strength of individual cores.

## 1.6 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section [01330 SUBMITTAL PROCEDURES](#):

### SD-01 Data

Mixture Proportions; GA.

The recommended mixture proportions, sources of materials, and all test results shall be submitted for approval.

### SD-09 Reports

Aggregates; FIO.

Supplier's test reports for aggregates showing the materials meet the requirements of this specification.

Accelerator Compatibility; GA.

The Contractor shall establish the compatibility of the job cement and the proposed accelerators.

Preconstruction Test Panels; FIO.

Cores and sawed concrete beams shall be taken from test panels and tested.

### SD-13 Certificates

Portland Cement; FIO.

Portland cement shall be certified for compliance with all specification requirements.

### Accelerating Admixtures; FIO.

Accelerating admixtures shall be certified for compliance with all specification requirements.

### Curing Materials; FIO.

Curing materials shall be certified for compliance with all specification requirements.

### Qualifications; GA.

Qualifications of each nozzleman shall be certified.

## 1.7 QUALIFICATIONS

The Contractor shall submit a resume for each nozzleman certifying that each has not less than 1 year's experience for the particular type of shotcrete to be applied. The resume shall include company name, address, and telephone number, name of supervisor, and detailed description of work performed. All nozzlemen shall be certified in accordance with ACI 506.3R. Qualifications of additional nozzlemen throughout the job shall be similarly submitted for approval.

## 1.8 PRECONSTRUCTION TEST PANELS

Specimens of the preconstruction test panels shall be made by each application crew using the equipment, materials, mixture proportions, and procedures for each mixture being considered, and for each shooting position to be encountered in the job. The same reinforcement as in the structure shall be provided in at least one-half of the panel to test for proper embedment of reinforcing steel. The test panels shall be fabricated to the same thickness as the structure, but not less than 4 inches. Each nozzleman shall generate a test panel. At least five 3-inch diameter cores from each panel shall be taken for testing for compressive strength in accordance with ASTM C 1140 when nonfiber-reinforced shotcrete is used. The compressive strength of the cores shall meet the requirements specified in paragraph COMPRESSIVE STRENGTH.

## 2 PRODUCTS

### 2.1 MATERIALS

#### 2.1.1 Cementitious Materials

Cementitious materials shall be portland cement or portland cement and shall conform to appropriate specifications listed below.

##### 2.1.1.1 Portland Cement

Portland cement shall meet the requirements of ASTM C 150 Type I.

##### 2.1.2 Aggregates

Aggregates shall conform to ASTM C 33 with the combined grading of coarse and fine aggregates conforming to the grading shown below.

| SIEVE SIZE        | PERCENT BY MASS PASSING INDIVIDUAL SIEVES<br>GRADING NO. 1 |
|-------------------|--|
| 19.0 mm (3/4 in.) | --   |
| 12.5 mm (1/2 in.) | --   |
| 9.5 mm (3/8 in.)  | 100  |
| 4.75 mm (No. 4)   | 95-100   |
| 2.36 mm (No. 8)   | 80-100   |
| 1.18 mm (No. 16)  | 50-85  |
| 600 µm (No. 30)   | 25-60  |
| 300 µm (No. 50)   | 10-30  |
| 150 µm (No. 100)  | 2-10   |

### 2.1.3 Water

Fresh, clean, potable mixing water or nonpotable water which meets the requirements of **COE CRD-C 400** shall be used.

### 2.1.4 Admixtures

Admixtures to be used, when required or approved, shall comply with the appropriate sections of **ASTM C 1141**. Except as otherwise accepted, soluble admixtures shall be dissolved in water before introduction into the shotcrete mixture.

#### 2.1.4.1 Accelerators

When **accelerating admixtures** complying with **ASTM C 1141**, Type II, Grade 1, are to be used, the Contractor shall establish the **accelerator compatibility** of the job cement and the proposed accelerators using **ASTM C 266**, except as modified herein. The powdered accelerator shall be blended with 50 grams of cement until uniform and 15 milliliters of water shall then be added. The liquid accelerator shall first be mixed with 15 milliliters of water and then added to 50 grams of cement. Three percent of the proposed accelerator by mass of cement shall be used as a starting point. Mixing shall be accomplished within 15 seconds. The specimen shall be molded within 1 minute of adding the mixing water. If initial set is 2 minutes or less and a final set is 10 minutes or less, the accelerator is considered compatible. If these values are not achieved in the first test, additional tests shall be run using 2 percent and 4 percent of accelerator.

### 2.1.5 Curing Materials

**Curing materials** shall meet the following requirements.

#### 2.1.5.1 Impervious Sheet Materials

**ASTM C 171**, type optional except polyethylene film, if used, shall be white opaque.

#### 2.1.5.2 Membrane-Forming Curing Compound

**ASTM C 309**, Type 1-D or Type 2.

### 2.1.6 Reinforcement

Reinforcement shall be as specified in Section 03200 CONCRETE REINFORCEMENT.

### 3 EXECUTION

#### 3.1 PRODUCTION OF SHOTCRETE

The shotcrete shall be produced by dry-mix process.

##### 3.1.1 Dry Mix Process

###### 3.1.1.1 Batching and Mixing

Aggregate and cementitious materials may be batched by mass or by volume. Equipment for batching by mass shall be capable of the accuracy specified in [ASTM C 94](#). Volumetric equipment shall be capable of batching with the accuracy specified in [ASTM C 685](#). The mixing equipment shall be capable of thoroughly mixing the materials in sufficient quantity to maintain placing continuity and be capable of discharging all mixed material without any carryover from one batch to the next.

###### 3.1.1.2 Delivery Equipment

The equipment shall be capable of discharging the aggregate-cement mixture into the delivery hose and delivering a continuous smooth stream of uniformly mixed material to the discharge nozzle. The discharge nozzle shall be equipped with a manually operated water injection system (water ring) for directing an even distribution of water through the aggregate-cement mixture. The water valve shall be capable of ready adjustment to vary the quantity of water and shall be convenient to the nozzleman. The water pressure at the discharge nozzle shall be sufficiently greater than the operating air pressure to ensure that the water is completely mixed with the other materials. If the line water pressure is inadequate, a water pump shall be introduced into the line. The water pressure shall be steady (nonpulsating). The delivery equipment shall be thoroughly cleaned at the end of each shift. Equipment parts, especially the nozzle liner and water ring, shall be regularly inspected and replaced as required.]

#### 3.2 PREPARATION OF SURFACES

##### 3.2.1 Earth

Earth shall be compacted and trimmed to line and graded before placement of shotcrete. Surfaces to receive shotcrete shall be dampened.

##### 3.2.2 Existing Concrete

All unsound and loose materials shall be removed by sandblasting, grinding, or high-pressure water jets before applying shotcrete. Any area to be repaired shall be chipped off or scarified to remove offsets which would cause an abrupt change in thickness without suitable reinforcement. Edges shall be tapered to leave no square shoulders at the perimeter of a cavity. The surface shall be dampened but without visible free water.

##### 3.2.3 Rock

Rock surfaces shall be cleaned to remove loose or drummy material, mud, running water, and other foreign matter that will prevent bond of the

shotcrete. The rock surface shall be dampened prior to placement of shotcrete.

#### 3.2.4 Shotcrete

When a layer of shotcrete is to be covered by a succeeding layer at a later time, it shall first be allowed to develop its initial set. Then all laitance, loose material, and rebound shall be removed by brooming or scraping. Hardened laitance set shall be removed by sandblasting and the surface thoroughly cleaned.

#### 3.2.5 Construction Joints

Unless otherwise specified, construction joints shall be tapered to a shallow edge form, about 1-inch thick. If nontapered joints are specified, special care shall be taken to avoid or remove trapped rebound at the joint. The entire joint shall be thoroughly cleaned and wetted prior to the application of additional shotcrete.

### 3.3 PLACEMENT OF SHOTCRETE

#### 3.3.1 General

Shotcrete shall be placed using suitable delivery equipment and procedures. The area to which shotcrete is to be applied shall be clean and free of rebound or overspray.

#### 3.3.2 Placement Techniques

##### 3.3.2.1 Placement Control

Thickness, method of support, air pressure, and water content of shotcrete shall be controlled to preclude sagging or sloughing off. Shotcreting shall be discontinued or suitable means shall be provided to screen the nozzle stream if wind or air currents cause separation of the nozzle stream during placement.

##### 3.3.2.2 Corners

Horizontal and vertical corners and any area where rebound cannot escape or be blown free shall be filled first.

##### 3.3.3 Placement Around Reinforcement

The nozzle shall be held at such distance and angle to place material behind reinforcement before any material is allowed to accumulate on the face of the reinforcement. In the dry-mix process, additional water may be added to the mixture when encasing reinforcement to facilitate a smooth flow of material behind the bars. Shotcrete shall not be placed through more than one layer of reinforcing steel rods or mesh in one application unless demonstrated by preconstruction tests that steel is properly encased.

##### 3.3.4 Cover of Reinforcement

The following minimum cover shall be provided.

For shotcrete used as linings, coatings, slab, or wall: 3/4 inch.

### 3.3.1 Placement Precautions

The following precautions shall be taken during placement.

- a. Placement shall be stopped if drying or stiffening of the mixture takes place at any time prior to delivery to the nozzle.
- b. Rebound or previously expended material shall not be used in the shotcrete mixture.

## 3.4 REPAIR OF DEFECTS

### 3.4.1 Defects

Defective areas larger than 48 square inches or 2 inches deep shall be removed and replaced with fresh shotcrete. These defects include honeycombing, lamination, dry patches, voids, or sand pockets. Defective areas shall be removed in accordance with the procedures described in paragraph EXISTING CONCRETE and replaced with fresh shotcrete.

#### 3.4.1.1 Repairs

All repairs shall be made within 1 week of the time the deficiency is discovered. All unacceptable materials shall be removed and repaired by the procedures described in the following two paragraphs. Voids and holes left by the removal of tie rods in all permanently exposed surfaces not to be backfilled and in surfaces to be exposed to water shall be reamed and completely filled with dry-patching mortar as specified below.

#### 3.4.1.2 Minor Patching

Minor patching may be accomplished with a dry-pack mixture, or with materials as approved by the Contracting Officer. Patches that exceed 0.1 cubic foot in volume shall receive a brush coat of approved epoxy resin meeting **ASTM C 881**, Type II, as a prime coat. Care shall be taken not to spill epoxy or overcoat the repair surface so that the epoxy runs or is squeezed out onto the surface which will remain exposed to view. Epoxy resin shall be used in strict conformance with manufacturer's recommendations with special attention paid to pot life, safety, and thin film tack time.

#### 3.4.2 Core Holes

Core holes shall not be repaired with shotcrete. Instead, they shall be filled solid with a dry-pack mixture after being cleaned and thoroughly dampened.

## 3.5 FINISHING

### 3.5.1 Cutting Screed

**After the surface has taken its initial set (crumbling slightly when cut), excess material outside the forms and ground wires shall be sliced off with a downward cutting motion using a sharp-edged cutting screed.**

### 3.6 CURING AND PROTECTION

#### 3.6.1 Initial Curing

Immediately after finishing, shotcrete shall be kept continuously moist for at least 3 days. One of the following materials or methods shall be used:

- a. Ponding or continuous sprinkling.
- b. Absorptive mat or fabric, sand, or other covering kept continuously wet.
- c. Curing Compounds. On natural gun or flash finishes, use the coverage application requirement of 100 square feet per gallon or twice the manufacturer's requirement, whichever is less. Curing compounds shall not be used on any surfaces against which additional shotcrete or other cementitious finishing materials are to be bonded unless positive measures, such as sandblasting, are taken to completely remove curing compounds prior to the application of such additional materials.

#### 3.6.2 Final Curing

Additional curing shall be provided immediately following the initial curing and before the shotcrete has dried. One of the following materials or methods shall be used:

- a. Continue the method used in initial curing.
- b. Application of impervious sheet material conforming to [ASTM C 171](#).

#### 3.6.3 Formed Surface

If forms are to be removed during curing period, one of the curing materials or methods listed in paragraph INITIAL CURING shall be used immediately. Such curing shall be continued for the remainder of the curing period.

#### 3.6.4 Duration of Curing

Curing shall be continued for the first 7 days after shotcreting or until the specified compressive strength of the in-place shotcrete as determined by specimens obtained and tested in accordance with [ASTM C 42](#) is achieved.

#### 3.6.5 Temperature Considerations

The air temperature in contact with the shotcrete shall be continuously maintained at a temperature above 40 degrees F for at least 3 days after placement. No shotcrete shall be applied when the concrete surface or air in contact with the concrete surface is below 40 degrees F.

### 3.7 TESTS

#### 3.7.1 Strength Testing

Test specimens shall be initially cured onsite, then shall be transported in an approved manner to an approved testing laboratory meeting the requirements of [ASTM C 1077](#) within 48 hours of scheduled testing time.

#### 3.7.1.1 Test Panel

One test panel shall be made for every 50 cubic yards of shotcrete placed but not less than one per each shift during which any shotcrete is placed. Panels shall have minimum dimensions of 18 by 18 by 4 inches and shall be gunned in the same positions as the work represented during the course of the work by the Contractor's regular nozzleman. Panels shall be field cured in the same manner as in the job. Three 3-inch diameter cores shall be drilled from each panel at least 40 hours prior to testing and tested in accordance with [ASTM C 1140](#). Each core shall be extracted at least 4 inches from the panel edge. Two 4 by 4 by 14-inch beams shall be saw cut from the test panels when fiber-reinforced shotcrete is used. The fiber-reinforced shotcrete beams shall be tested in accordance with [ASTM C 1140](#). If the quality of shotcrete is questionable, the Government may saw or core the panel specimens to determine the shotcrete quality and if remedial action is necessary.

#### 3.7.1.2 Test Cores

Test cores shall be drilled from the structure at least 40 hours prior to testing and tested in accordance with [ASTM C 1140](#). A set of three cores shall be taken not less than once each shift that shotcrete is placed nor less than once for each 50 cubic yards of shotcrete placed through the nozzle. The diameter of core specimens shall be determined in accordance with [ASTM C 42](#).

#### 3.7.1.3 Compressive Strength

The compressive strength of the shotcrete shall be determined from the average of three cores obtained from a test panel representing a specific volume of shotcrete and tested on the 28 day after panel fabrication.

#### 3.7.2 Aggregate Moisture

Prior to batching the shotcrete and at least once during a shift in which shotcrete is being batched, the coarse and fine aggregate moisture content shall be determined in accordance with [ASTM C 566](#). The batch weights of both the aggregates and mixing water shall be appropriately adjusted to account for the available free moisture in the aggregates. The amount of free moisture in the aggregates, expressed as pounds of water per cubic yard, shall be recorded on the batching ticket and delivered to the Contracting Officer prior to placement during the shift. The Contracting Officer will have the option to request additional aggregate moisture content tests for each of the required tests.

#### 3.7.3 Grading

The grading of the coarse and fine aggregate shall be determined in accordance with [ASTM C 136](#). The fine and coarse aggregate grading shall be determined prior to batching the shotcrete and at least once during a shift in which shotcrete is being batched. The Contracting Officer will have the option to require one additional sieve analysis test for aggregate type.

#### 3.7.4 Thickness

The minimum shotcrete thickness shall be as shown in the drawings. The unhardened shotcrete shall be checked for thickness using a probe by the

nozzleman or laborer at the time of placement. These thickness checks shall be at 15-minute intervals and all low or thin areas shall be corrected by applying additional shotcrete.

#### 3.7.5 Mixture Proportions

Record and check mixture proportions at least once per shift for weigh batching. Record and check mixture proportions as recommended by [ASTM C 685](#) at least once per shift for volumetric batching and continuous mixing plants.

#### 3.7.6 Preparations

Prior to each placement of shotcrete, the Contractor's inspector shall certify in writing or by an approved checkout form that cleanup and preparations are in accordance with the plans and specifications.

SECTION 05120

STRUCTURAL STEEL

09/97

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 INSTITUTE OF STEEL CONSTRUCTION (AISC)

|                       |   |
|-----------------------|---|
| AISC FCD              | (1995a) Quality Certification Program Description   |
| AISC ASD Mnl          | (1989) Manual of Steel Construction Allowable Stress Design   |
| AISC ASD/LRFD Vol II  | (1992) Manual of Steel Construction Vol II: Connections   |
| AISC Design Guide #10 | (1989) Erection Bracing of Low-Rise Structural Steel Frames   |
| AISC LRFD Vol I       | (1995) Manual of Steel Construction Load & Resistance Factor Design, Vol I: Structural Members, Specifications & Codes  |
| AISC LRFD Vol II      | (1995) Manual of Steel Construction Load & Resistance Factor Design, Vol II: Structural Members, Specifications & Codes |
| AISC Pub No. S303     | (1992) Code of Standard Practice for Steel Buildings and Bridges  |

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

|                   |  |
|-------------------|--|
| ASTM A 6/A 6M     | (1997) General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling |
| ASTM A 36/A 36M   | (1996) Carbon Structural Steel   |
| ASTM A 53         | (1997) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless                     |
| ASTM A 242/A 242M | (1993a) High-Strength Low-Alloy Structural Steel   |
| ASTM A 307        | (1994) Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength                               |

FT SILL STARSHIP BARRACKS

ASTM A 325 (1997) Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength

ASTM A 325M (1993) High-Strength Bolts for Structural Steel Joints (Metric)

ASTM A 490 (1997) Heat-Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength

ASTM A 490M (1993) High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints (Metric)

ASTM A 500 (1996) Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

ASTM A 501 (1996) Hot-Formed Welded and Seamless Carbon Steel Structural Tubing

ASTM A 502 (1993) Steel Structural Rivets

ASTM A 514/A 514M (1994a) High-Yield-Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding

ASTM A 529/A 529M (1996) High-Strength Carbon-Manganese Steel of Structural Quality

ASTM A 563 (1996) Carbon and Alloy Steel Nuts

ASTM A 563M (1996) Carbon and Alloy Steel Nuts (Metric)

ASTM A 572/A 572M (1997) High-Strength Low-Alloy Columbium-Vanadium Structural Steel

ASTM A 588/A 588M (1997) High-Strength Low-Alloy Structural Steel with 50 ksi (345 MPa) Minimum Yield Point to 4 in. (100 mm) Thick

ASTM A 618 (1996) Hot-Formed Welded and Seamless High-Strength Low-Alloy Structural Tubing

ASTM A 709/A 709M (19997a) Carbon and High-Strength Low-Alloy Structural Steel Shapes, Plates, and Bars and Quenched-and-Tempered Alloy Structural Steel Plates for Bridges

ASTM A 852/A 852M (1997) Quenched and Tempered Low-Alloy Structural Steel Plate with 70 ksi (485 MPa) Minimum Yield Strength to 4 in. (100 mm) Thick

ASTM F 436 (1993) Hardened Steel Washers

ASTM F 436M (1993) Hardened Steel Washers (Metric)

FT SILL STARSHIP BARRACKS

- ASTM F 844 (1990) Washers, Steel, Plain (Flat), Unhardened for General Use
- ASTM F 959 (1996) Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

- ASME B18.21.1 (1994) Lock Washers (Inch Series)
- ASME B46.1 (1995) Surface Texture (Surface Roughness, Waviness, and Lay)

AMERICAN WELDING SOCIETY (AWS)

- AWS A2.4 (1993) Standard Symbols for Welding, Brazing and Nondestructive Examination
- AWS D1.1 (1996) Structural Welding Code - Steel

STEEL STRUCTURES PAINTING COUNCIL (SSPC)

- SSPC Paint 25 (1991) Red Iron Oxide, Zinc Oxide, Raw Linseed Oil and Alkyd Primer (without Lead and Chromate Pigments)

1.2 GENERAL REQUIREMENTS

Structural steel fabrication and erection shall be performed by an organization experienced in structural steel work of equivalent magnitude. The Contractor shall be responsible for correctness of detailing, fabrication, and for the correct fitting of structural members.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Structural Steel System; GA.

Shop and erection details including members (with their connections) not shown on the contract drawings. Welds shall be indicated by standard welding symbols in accordance with AWS A2.4.

SD-08 Statements

SD-13 Certificates

Welder Qualifications; GA.

Certified copies of welder qualifications test records showing qualification in accordance with AWS D1.1.

Fabrication; FIO.

A copy of the AISC certificate indicating that the fabrication plant meets the specified structural steelwork category.

SD-14 Samples

High Strength Bolts and Nuts; FIO. Carbon Steel Bolts and Nuts; FIO. Nuts Dimensional Style; FIO. Washers; FIO.

Random samples of bolts, nuts, and washers as delivered to the job site if requested, taken in the presence of the Contracting Officer and provided to the Contracting Officer for testing to establish compliance with specified requirements.

1.4 STORAGE

Material shall be stored out of contact with the ground in such manner and location as will minimize deterioration.

2 PRODUCTS

2.1 STRUCTURAL STEEL

2.1.1 Carbon Grade Steel

Carbon grade steel shall conform to ASTM A 36/A 36M.

2.1.2 Carbon and High-Strength Low-Alloy Steel

Carbon and high-strength low-alloy steel shall conform to ASTM A 709/A 709M.

2.2 STEEL PIPE

Steel pipe shall conform to ASTM A 53, Type S, Grade B.

2.3 CARBON STEEL BOLTS AND NUTS

Carbon steel bolts shall conform to ASTM A 307, Grade A with carbon steel nuts conforming to ASTM A 563, Grade A.

2.4 NUTS DIMENSIONAL STYLE

Carbon steel nuts shall be Hex style when used with ASTM A 307 bolts or Heavy Hex style when used with ASTM A 325 or ASTM A 490 bolts.

2.5 WASHERS

Plain washers shall conform to ASTM F 844.

2.6 PAINT

Paint shall conform to SSPC Paint 25.

3 EXECUTION

### 3.1 FABRICATION

Fabrication shall be in accordance with the applicable provisions of AISC ASD Mn1. Fabrication and assembly shall be done in the shop to the greatest extent possible. The fabricating plant shall be certified under the AISC FCD for Category Supplement structural steelwork. Compression joints depending on contact bearing shall have a surface roughness not in excess of 500 micro inches as determined by ASME B46.1, and ends shall be square within the tolerances for milled ends specified in ASTM A 6/A 6M. Structural steelwork, except surfaces of steel to be encased in concrete, surfaces to be field welded, surfaces to be fireproofed, and contact surfaces of friction-type high-strength bolted connections shall be prepared for painting in accordance with endorsement "P" of AISC FCD and primed with the specified paint.

#### 3.1.1 Structural Connections

Anchor bolts and other connections between the structural steel and foundations shall be provided and shall be properly located and built into connecting work. Field welded structural connections shall be completed before load is applied.

#### 3.1.2 Field Priming

After erection, the field bolt heads and nuts, field welds, and any abrasions in the shop coat shall be cleaned and primed with paint of the same quality as that used for the shop coat.

- END OF SECTION -

SECTION 07900

JOINT SEALING

06/97

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 C 509  | (1994) Elastomeric Cellular Preformed Gasket and Sealing Material                                    |
| ASTM C 570  | (1995) Oil- and Resin-Base Caulking Compound for Building Construction                               |
| ASTM C 734  | (1993) Low-Temperature Flexibility of Latex Sealants After Artificial Weathering                     |
| ASTM C 834  | (1995) Latex Sealants  |
| ASTM C 920  | (1995) Elastomeric Joint Sealants  |
| ASTM C 1085 | (1991) Butyl Rubber-Based Solvent-Release Sealants   |
| ASTM C 1184 | (1995) Structural Silicone-Sealants  |
| ASTM D 217  | (1994) Cone Penetration of Lubricating Grease (IP50/88)  |
| ASTM D 1056 | (1991) Flexible Cellular Materials - Sponge or Expanded Rubber                                       |
| ASTM D 1565 | (1981; R 1990) Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers (Open-Cell Foam) |
| ASTM E 84   | (1996a) Surface Burning Characteristics of Building Materials  |

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Sealant; FIO.

Manufacturer's descriptive data including storage requirements, shelf life, curing time, instructions for mixing and application, and primer data (if required). A copy of the Material Safety Data Sheet shall be provided for each solvent, primer or sealant material.

#### SD-13 Certificates

Sealant; FIO.

Certificates of compliance stating that the materials conform to the specified requirements.

### 1.3 ENVIRONMENTAL REQUIREMENTS

The ambient temperature shall be within the limits of 40 to 90 degrees F when the sealants are applied.

### 1.4 DELIVERY AND STORAGE

Materials shall be delivered to the job in the manufacturer's original unopened containers. The container label or accompanying data sheet shall include the following information as applicable: manufacturer, name of material, formula or specification number, lot number, color, date of manufacture, mixing instructions, shelf life, and curing time at the standard conditions for laboratory tests. Materials shall be handled and stored to prevent inclusion of foreign materials. Materials shall be stored at temperatures between 40 and 90 degrees F unless otherwise specified by the manufacturer.

## 2 PRODUCTS

### 2.1 BACKING

Backing shall be 25 to 33 percent oversize for closed cell and 40 to 50 percent oversize for open cell material, unless otherwise indicated.

#### 2.1.1 Rubber

Cellular rubber sponge backing shall be ASTM D 1056, Type 2, closed cell, Class A, round cross section.

#### 2.1.2 Neoprene

Neoprene backing shall be ASTM D 1056, closed cell expanded neoprene cord Type 2, Class C, Grade 2C2.

### 2.2 PRIMER

Primer shall be non-staining type as recommended by sealant manufacturer for the application.

### 2.3 SEALANT

#### 2.3.1 LATEX

Latex Sealant shall be ASTM C 834.

### 2.3.2 ELASTOMERIC

Elastomeric sealants shall conform to **ASTM C 920** and the following:

- a. Silicone sealant: Type S, Grade NS or P, Class 25 or 12.5, Use NT. Sealant shall be non-corrosive for use in sealing galvanized sheet steel to same type of ductwork and galvanized sheet steel to concrete.

### 2.4 SOLVENTS AND CLEANING AGENTS

Solvents, cleaning agents, and accessory materials shall be provided as recommended by the manufacturer.

## 3 EXECUTION

### 3.1 GENERAL

#### 3.1.1 Surface Preparation

The surfaces of joints to receive sealant or caulk shall be free of all frost, condensation and moisture. Oil, grease, dirt, chalk, particles of mortar, dust, loose rust, loose mill scale, and other foreign substances shall be removed from surfaces of joints to be in contact with the sealant. Oil and grease shall be removed with solvent and surfaces shall be wiped dry with clean cloths. For surface types not listed below, the sealant manufacturer shall be contacted for specific recommendations.

#### 3.1.2 Concrete and Masonry Surfaces

Where surfaces have been treated with curing compounds, oil, or other such materials, the materials shall be removed by sandblasting or wire brushing.

#### 3.1.3 Steel Surfaces

Steel surfaces to be in contact with sealant shall be sandblasted or, if sandblasting would not be practical or would damage adjacent finish work, the metal shall be scraped and wire brushed to remove loose mill scale. Protective coatings on steel surfaces shall be removed by sandblasting or by a solvent that leaves no residue.

### 3.2 APPLICATION

#### 3.2.1 Masking Tape

Masking tape may be placed on the finish surface on one or both sides of a joint cavity to protect adjacent finish surfaces from primer or sealant smears. Masking tape shall be removed within 10 minutes after joint has been filled and tooled.

#### 3.2.2 Backing

Backing shall be installed to provide the indicated sealant depth. The installation tool shall be shaped to avoid puncturing the backing.

### 3.2.3 Primer

Primer shall be used on concrete masonry units, wood, or other porous surfaces in accordance with instructions furnished with the sealant. Primer shall be applied to the joint surfaces to be sealed. Surfaces adjacent to joints shall not be primed.

### 3.2.4 Sealant

Sealant shall be used before expiration of shelf life. Sealant in guns shall be applied with a nozzle of proper size to fit the width of joint. Joints shall be sealed as detailed in the drawings. Sealant shall be forced into joints with sufficient pressure to expel air and fill the groove solidly. Sealant shall be installed to the indicated depth without displacing the backing. Unless otherwise indicated, specified, or recommended by the manufacturer, the installed sealant shall be dry tooled to produce a uniformly smooth surface free of wrinkles and to ensure full adhesion to the sides of the joint; the use of solvents, soapy water, etc., will not be allowed. Sealants shall be installed free of air pockets, foreign embedded matter, ridges and sags. Sealer shall be applied over the sealant when and as specified by the sealant manufacturer.

### 3.3 CLEANING

The surfaces adjoining the sealed joints shall be cleaned of smears and other soiling resulting from the sealant application as work progresses.

SECTION 09900

PAINTING, GENERAL  
07/92

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 CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)

ACGIH-02 (1996) Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 150 (1996) Portland Cement

ASTM D 3273 (1994) Resistance to Growth of Mold on the Surface of Interior Coating in an Environmental Chamber

ASTM D 3274 (1995) Evaluating Degree of Surface Disfigurement of Paint Films by Microbial (Fungal or Algal) Growth or Soil and Dirt Accumulation

ASTM D 4214 (1989) Evaluating the Degree of Chalking of Exterior Paint Films

ASTM D 4258 (1988; R 1992) Surface Cleaning Concrete for Coating

COMMERCIAL ITEM DESCRIPTIONS (CID)

CID A-A-1500 (Rev A) Sealer, Surface (Latex Block Filler)

CID A-A-1546 (Rev A) Rubbing Varnish

CID A-A-1632 (Basic) Varnish, Asphalt

CID A-A-1788 (Basic) Varnish, Oil: Interior

CID A-A-2246 (Rev A) Paint, Latex (Gloss, Interior)

CID A-A-2247 (Basic) Paint, Latex (Semigloss, Interior)

CID A-A-2248 (Basic) Paint, Latex, (Flat, Interior)

CID A-A-2335 (Basic) Sealer, Surface (Varnish Type, Wood and Cork Floors)

FT SILL STARSHIP BARRACKS

CID A-A-2336 (Rev A) Primer Coating (Alkyd, Exterior Wood, White and Tints)

CID A-A-2339 (Basic) Stain (Wood, Solvent-Dye Type)

CID A-A-2542 (Basic) Sealer, Terrazzo and Concrete Floors, Waterbased

CID A-A-2834 (Rev A) Urethane, Waterborne (Low VOC, Clear)

CID A-A-2867 (Basic) Coating, Polyurethane, Single Component Moisture Cure, Alipathic

CID A-A-2962 (Basic) Enamel, Alkyd

CID A-A-2994 (Basic) Primer Coating, Interior, for Walls and Wood

FEDERAL AVIATION ADMINISTRATION (FAA)

FAA AC 70/7460-1 (Rev J) Obstruction Marking and Lighting

FEDERAL SPECIFICATIONS (FS)

FS TT-C-542 (Rev E) Coating, Polyurethane, Oil-Free, Moisture Curing

FS TT-C-555 (Rev B; Am 1) Coating, Textured (for Interior and Exterior Masonry Surfaces)

FS TT-E-2784 (Rev A) Enamel (Acrylic-Emulsion, Exterior Gloss and Semigloss) (Metric)

FS TT-P-28 (Rev G) Paint, Aluminum, Heat Resisting (1200 Degrees F.)

FS TT-S-708 (Rev A; Am 2) Stain, Oil; Semi-Transparent, Wood, Exterior

FS TT-S-001992 (Basic) Stain, Latex, Exterior for Wood Surfaces

MAPLE FLOORING MANUFACTURERS ASSOCIATION (MFMA)

MFMA-03 (1995) Floor Finish List and Specifications for Heavy Duty and Gymnasium Finishes for Maple, Beech and Birch Floors: MFMA Floor Finish List Number 14

STEEL STRUCTURES PAINTING COUNCIL (SSPC)

SSPC Paint 5 (1995) Zinc Dust, Zinc Oxide and Phenolic Varnish Paint

SSPC Paint 18 (1991) Chlorinated Rubber Intermediate Coat Paint

|               |  |
|---------------|--|
| SSPC Paint 20 | (1991) Zinc-Rich Primers (Type I - Inorganic and Type II - Organic)                                      |
| SSPC Paint 23 | (1982) Latex Primer for Steel surfaces   |
| SSPC Paint 25 | (1991) Red Iron Oxide, Zinc Oxide, Raw Linseed Oil and Alkyd Primer (Without Lead and Chromate Pigments) |
| SSPC SP 1     | (1982) Solvent Cleaning  |
| SSPC SP 2     | (1995) Hand Tool Cleaning  |
| SSPC SP 3     | (1995) Power Tool Cleaning   |
| SSPC SP 6     | (1994) Commercial Blast Cleaning   |
| SSPC SP 7     | (1994) Brush-Off Blast Cleaning  |

## 1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

### SD-01 Data

Paint; GA.

The names, quantity represented, and intended use for the proprietary brands of materials proposed to be substituted for the specified materials regardless of quantities in states where VOC content limitations apply.

### SD-06 Instructions

Mixing and Thinning; FIO. Application; FIO.

Manufacturer's current printed product description, material safety data sheets (MSDS) and technical data sheets for each coating system. Detailed mixing, thinning and application instructions, minimum and maximum application temperature, and curing and drying times between coats for epoxy, moisture-curing polyurethane, and liquid glaze coatings. Detailed application instructions for textured coatings shall be provided.

### SD-09 Reports

Paint; FIO.

A statement as to the quantity represented and the intended use, plus the following test report for batches in excess of 50 gallons:

- a. A test report showing that the proposed batch to be used meets specified requirements:

- b. A test report showing that a previous batch of the same formulation as the batch to be used met specified requirements, plus, on the proposed batch to be used, a report of test results for properties of weight per gallon, viscosity, fineness of grind, drying time, color, and gloss.

#### SD-13 Certificates

Lead; FIO. Mildewcide and Insecticide; FIO. Volatile Organic Compound (VOC) Content; FIO.

Certificate stating that paints for interior use contain no mercurial mildewcide or insecticide. Certificate stating that paints proposed for use contain not more than 0.06 percent lead by weight of the total nonvolatile. Certificate stating that paints proposed for use meet Federal VOC regulations and those of the of the local Air Pollution Control Districts having jurisdiction over the geographical area in which the project is located.

#### SD-14 Samples

Paint; FIO.

While the material is at the site or source of supply, and at a time agreeable to the Contractor and the Contracting Officer, a 1 quart sample of each color and batch, except for quantities of 50 gallons or less, shall be taken by random selection from the sealed containers by the Contractor in the presence of a representative of the Contracting Officer. The contents of the containers to be sampled shall be thoroughly mixed to ensure that the sample is representative. Samples shall be identified by designated name, specification number, manufacturer name and address, batch number, project contract number, intended use, and quantity involved.

### 1.3 PACKAGING, LABELING, AND STORING

Paints shall be in sealed containers that legibly show the designated name, formula or specification number, batch number, color, quantity, date of manufacture, manufacturer's formulation number, manufacturer's directions including any warnings and special precautions, and name of manufacturer. Pigmented paints shall be furnished in containers not larger than 5 gallons. Paints and thinner shall be stored in accordance with the manufacturer's written directions and as a minimum stored off the ground, under cover, with sufficient ventilation to prevent the buildup of flammable vapors and at temperatures between 40 and 95 degrees F. Paints shall be stored on the project site or segregated at the source of supply sufficiently in advance of need to allow 30 days for testing.

### 1.4 APPROVAL OF MATERIALS

When samples are tested, approval of materials will be based on tests of the samples; otherwise, materials will be approved based on test reports furnished with them. If materials are approved based on test reports furnished, samples will be retained by the Government for testing should the materials appear defective during or after application. In addition to any other remedies under the contract the cost of retesting defective materials will be at the Contractor's expense.

## 1.5 ENVIRONMENTAL CONDITIONS

Unless otherwise recommended by the paint manufacturer, the ambient temperature shall be between 45 and 95 degrees F when applying coatings other than water-thinned, epoxy, and moisture-curing polyurethane coatings. Water-thinned coatings shall be applied only when ambient temperature is between 50 and 90 degrees F. Epoxy, and moisture-curing polyurethane coatings shall be applied only within the minimum and maximum temperatures recommended by the coating manufacturer. Moisture-curing polyurethane shall not be applied when the relative humidity is below 30 percent.

## 1.6 SAFETY AND HEALTH

Work shall comply with applicable Federal, State, and local laws and regulations, and with the ACCIDENT PREVENTION PLAN, including the Activity Hazard Analysis as specified in the CONTRACT CLAUSES. The Activity Hazard Analysis shall include analyses of the potential impact of painting operations on painting personnel and on others involved in and adjacent to the work zone.

### 1.6.1 Worker Exposures

Exposure of workers to hazardous chemical substances shall not exceed limits established by ACGIH-02, or as required by a more stringent applicable regulation.

### 1.6.2 Toxic Compounds

Toxic products having ineffective physiological warning properties, such as no or low odor or irritation levels, shall not be used unless approved by the Contracting Officer.

### 1.6.3 Training

Workers having access to an affected work area shall be informed of the contents of the applicable material data safety sheets (MDSS) and shall be informed of potential health and safety hazard and protective controls associated with materials used on the project. An affected work area is one which may receive mists and odors from the painting operations. Workers involved in preparation, painting and clean-up shall be trained in the safe handling and application, and the exposure limit, for each material which the worker will use in the project. Personnel having a need to use respirators and masks shall be instructed in the use and maintenance of such equipment.

### 1.6.4 Coordination

Work shall be coordinated to minimize exposure of building occupants, other Contractor personnel, and visitors to mists and odors from preparation, painting and clean-up operations.

## 2 PRODUCTS

### 2.1 PAINT

The term "paint" as used herein includes emulsions, enamels, paints, stains, varnishes, sealers, cement-emulsion filler, and other coatings, whether used

as prime, intermediate, or finish coat. Paint shall conform to the requirements listed in the painting schedules at the end of this section, except when the required amount of a material of a particular batch is 50 gallons or less, an approved first-line proprietary paint material with similar intended formulation, usage and color to that specified may be used. Additional requirements are as follows:

#### 2.1.1 Colors and Tints

Colors shall be as selected from manufacturer's standard colors, as indicated. Manufacturer's standard color is for identification of color only. Tinting of epoxy and urethane paints shall be done by the manufacturer. Stains shall conform in shade to manufacturer's standard color. The color of the undercoats shall vary slightly from the color of the next coat.

#### 2.1.2 Mildewcide and Insecticide

Paint specified for all coats applied to fabrics and vapor barrier jackets over insulation and surfaces in the dining hall crawl space shall contain a mildewcide that will not adversely affect the color, texture, or durability of the coating. The mildewcide shall be incorporated into the paint by the manufacturer and shall attain a surface disfigurement rating of 8 or greater when tested in accordance with [ASTM D 3273](#) and evaluated in accordance with [ASTM D 3274](#). Mercurial mildewcide shall not be used in interior paint. Insecticides shall not be used in paint.

#### 2.1.3 Lead

Paints containing lead in excess of 0.06 percent by weight of the total nonvolatile content (calculated as lead metal) shall not be used.

#### 2.1.4 Chromium

Paints containing zinc chromate or strontium chromate pigments shall not be used.

#### 2.1.5 Volatile Organic Compound (VOC) Content

Paints shall comply with applicable federal, state and local laws enacted to insure compliance with Federal Clean Air Standards and shall conform to the restrictions of the local air pollution control authority.

### 3 EXECUTION

#### 3.1 PROTECTION OF AREAS NOT TO BE PAINTED

Items not to be painted which are in contact with or adjacent to painted surfaces shall be removed or protected prior to surface preparation and painting operations. Items removed prior to painting shall be replaced when painting is completed. Following completion of painting, workmen skilled in the trades involved shall reinstall removed items. Surfaces contaminated by coating materials shall be restored to original condition.

### 3.2 SURFACE PREPARATION

Surfaces to be painted shall be clean and free of foreign matter before application of paint or surface treatments. Oil and grease shall be removed prior to mechanical cleaning. Cleaning shall be programmed so that dust and other contaminants will not fall on wet, newly painted surfaces. Exposed ferrous metals such as nail heads on or in contact with surfaces to be painted with water-thinned paints, shall be spot-primed with a suitable corrosion-inhibitive primer capable of preventing flash rusting and compatible with the coating specified for the adjacent areas.

#### 3.2.1 Ferrous Surfaces

Ferrous surfaces including those that have been shop-coated, shall be solvent-cleaned or detergent-washed in accordance with [SSPC SP 1](#). Surfaces that contain loose rust, loose mill scale, and other foreign substances shall be cleaned mechanically with hand tools according to [SSPC SP 2](#), power tools according to [SSPC SP 3](#) or by sandblasting according to [SSPC SP 7](#). Shop-coated ferrous surfaces shall be protected from corrosion by treating and touching up corroded areas immediately upon detection.

#### 3.2.2 Nonferrous Metallic Surfaces

Galvanized, aluminum and aluminum-alloy, lead, copper, and other nonferrous metal surfaces shall be solvent-cleaned or detergent-washed in accordance with [SSPC SP 1](#).

#### 3.2.3 Mastic-Type Surfaces

Mastic-type surfaces shall be prepared by removing foreign material.

#### 3.2.4 Previously Painted Surfaces

Previously painted surfaces shall be thoroughly cleaned of all grease, dirt, dust or other foreign matter. Blistering, cracking, flaking and peeling or other deteriorated coatings shall be removed. Slick surfaces shall be roughened. Damaged areas such as, but not limited to, nail holes, cracks, chips, and spalls shall be repaired with suitable material to match adjacent undamaged areas. Edges of chipped paint shall be feather edged and sanded smooth. Rusty metal surfaces shall be cleaned as per SSPC requirements. Solvent, mechanical, or chemical cleaning methods shall be used to provide surfaces suitable for painting. Chalk shall be removed so that when tested in accordance with [ASTM D 4214](#), the chalk resistance rating is no less than 8. New, proposed coatings shall be compatible with existing coatings. If existing surfaces are glossy, the gloss shall be reduced.

### 3.3 MIXING AND THINNING

When thinning is approved as necessary to suit surface, temperature, weather conditions, or application methods, paints may be thinned in accordance with the manufacturer's directions. When thinning is allowed, paints shall be thinned immediately prior to application with not more than 1 pint of suitable thinner per gallon. The use of thinner shall not relieve the Contractor from obtaining complete hiding, full film thickness, or required gloss. Thinning shall not cause the paint to exceed limits on volatile organic compounds. Paints of different manufacturers shall not be mixed.

### 3.3.1 Two-Component Systems

Two-component systems shall be mixed in accordance with manufacturer's instructions. Any thinning of the first coat to ensure proper penetration and sealing shall be as recommended by the manufacturer for each type of substrate.

## 3.4 APPLICATION

Painting practices shall comply with applicable federal, state and local laws enacted to insure compliance with Federal Clean Air Standards. Unless otherwise specified or recommended by the paint manufacturer, paint may be applied by brush or roller. At the time of application, paint shall show no signs of deterioration. Uniform suspension of pigments shall be maintained during application. Each coat of paint shall be applied so dry film shall be of uniform thickness and free from runs, drops, ridges, waves, pinholes or other voids, laps, brush marks, and variations in color, texture, and finish. Hiding shall be complete. Rollers for applying paints and enamels shall be of a type designed for the coating to be applied and the surface to be coated. Special attention shall be given to insure that all edges, corners, crevices, welds, and rivets receive a film thickness equal to that of adjacent painted surfaces.

### 3.4.1 Ventilation

Affected areas shall be ventilated during paint application so that workers exposure to chemical substances shall not exceed limits as established by ACGIH-02, or as required by a more stringent applicable regulation. Interior work zones having a volume of 10,000 cubic feet or less shall be ventilated at a minimum of two air exchanges per hour. Solvent vapors shall be exhausted outdoors, away from air intakes and workers. Return air inlets in the work zone shall be temporarily sealed before start of work until the coatings have dried.

### 3.4.2 Respirators

Operators and personnel in the vicinity of operating paint sprayers shall wear respirators.

### 3.4.3 First Coat

The first coat on plaster, gypsum wallboard, and other surfaces shall include repeated touching up of suction spots or overall application of primer or sealer to produce uniform color and gloss. Excess sealer shall be wiped off after each application. The first coat on both faces of wood doors shall be applied at essentially the same time. Paint shall overlay glass about 70 mils all around.

### 3.4.4 Timing

Surfaces that have been cleaned, pretreated, and otherwise prepared for painting shall be given a coat of the specified first coat as soon as practical after such pre-treatment has been completed, but prior to any deterioration of the prepared surface. Sufficient time shall elapse between successive coats to permit proper drying. This period shall be modified as necessary to suit weather conditions. Oil-based or oleoresinous solvent-type paints shall be considered dry for recoating when the paint feels firm,

does not deform or feel sticky under moderate pressure of the thumb, and the application of another coat of paint does not cause the undercoat to lift or lose adhesion. Manufacturer's instructions for application, curing and drying time between coats of two-component systems shall be followed.

### 3.4.5 Ferrous-Metal Primer

Primer for ferrous-metal shall be applied to ferrous surfaces to receive paint other than asphalt varnish prior to deterioration of the prepared surface. The semitransparent film applied to some pipes and tubing at the mill is not to be considered a shop coat, but shall be overcoated with the specified ferrous-metal primer prior to application of finish coats.

### 3.5 PIPE COLOR CODE MARKING

Piping shall be color code marked, labeled and banded as required by section 15190, IDENTIFICATION OF PIPING.

### 3.6 CLEANING

Cloths, cotton waste and other debris that might constitute a fire hazard shall be placed in closed metal containers and removed at the end of each day. Upon completion of the work, staging, scaffolding, and containers shall be removed from the site or destroyed in an approved manner. Paint and other deposits on adjacent surfaces shall be removed and the entire job left clean and acceptable.

### 3.7 PAINTING SCHEDULES

The following painting schedules identify the surfaces to be painted and prescribe the paint to be used and the number of coats of paint to be applied. Contractor options are indicated by -----or----- between optional systems or coats.

#### INTERIOR PAINTING SCHEDULE

| <u>Surface</u>                               | <u>First Coat</u> | <u>Second Coat</u> | <u>Third Coat</u> |
|--|-------------------|--------------------|-------------------|
| Ferrous metal<br>in concealed<br>damp spaces | CID A-A-1632      | None               | None              |

- END OF SECTION -

SECTION 13080

SEISMIC PROTECTION FOR MECHANICAL, ELECTRICAL EQUIPMENT  
07/95

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 A 36/A 36M   | (1996) Carbon Structural Steel  |
| ASTM A 53         | (1996) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded, and Seamless  |
| ASTM A 153        | (1996) Zinc Coating (Hot-Dip) on Iron and Steel Hardware  |
| ASTM A 307        | (1994) Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength  |
| ASTM A 500        | (1993) Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes                                  |
| ASTM A 563        | (1994) Carbon and Alloy Steel Nuts  |
| ASTM A 603        | (1994) Zinc-Coated Steel Structural Wire Rope   |
| ASTM A 653/A 653M | (1996) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process                |
| ASTM E 488        | (1990) Strength of Anchors in Concrete and Masonry Elements   |
| ASTM E 580        | (1991) Application of Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels in Areas Requiring Seismic Restraint |

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

|              |   |
|--------------|---|
| ASME B18.2.1 | (1981; Supple 1990; R 1992) Square and Hex Bolts and Screws (Inch Series) |
| ASME B18.2.2 | (1987; R 1993) Square and Hex Nuts (Inch Series)                          |

INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS (ICBO)

|         |                                       |
|---------|---------------------------------------|
| ICBO-01 | (1997) Uniform Building Code (3 Vol.) |
|---------|---------------------------------------|

SHEET METAL & AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION  
(SMACNA)

SMACNA-12 (1991; Appx E, 1993) Seismic Restraint Manual  
Guidelines for Mechanical Systems

UNDERWRITERS LABORATORIES (UL)

UL 1570 (1995) Fluorescent Lighting Fixtures

UL 1571 (1991; Rev thru Mar 95) Incandescent Lighting  
Fixtures

## 1.2 SYSTEM DESCRIPTION

### 1.2.1 General

The requirements for seismic protection measures described in this section shall be applied to mechanical/electrical equipment and systems specified herein. This facility shall be designed as being in seismic zone 1; no other zone values shall be used to establish bracing requirements. Lateral support against earthquake induced forces shall be accomplished by positive attachments without consideration of friction resulting from gravity loads.

### 1.2.2 Mechanical/Electrical Systems

The following mechanical and electrical systems shall be installed as required on the drawings and other sections of these specifications and shall be seismically protected in accordance with this specification:

All new and existing piping to remain in the dining hall piping crawl space shall be in accordance with this specification.

### 1.2.3 Piping Systems

The bracing for the following mechanical/electrical equipment and systems shall be developed by the Contractor in accordance with the requirements of this specification.

### 1.2.4 Pipes and Ducts Requiring No Special Seismic Restraints

Seismic restraints may be omitted from the following installations:

- a. Gas piping less than 1 inch inside diameter.
- b. Crawl space piping less than 1-1/4 inches inside diameter.
- c. Electrical conduit less than 2-1/2 inches inside diameter.
- d. Piping suspended by individual hangers 12 inches or less in length from the top of pipe to the bottom of the supporting structural member where the hanger is attached, except as noted below.

In exemption d, all hangers shall meet the length requirements. If the length requirement is exceeded by one hanger in the run, the entire run shall be braced.

### 1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

#### SD-01 Data

Bracing and Coupling; GA.

Copies of the design calculations with the detail drawings. Calculations shall be stamped by a registered engineer and shall verify the capability of structural members to which bracing is attached for carrying the load from the brace.

#### SD-04 Drawings

Bracing and Coupling; GA.

Detail drawings along with catalog cuts, templates, and erection and installation details, as appropriate, for the items listed. Submittals shall be complete in detail; shall indicate thickness, type, grade, class of metal, and dimensions; and shall show construction details, reinforcement, anchorage, and installation with relation to the building construction.

## 2 PRODUCTS

### 2.1 MATERIALS AND EQUIPMENT

Materials and equipment shall conform to the requirements specified below:

#### 2.1.1 Bolts and Nuts

Square head and hex head bolts, and heavy hexagon nuts, ASME B18.2.1, ASME B18.2.2, or ASTM A 307 for bolts and ASTM A 563 for nuts. Bolts and nuts used underground and/or exposed to weather shall be galvanized in accordance with ASTM A 153.

#### 2.1.2 Sway Bracing

Material used for members listed on the drawings, shall be structural steel conforming with the following:

- a. Plates, rods, and rolled shapes, ASTM A 36/A 36M.
- b. Wire rope, ASTM A 603.
- c. Tubes, ASTM A 500, Grade B.
- d. Pipes, ASTM A 53, Type E or S, Grade B.
- e. Light gauge angles, less than 1/4 inch thickness, ASTM A 653/A 653M.

### 3 EXECUTION

#### 3.1 BRACING AND COUPLING

Bracing and coupling shall conform to the arrangements shown. Provisions of this paragraph apply to all piping within a 5-foot line around outside of building unless buried in the ground. Piping grouped for support on trapeze-type hangers shall be braced at the same intervals as determined by the smallest diameter pipe of the group. No trapeze-type hanger shall be secured with less than two ½-inch bolts. Bracing rigidly attached to pipe flanges, or similar, shall not be used where it would interfere with thermal expansion of piping.

#### 3.2 SPREADERS

Spreaders shall be provided between adjacent piping runs to prevent contact during seismic activity whenever pipe or insulated pipe surfaces are less than 4 inches apart. Spreaders shall be applied at same interval as sway braces at an equal distance between the sway braces. If rack type hangers are used where the pipes are restrained from contact by mounting to the rack, spreaders are not required for pipes mounted in the rack. Spreaders shall be applied to surface of bare pipe and over insulation on insulated pipes utilizing high-density inserts and pipe protection shields in accordance with the requirements of Section 15080 THERMAL INSULATION FOR MECHANICAL SYSTEMS.

#### 3.3 ANCHOR BOLTS

##### 3.3.1 Expansion Anchors

Expansion anchors shall not be used unless test data in accordance with ASTM E 488 has been provided to verify the adequacy of the specific anchor and application. The expansion anchor size shall be not less than that required in paragraph Minimum Bolt Sizes, Cast-In-Place Anchor Bolts. Expansion anchors shall be installed in accordance with the manufacturer's recommendations. The allowable forces shall be adjusted for the spacing between anchor bolts and the distance between the anchor bolt and the nearest edge, as specified by the manufacturer.

##### 3.3.1.1 General Testing

Expansion anchors shall be tested in place after installation. The tests shall occur not more than 24 hours after installation of the anchor and shall be conducted by an independent testing agency; testing shall be performed on random anchor bolts as described below.

##### 3.3.1.2 Torque Wrench Testing

Torque wrench testing shall be done on not less than 25 percent of the total installed expansion anchors and at least one anchor for every seismic brace equipment containing more than two anchors. The test torque shall equal the minimum required installation torque as required by the bolt manufacturer. Torque wrenches shall be calibrated at the beginning of each day the torque tests are performed. Torque wrenches shall be recalibrated for each bolt diameter whenever tests are run on bolts of various diameters. The applied torque shall be between 20 and 100 percent of wrench capacity. The test torque shall be reached within one half turn of the nut, except for 3/8 inch

sleeve anchors which shall reach their torque by one quarter turn of the nut. If any anchor fails the test, similar anchors not previously tested shall be tested until 20 consecutive anchors pass. Failed anchors shall be retightened and re-tested to the specified torque; if the anchor still fails the test it shall be replaced.

### 3.4 SWAY BRACES FOR PIPING

Sway braces shall be provided to prevent movement of the pipes under seismic loading. Braces shall be provided in both the longitudinal and transverse directions, relative to the axis of the pipe. The bracing shall not interfere with thermal expansion requirements for the pipes as described in other sections of these specifications.

#### 3.4.1 Transverse Sway Bracing

Transverse sway bracing for steel and copper pipe shall be provided at intervals not to exceed those given in the tabulation below as modified for each seismic zone. All runs shall have a minimum of two transverse braces. Transverse sway bracing for pipes of materials other than steel and copper shall be provided at intervals not to exceed the hanger spacing as specified in Section 15400 PLUMBING, GENERAL PURPOSE.

#### 3.4.2 Longitudinal Sway Bracing

Longitudinal sway bracing shall be provided at 40-foot intervals except when the location of sway braces is shown on the drawings for the particular piping system. All runs shall have one longitudinal brace minimum. Sway braces shall be constructed in accordance with the drawings. Branch lines, walls, or floors shall not be used as sway braces.

#### 3.4.3 Anchor Rods, Angles, and Bars

Anchor rods, angles, and bars shall be bolted to either pipe clamps or pipe flanges at one end and cast-in-place concrete or masonry insert or clip angles bolted to the steel structure on the other end. Rods shall be solid metal or pipe as specified below. Anchor rods, angles, and bars shall not exceed lengths given in the tabulation below.

#### 3.4.4 Maximum Length for Anchor Braces

| Type      | Size (Inches)       | Maximum Length* (Feet/Inches) | Allowable Loads* (kips) |
|-----------|---------------------|-------------------------------|-------------------------|
| Angles    | 1-1/2 x 1-1/2 x 1/4 | 4-10                          | 5.7                     |
|           | 2 x 2 x 1/4         | 6-6                           | 7.8                     |
|           | 2-1/2 x 1-1/2 x 1/4 | 8-0                           | 9.8                     |
|           | 3 x 2-1/2 x 1/4     | 8-10                          | 10.8                    |
|           | 3 x 3 x 1/4         | 9-10                          | 11.9                    |
| Rods      | 3/4                 | 3-1                           | 3.7                     |
|           | 7/8                 | 3-8                           | 5.0                     |
| Flat Bars | 1-1/2 x 1/4         | 1-2                           | 3.1                     |
|           | 2 x 1/4             | 1-2                           | 4.1                     |
|           | 2 x 3/8             | 1-9                           | 6.2                     |

FT SILL STARSHIP BARRACKS

|             |       |      |     |
|-------------|-------|------|-----|
| Pipes (40S) | 1     | 7-0  | 4.1 |
|             | 1-1/4 | 9-0  | 5.5 |
|             | 1-1/2 | 10-4 | 6.6 |
|             | 2     | 13-1 | 8.9 |

\*Based on the slenderness ratio of  $l/r = 200$  and **ASTM A 36/A 36M** steel, where  $l$  is the length of the brace and  $r$  is the least radius of gyration of the brace.

#### 3.4.5 Clamps and Hangers

Clamps or hangers on un-insulated pipes shall be applied directly to pipe. Insulated piping shall have clamps or hangers applied over insulation in accordance with Section **15080** THERMAL INSULATION FOR MECHANICAL SYSTEMS.

#### 3.4.6 Bolts

Bolts used for attachment of anchors to pipe and structure shall be not less than  $\frac{1}{2}$ -inch diameter.

- End Of Section -

## SECTION 15080

THERMAL INSULATION FOR MECHANICAL SYSTEMS  
03/98

## 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. At the discretion of the government, the manufacturer of any material supplied will be required to furnish test reports pertaining to any of the tests necessary to assure compliance with the standard or standards referenced in this specification.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

|                   |   |
|-------------------|---|
| ASTM A 167        | (1996) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip           |
| ASTM A 580/A 580M | (1995a) Stainless and Steel Wire  |
| ASTM B 209        | (1996) Aluminum and Aluminum-Alloy Sheet and Plate  |
| ASTM C 195        | (1995) Mineral Fiber Thermal Insulating Cement  |
| ASTM C 449/C 449M | (1995) Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement              |
| ASTM C 533        | (1995) Calcium Silicate Block and Pipe Thermal Insulation                                   |
| ASTM C 534        | (1994) Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form |
| ASTM C 547        | (1995) Mineral Fiber Pipe Insulation  |
| ASTM C 552        | (1991) Cellular Glass Thermal Insulation  |
| ASTM C 553        | (1992) Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications  |
| ASTM C 612        | (1993) Mineral Fiber Block and Board Thermal Insulation                                     |
| ASTM C 647        | (1995) Properties and Tests of Mastics and Coating Finishes for Thermal Insulation          |
| ASTM C 795        | (1992) Thermal Insulation for Use in Contact With Austenitic Stainless Steel                |

|             |  |
|-------------|--|
| ASTM C 871  | (1995) Chemical Analysis of Thermal Insulation Materials for Leachable Chloride, Fluoride, Silicate, and Sodium Ions |
| ASTM C 916  | (1985; Rev 1996) Adhesives for Duct Thermal Insulation   |
| ASTM C 920  | (1995) Elastomeric Joint Sealants  |
| ASTM C 921  | (1989 R; 1996) Determining the Properties of Jacketing Materials for Thermal Insulation                              |
| ASTM C 1126 | (1996) Specification for Faced or Unfaced Rigid Cellular Phenolic Thermal Insulation                                 |
| ASTM D 3278 | (1996) Test Methods for Flash Point of Liquids by Small Scale & Closed-Cup Apparatus                                 |
| ASTM E 84   | (1996a) Surface Burning Characteristics of Building Materials  |
| ASTM E 96   | (1995) Water Vapor Transmission of Materials   |

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY (MSS)

|           |  |
|-----------|--|
| MSS SP-69 | (1996) Pipe Hangers and Supports - Selection and Application |
|-----------|--|

MIDWEST INSULATION CONTRACTORS ASSOCIATION (MICA)

|         |  |
|---------|--|
| MICA-01 | (1993) National Commercial & Industrial Insulation Standards |
|---------|--|

## 1.2 SYSTEM DESCRIPTION

Field-applied insulation and accessories on mechanical systems shall be as specified herein; factory-applied insulation is specified under the piping, duct or equipment to be insulated. Field applied insulation materials required for use on Government-furnished items as listed in the SPECIAL CONTRACT REQUIREMENTS shall be furnished and installed by the Contractor.

## 1.3 GENERAL QUALITY CONTROL

### 1.3.1 Standard Products

Materials shall be the standard products of manufacturers regularly engaged in the manufacture of such products and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening.

### 1.3.2 Installer's Qualifications

Qualified installers shall have successfully completed three or more similar type jobs within the last 5 years.

### 1.3.3 Surface Burning Characteristics

Unless otherwise specified, insulation not covered with a jacket shall have a flame spread rating no higher than 75 and a smoke developed rating no higher than 150. The outside surface of insulation systems which are located in air plenums, in ceiling spaces, and in attic spaces shall have a flame spread rating no higher than 25 and a smoke developed rating no higher than 50. Insulation materials located exterior to the building perimeter are not required to be fire-rated. Flame spread and smoke developed ratings shall be determined by ASTM E 84. Insulation shall be tested in the same density and installed thickness as the material to be used in the actual construction. Jackets shall comply with the flame spread and smoke developed ratings of 25/50 as determined by ASTM E 84.

### 1.3.4 Identification of Materials

Packages or standard containers of insulation, jacket material, cements, adhesives, and coatings delivered for use, and samples required for approval shall have manufacturer's stamp or label attached giving the name of the manufacturer and brand, and a description of the material.

## 1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-14 Samples

Thermal Insulation Materials; GA.

A complete list of materials, including manufacturer's descriptive technical literature, performance data, catalog cuts, and installation instructions. The product number, k-value, thickness and furnished accessories for each mechanical system requiring insulation shall be included. Materials furnished under this section of the specification shall be submitted at one time.

After approval of materials and prior to applying insulation a booklet shall be prepared and submitted for approval. The booklet shall contain marked-up MICA-01 plates (or detail drawings showing the insulation material and insulating system) for each PIPE INSULATION required to be insulated per this specification. The MICA plates shall be marked up showing the materials to be installed in accordance with the requirements of this specification for the specific insulation application. The Contractor shall submit all MICA Plates required to show the entire insulating system, including Plates required to show insulation penetrations, vessel bottom and top heads, legs, and skirt insulation as applicable. If the Contractor elects to submit detailed drawings instead of marked-up MICA Plates, the detail drawings shall show cut-away, section views, and details indicating each component of the insulation system and showing provisions for insulating jacketing, and sealing portions of the equipment. For each type of insulation installation on the drawings, provide a label which identifies each component in the installation (i.e., the DUCT INSULATION, insulation, adhesive, vapor retarder, jacketing, tape, mechanical fasteners, etc.) Indicate insulation by type and manufacturer. Three copies of the booklet

shall be submitted at the job site to the Contracting Officer. One copy of the approved booklet shall remain with the insulation Contractor's display sample and two copies shall be provided for Government use.

After approval of materials actual sections of installed systems properly insulated in accordance with the specification requirements shall be displayed. Such actual sections must remain accessible to inspection throughout the job and will be reviewed from time to time for controlling the quality of the work throughout the construction site. Each material used shall be identified, by indicating on an attached sheet the specification requirement for the material and the material by each manufacturer intended to meet the requirement. Display sample sections will be inspected at the job site by the Contracting Officer. Approved display sample sections shall remain on display at the job site during the construction period. Upon completion of construction, the display sample sections will be closed and sealed.

Pipe Insulation Display Sections: Display sample sections shall include as a minimum an elbow or tee, a valve, dielectric unions and flanges, a hanger with protection shield and insulation insert, or dowel as required, at support point, method of fastening and sealing insulation at longitudinal lap, circumferential lap, butt joints at fittings and on pipe runs, and terminating points for each type of pipe insulation used on the job, and for hot pipelines and cold pipelines, both interior and exterior, even when the same type of insulation is used for these services.

## 1.5 STORAGE

Materials shall be delivered in the manufacturer's unopened containers. Materials delivered and placed in storage shall be provided with protection from weather, humidity, dirt, dust and other contaminants. Insulation material and supplies that become dirty, dusty, wet, or otherwise contaminated may be rejected by the Contracting Officer.

## 2 PRODUCTS

### 2.1 GENERAL MATERIALS

Materials shall be compatible and shall not contribute to corrosion, soften, or otherwise attack surfaces to which applied in either the wet or dry state. Materials to be used on stainless steel surfaces shall meet [ASTM C 795](#) requirements. Materials shall be asbestos free and conform to the following:

#### 2.1.1 Adhesives

##### 2.1.1.1 Mineral Fiber Insulation Cement

Cement shall be in accordance with [ASTM C 195](#).

##### 2.1.1.2 Lagging Adhesive

Lagging adhesives shall be nonflammable and fire-resistant and shall have flame spread and smoke developed ratings of 25/50 when measured in accordance with [ASTM E 84](#). Adhesives shall be either the Class 1 or Class 2 type as defined below. Class 1 adhesive shall be pigmented white and be suitable for bonding fibrous glass cloth to faced and unfaced fibrous glass

insulation board; for bonding cotton brattice cloth to faced and unfaced fibrous glass insulation board; for sealing edges of and bounding fibrous glass tape to joints of fibrous glass board; or for bonding lagging cloth to thermal insulation. Class 2 adhesive shall be pigmented white and be suitable for attaching fibrous glass insulation to metal surfaces. Lagging adhesives shall be applied in strict accordance with the manufacturer's recommendations.

#### 2.1.2 Contact Adhesive

Adhesive may be dispersed in a non-halogenated organic solvent with a low flash point (flash point less than minus 25 degrees F when tested in accordance with [ASTM D 3278](#)) or, dispersed in a nonflammable organic solvent which shall not have a fire point below 200 degrees F. The adhesive shall not adversely affect, initially or in service, the insulation to which it is applied, nor shall it cause any corrosive effect on metal to which it is applied. Any solvent dispersing medium or volatile component of the adhesive shall have no objectionable odor and shall not contain any benzene or carbon tetrachloride. The dried adhesive shall not emit nauseous, irritating, or toxic volatile matters or aerosols when the adhesive is heated to any temperature up to 212 degrees F. The adhesive shall be nonflammable and fire resistant.

#### 2.1.3 Caulking

[ASTM C 920](#), Type S, Grade NS, Class 25, Use A.

#### 2.1.4 Corner Angles

Nominal 0.016-inch aluminum 1 x 1 inch with factory applied kraft backing. Aluminum shall be [ASTM B 209](#), Alloy 3003, 3105, or 5005.

#### 2.1.5 Finishing Cement

Mineral fiber hydraulic-setting thermal insulating cement [ASTM C 449/C 449M](#).

#### 2.1.6 Fibrous Glass Cloth and Glass Tape

Fibrous glass cloth and glass tape shall have flame spread and smoke developed ratings of no greater than 25/50 when measured in accordance with [ASTM E 84](#). Fibrous glass cloth and tape shall be 20 x 20 maximum size mesh. Tape shall be 4-inch wide rolls. Class 3 tape shall be 4.5 ounces per square yard.

#### 2.1.7 Staples

Outward clinching type [ASTM A 167](#), Type 304 or 316 stainless steel.

#### 2.1.8 Jackets

[ASTM C 921](#), Type I, maximum moisture vapor transmission 0.02 perms, minimum puncture resistance 50 Beach units on all surfaces except concealed ductwork, where a minimum puncture resistance of 25 Beach units is acceptable. Minimum tensile strength, 35 pound/inch width. [ASTM C 921](#), Type II, minimum puncture resistance 25 Beach units, tensile strength minimum 20 pound/inch width. Jackets used on insulation exposed in finished areas shall have white finish suitable for painting without sizing.

#### 2.1.8.1 White Vapor Retarder ASJ (All Service Jacket)

For use on hot/cold pipes vapor retarder jackets used on insulation shall have white finish suitable for painting without sizing.

#### 2.1.8.2 Polyvinyl Chloride (PVC) Jackets

Polyvinyl chloride (PVC) jacket and fitting covers shall have high impact strength, UV resistant rating or treatment and moderate chemical resistance with minimum thickness 0.030 inch. Insulation under PVC jacket shall meet jacket manufacturer's written recommendations.

#### 2.1.9 Vapor Retarder Coating

The vapor retarder coating shall be fire and water resistant and appropriately selected for either outdoor or indoor service. Color shall be white. The water vapor permeance of the compound shall not exceed 0.05 perm and shall be determined according to procedure B of [ASTM E 96](#) utilizing apparatus described in [ASTM E 96](#). The coating shall be a nonflammable, fire resistant type. The flash point of the compound shall not be less than 80 degrees F and shall be determined in accordance with [ASTM D 3278](#). All other application and service properties shall be in accordance with [ASTM C 647](#).

#### 2.1.10 Wire

Soft annealed [ASTM A 580/A 580M](#) Type 302, 304 or 316 stainless steel, 16 or 18 gauge.

### 2.2 PIPE INSULATION MATERIALS

Pipe insulation materials shall be as follows:

#### 2.2.1 Aboveground Cold Pipeline

Insulation for minus 30 degrees to plus 60 degrees F shall be as follows:

##### 2.2.1.1 Cellular Glass

[ASTM C 552](#), Type II, and Type III.

##### 2.2.1.2 Flexible Cellular Insulation

[ASTM C 534](#), Type I or II. Type II shall have vapor retarder skin on both sides of the insulation.

##### 2.2.1.3 Phenolic Insulation

[ASTM C 1126](#), Type III. A maximum allowable leachable chloride content shall comply with [ASTM C 795](#) when tested in accordance with [ASTM C 871](#).

#### 2.2.2 Aboveground Hot Pipeline

For aboveground hot pipeline above 60 degrees F insulation the following requirements shall be met.

#### 2.2.2.1 Mineral Fiber

ASTM C 547, Class 1 or Class 2 as required for the operating temperature range.

#### 2.2.2.2 Calcium Silicate

ASTM C 533, Type I indoor only, or outdoors above 250 degrees F pipe temperature.

#### 2.2.2.3 Cellular Glass

ASTM C 552, Type II and Type III.

#### 2.2.2.4 Flexible Cellular Insulation

ASTM C 534, Type I or II to 200 degrees F service.

#### 2.2.2.5 Phenolic Insulation

ASTM C 1126 Type III to 250 F service. A maximum allowable leachable chloride content shall comply with ASTM C 795 when tested in accordance with ASTM C 871.

### 3 EXECUTION

#### 3.1 APPLICATION - GENERAL

##### 3.1.1 Installation

Except as otherwise specified, material shall be installed in accordance with the manufacturer's written instructions. Insulation materials shall not be applied until tests specified in other sections of this specification are completed. Material such as rust, scale, dirt and moisture shall be removed from surfaces to receive insulation. Insulation shall be kept clean and dry. Insulation shall not be removed from its shipping containers until the day it is ready to use and shall be returned to like containers or equally protected from dirt and moisture at the end of each workday. Insulation that becomes dirty shall be thoroughly cleaned prior to use. If insulation becomes wet or if cleaning does not restore the surfaces to like new condition, the insulation will be rejected, and shall be immediately removed from the job site. Joints shall be staggered on multi layer insulation. Mineral fiber thermal insulating cement shall be mixed with demineralized water when used on stainless steel surfaces. Insulation, jacketing and accessories shall be installed in accordance with MICA-01 standard plates except where modified herein or on the drawings.

##### 3.1.2 Pipe Labelling

Painting shall be labeled as specified in Section 15190 IDENTIFICATION OF PIPING.

##### 3.1.3 Flexible Cellular Insulation

Flexible cellular insulation shall be installed with seams and joints sealed with a contact adhesive. Flexible cellular insulation shall not be used on surfaces greater than 200 degrees F. Seams shall be staggered when applying

multiple layers of insulation. Insulation exposed to weather and not shown to have jacketing shall be protected with two coats of UV resistant finish as recommended by the manufacturer after the adhesive is dry.

#### 3.1.4 Welding

No welding shall be done on piping without written approval of the Contracting Officer.

#### 3.1.5 Pipes which Require Insulation

Insulation is required, unless stated otherwise, on all domestic hot, cold and domestic hot water recirculation pipes.

### 3.2 PIPE INSULATION INSTALLATION

#### 3.2.1 Pipe Insulation

##### 3.2.1.1 General

Pipe insulation shall be installed on above ground hot and cold pipeline systems as specified below to form a continuous thermal retarder, including straight runs, fittings and appurtenances unless specified otherwise. Installation shall be with full length units of insulation and using a single cut piece to complete a run. Cut pieces or scraps abutting each other shall not be used. Pipe insulation shall be omitted on the following:

- a. Sanitary drain and vent lines.
- b. Unions in pipe above 60 degrees F.
- c. Strainers in pipe above 60 degrees F.
- d. Check valves in pipe above 60 degrees F.
- e. Calibrated balancing valves in pipe above 60 degrees F.

##### 3.2.1.2 Pipes Passing Through Sleeves

- a. Pipe insulation shall be continuous through the sleeve.
- b. An aluminum jacket with factory applied moisture retarder shall be provided over the insulation wherever penetrations require sealing, such as at floor penetrations.
- c. Where penetrating walls, the aluminum jacket shall extend 2 inches beyond either side of the wall and shall be secured on each end with a band.
- d. Where penetrating floors, the aluminum jacket shall extend from a point below the backup material to a point 10 inches above the floor with one band at the floor and one not more than 1 inch from the end of the aluminum jacket.
- e. Where penetrating exterior walls, the aluminum jacket required for pipe exposed to weather shall continue through the sleeve to a point 2 inches beyond the interior surface of the wall.

### 3.2.1.3 Pipes Passing Through Hangers

- a. Insulation, whether hot or cold application, shall be continuous through hangers. All horizontal pipes 2 inches and smaller shall be supported on hangers with the addition of a Type 40 protection shield and high density insulation insert to protect the insulation in accordance with [MSS SP-69](#). Whenever piping pass through hangars insulation inserts as specified below shall be installed.
- b. Horizontal pipes larger than 2 inches at 60 degrees F and above shall be supported on hangers in accordance with [MSS SP-69](#), and Section 15400 PLUMBING, GENERAL PURPOSE. Insulation inserts shall also be provided at point where piping passes through hangers.
- c. Horizontal pipes below 60 degrees F shall be supported on hangers with the addition of a Type 40 protection shield in accordance with [MSS SP-69](#). An insulation insert of cellular glass or calcium silicate shall be installed above each shield. The insert shall cover not less than the bottom 180 degree arc of the pipe. Inserts shall be the same thickness as the insulation, and shall extend 2 inches on each end beyond the protection shield. The insulation jacket shall be continuous over the insulation insert.
- d. Vertical pipes shall be supported with either Type 8 or Type 42 riser clamps with the addition of two Type 40 protection shields in accordance with [MSS SP-69](#) covering the 360 degree arc of the insulation. An insulation insert of cellular glass or calcium silicate shall be installed between each shield and the pipe. The insert shall cover the 360 degree arc of the pipe. Inserts shall be the same thickness as the insulation, and shall extend 2 inches on each end beyond the protection shield. The insulation jacket shall be continuous insulation insert. The vertical weight of the pipe shall be supported with hangers located in a horizontal section of the pipe. These hangers shall be insulated and the insulation jacket sealed as indicated herein for anchors in a similar service.
- e. Inserts shall be covered with a jacket material of the same appearance and quality as the adjoining pipe insulation jacket, shall overlap the adjoining pipe jacket 1-1/2 inches, and shall be sealed as required for the pipe jacket. The jacket material used to cover inserts in flexible cellular insulation shall conform to [ASTM C 921](#), Type 1, and is allowed to be of a different material than the adjoining insulation material.

### 3.2.1.4 Flexible Cellular Pipe Insulation

Flexible cellular pipe insulation shall be tubular form for pipe sizes 6 inches and less. Seams shall be staggered when applying multiple layers of insulation. Sweat fittings shall be insulated with miter-cut pieces the same size as on adjacent piping. Screwed fittings shall be insulated with sleeved fitting covers fabricated from miter-cut pieces and shall be overlapped and sealed to the adjacent pipe insulation.

### 3.2.2 Aboveground Cold Pipelines

The following shall be included for above ground cold pipelines minus 30 degrees to plus 60 degrees F:

- a. Domestic cold water and chilled domestic cold water.

#### 3.2.2.1 Insulation Thickness

Insulation thickness for cold pipelines shall be determined using Table I.

Table I - Cold Piping Insulation Thickness  
Pipe Size (inches)

| Type of Service               | Material | Runouts up to 2 in* | 1 in & less | 1.25 - 2 in | 2.5 - 4 in | 5 - 6 in | 8 in & larger |
|-------------------------------|----------|---------------------|-------------|-------------|------------|----------|---------------|
| domestic cold & chilled water | CG       | 1.5                 | 1.5         | 1.5         | 1.5        | 1.5      | 1.5           |
|                               | FC       | 3/8                 | 3/8         | 3/8         | 3/8        | 3/8      | 3/8           |

LEGEND:

- CG - Cellular Glass
- FC - Flexible Cellular

#### 3.2.2.2 Insulation for Straight Runs (Cellular Glass)

- a. Insulation shall be applied to the pipe with joints tightly butted. The ends of fibrous insulation shall be sealed off with vapor retarder coating at intervals not to exceed 15 feet.
- b. Longitudinal laps of the jacket material shall overlap not less than 1-1/2 inches. Butt strips 3 inches wide shall be provided for circumferential joints.
- c. Laps and butt strips shall be secured with adhesive and stapled on 4-inch centers if not factory self-sealing.
- d. Factory self-sealing lap systems may be used when the ambient temperature is between 40 degrees and 120 degrees F during installation. The lap system shall be installed in accordance with manufacturer's recommendations. Stapler shall be used only if specifically recommended by the manufacturer. Where gaps occur, the section shall be replaced or the gap repaired by applying adhesive under the lap and then stapling.
- e. All Staples, including those used to repair factory self-seal lap systems, shall be coated with a vapor retarder coating. All seams, except those on factory self-seal systems shall be coated with vapor retarder coating.
- f. Breaks and punctures in the jacket material shall be patched by wrapping a strip of jacket material around the pipe and securing it with adhesive, stapling, and coating with vapor retarder coating. The patch shall extend not less than 1-1/2 inches past the break.

- g. At penetrations such as thermometers, the voids in the insulation shall be filled and sealed with vapor retarder coating.

#### 3.2.2.3 Insulation for Fittings and Accessories

- a. Pipe insulation shall have ends thoroughly coated with a vapor retarder coating not less than 6 inches from each flange, union, valve, anchor, or fitting in all directions.
- b. Precut, preformed insulation for placement over fittings, flanges, unions, valves, anchors, and mechanical couplings shall be used. Precut, preformed insulation shall exhibit the same properties as the adjoining pipe insulation. Where precut/preformed is unavailable, rigid preformed pipe insulation sections may be segmented into the shape required. Insulation of the same thickness and conductivity as the adjoining pipe insulation shall be used. If nesting size insulation is used, the insulation shall be overlapped 2 inches or one pipe diameter. Loose fill mineral fiber or insulating cement shall be used to fill the voids. Elbows insulated using segments shall not have less than 3 segments per elbow.
- c. Upon completion of installation of insulation on flanges, unions, valves, anchors, fittings and accessories, terminations and insulation not protected by factory vapor retarder jackets or PVC fitting covers shall be protected with two coats of vapor retarder coating with a minimum total thickness of 1/16 inch, applied with glass tape embedded between coats. Tape seams shall overlap 1 inch. The coating shall extend out onto the adjoining pipe insulation 2 inches.
- d. Anchors attached directly to the pipe shall be insulated for a sufficient distance to prevent condensation but not less than 6 inches from the insulation surface.
- e. Insulation shall be marked showing the location of unions and strainers.

#### 3.2.2.4 Optional PVC Fitting Covers

At the option of the Contractor, premolded, one or two piece PVC fitting covers may be used in lieu of the vapor retarder and embedded glass tape. Factory premolded insulation segments shall be used under the fitting covers for elbows. Insulation segments shall be the same thickness as adjoining pipe insulation and the insulation shall be protected with one coat of vapor retarder coating under the PVC cover. The covers shall be secured by PVC vapor retarder tape, adhesive, seal-welding or with tacks made for securing PVC covers. Seams in the cover, and tacks and laps to adjoining pipe insulation jacket, shall be sealed with vapor retarder tape to ensure that the assembly has a continuous vapor seal.

#### 3.2.3 Aboveground Hot Pipelines

For hot pipelines above 60 degrees F the following shall be included:

- a. Domestic hot water and domestic hot water recirculation piping.

3.2.3.1 Insulation Thickness

Insulation thickness for hot pipelines shall be determined using Table II.

LEGEND:

- PF - Phenolic Foam
- CG - Cellular Glass
- CS - Calcium Silicate
- MF - Mineral Fiber
- FC - Flexible Cellular

Table II - Hot Piping Insulation Thickness  
Pipe Size (inches)

| Type of Service (degrees F) larger                           | Material | Runouts up to 2 in | 1 in & less | 1.25 - 2 in | 2.5 - 4 in | 5 - 6 in | 8 in & |
|--|----------|--------------------|-------------|-------------|------------|----------|--------|
| Hot domestic water supply & recirculating system (200 F max) | CG       | 1.5                | 1.5         | 1.5         | 1.5        | 1.5      | 1.5    |
|  | FC       | 0.5                | 1.0         | 1.0         | 1.5        | 1.5      | 1.5    |
|  | PF       | 0.5                | 1.0         | 1.0         | 1.0        | 1.0      | 1.0    |
|  | MF       | 0.5                | 1.0         | 1.0         | 1.5        | 1.5      | 1.5    |

3.2.3.2 Jacket for Insulated Pipe

Insulation shall be covered, in accordance with manufacturer's recommendations, with a factory applied Type II jacket or field applied aluminum where required or seal welded PVC.

3.2.3.3 Insulation for Straight Runs

- a. Insulation shall be applied to the pipe with joints tightly butted.
- b. Longitudinal laps of the jacket material shall overlap not less than 1-1/2 inches, and butt strips 3 inches wide shall be provided for circumferential joints.
- c. Laps and butt strips shall be secured with adhesive and stapled on 4 inch centers if not factory self-sealing. Adhesive may be omitted where pipe is concealed.
- d. Factory self-sealing lap systems may not be used.
- e. Breaks and punctures in the jacket material shall be patched by wrapping a strip of jacket material around the pipe and be secured with adhesive and stapled on 4 inch centers if not factory self-sealing. Adhesive may be omitted where pipe is concealed. Patch shall extend not less than 1-1/2 inches past the break.
- f. Flexible cellular pipe insulation shall be installed by slitting tubular sections and applying onto piping or tubing. Alternately, whenever possible, slide un-slit sections over the open ends of

pipng or tubing. All seams and butt joints shall be secured and sealed with adhesive. When using self-seal products only the butt joints shall be secured with adhesive. Insulation shall be pushed on the pipe, never pulled. Stretching of insulation may result in open seams and joints. All edges shall be clean cut. Rough or jagged edges of the insulation shall not be permitted. Proper tools such as sharp knives shall be used.

#### 3.2.3.4 Insulation for Fittings and Accessories

- a. The run of the line pipe insulation shall have the ends brought up to the item.
- b. Insulation of the same thickness and conductivity as the adjoining pipe insulation, either premolded or segmented, shall be placed around the item abutting the adjoining pipe insulation, or if nesting size insulation is used, overlapping 2 inches or one pipe diameter. Loose fill mineral fiber or insulating cement shall be used to fill the voids. Insulation for elbows less than 3 inch size shall be premolded. Insulation for elbows 3 inch size and larger shall be either premolded or segmented. Elbows insulated using segments shall have not less than 3 segments per elbow. Insulation may be wired or taped on until finish is applied.
- c. Upon completion of installation of insulation on flanges, unions, valves, anchors, fittings and accessories, terminations and insulation not protected by factory vapor retarder jackets or PVC fitting covers shall be protected with two coats of Class 1 adhesive applied with glass tape embedded between coats. Tape seams shall overlap 1 inch. Adhesive shall extend onto the adjoining insulation not less than 2 inches. The total dry film thickness shall be not less than 1/16 inch.
- d. Insulation terminations shall be tapered to unions at a 45-degree angle.
- e. At the option of the Contractor, factory premolded one- or two-piece PVC fitting covers may be used in lieu of the adhesive and embedded glass tape. Factory premolded segments or factory or field cut blanket insert insulation segments shall be used under the cover and shall be the same thickness as adjoining pipe insulation. The covers shall be secured by PVC vapor retarder tape, adhesive, seal-welding or with tacks made for securing PVC covers.

#### 3.2.3.5 Insulation for Fittings

Flanges, unions, valves, fittings, and accessories shall be insulated and finished as specified for the applicable service. Two coats of an emulsion type weatherproof mastic recommended by the insulation manufacturer shall be applied with glass tape embedded between coats. Tape overlaps shall be not less than 1 inch and the adjoining aluminum jacket not less than 2 inches. Factory preformed aluminum jackets may be used in lieu of the above. Molded PVC fitting covers shall be used with PVC lagging and adhesive welded moisture tight.

3.2.3.6 PVC Lagging

PVC lagging shall be ultraviolet resistant and adhesive welded vapor tight with manufacturer's recommended adhesive. Installation shall include provision for thermal expansion.

- END OF SECTION -

SECTION 15190

GAS PIPING SYSTEMS

02/99

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 GAS ASSOCIATION (AGA)

AGA Mnl (1994; Addenda/Correction Jan 1996) A.G.A. Plastic Pipe Manual for Gas Service

AMERICAN NATIONAL STANDARDS INSTITUTE

ANSI Z21.45 (1995) Flexible Connectors of Other Than All-Metal Construction for Gas Appliances

ANSI Z21.69 (1992; Z21.69a) Connectors for Movable Gas Appliances

AMERICAN PETROLEUM INSTITUTE (API)

API Spec 6D (1994; Supple 1 Jun 1996; Supple 2 Dec 1997) Pipeline Valves (Gate, Plug, Ball, and Check Valves)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 539 (1996) Electric-Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines

ASTM B 88 (1996) Seamless Copper Water Tube

ASTM B 210 (1995) Aluminum and Aluminum-Alloy Drawn Seamless Tubes

ASTM B 210M (1995) Aluminum and Aluminum-Alloy Drawn Seamless Tubes (Metric)

ASTM B 241/B 241M (1996) Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube

ASTM B 280 (1995a) Seamless Copper Tube for Air Conditioning and Refrigeration Field Service

ASTM D 2513 (1996a) Thermoplastic Gas Pressure Pipe, Tubing, and Fittings

ASTM D 2517 (1994) Reinforced Epoxy Resin Gas Pressure Pipe and Fittings

FT SILL STARSHIP BARRACKS

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

|              |   |
|--------------|---|
| ASME B1.20.1 | (1983; R 1992) Pipe Threads, General Purpose (Inch)   |
| ASME B16.3   | (1992) Malleable Iron Threaded Fittings   |
| ASME B16.5   | (1996; B16.5a) Pipe Flanges and Flanged Fittings NPS 1/2 thru NPS 24  |
| ASME B16.9   | (1993) Factory-Made Wrought Steel Butt welding Fittings   |
| ASME B16.11  | (1996) Forged Fittings, Socket-Welding and Threaded   |
| ASME B16.21  | (1992) Nonmetallic Flat Gaskets for Pipe Flanges  |
| ASME B16.33  | (1990) Manually Operated Metallic Gas Valves for Use in Gas Piping Systems Up to 125 psig (Sizes 1/2 through 2) |
| ASME B31.1   | (1995; B31.1a; B31.1b; B31.1c) Power Piping   |
| ASME B31.2   | (1968) Fuel Gas Piping  |
| ASME B36.10M | (1996) Welded and Seamless Wrought Steel Pipe   |
| ASME BPV IX  | (1998) Boiler and Pressure Vessel Code; Section IX, Welding and Brazing Qualifications                          |

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY (MSS)

|           |   |
|-----------|---|
| MSS SP-25 | (1998) Standard Marking System for Valves, Fittings, Flanges and Unions |
| MSS SP-58 | (1993) Pipe Hangers and Supports - Materials, Design and Manufacture    |
| MSS SP-69 | (1996) Pipe Hangers and Supports - Selection and Application            |

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

|                     |                                       |
|---------------------|---------------------------------------|
| NFPA 54/ANSI Z223.1 | (1996; Errata) National Fuel Gas Code |
| NFPA 70             | (1999) National Electrical Code       |

THE SOCIETY FOR PROTECTIVE COATING (SSPC)

|                  |                                  |
|------------------|----------------------------------|
| SSPC SP 6/NACE 3 | (1994) Commercial Blast Cleaning |
|------------------|----------------------------------|

UNDERWRITERS LABORATORIES (UL)

UL Gas & Oil Dir (1996; Supple) Gas and Oil Equipment Directory

1.2 GENERAL REQUIREMENTS

1.2.1 Welding

Piping shall be welded in accordance with qualified procedures using performance qualified welders and welding operators. Procedures and welders shall be qualified in accordance with ASME BPV IX. Welding procedures qualified by others, and welders and welding operators qualified by another employer may be accepted as permitted by ASME B31.1. The Contracting Officer shall be notified at least 24 hours in advance of tests and the tests shall be performed at the work site if practicable. The Contracting Officer shall be furnished with a copy of qualified procedures and a list of names and identification symbols of qualified welders and welding operators. The welder or welding operator shall apply his assigned symbol near each weld he makes as a permanent record.

1.2.2 Standard Products

Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. Asbestos or products containing asbestos shall not be used. Manufacturer's descriptive data and installation instructions shall be submitted for approval for compression-type mechanical joints used in joining dissimilar materials and for insulating joints. Valves, flanges and fittings shall be marked in accordance with MSS SP-25.

1.2.3 Verification of Dimensions

The Contractor shall become familiar with all details of the work, verify all dimensions in the field, and shall advise the Contracting Officer of any discrepancy before performing the work.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Qualifications; GA.

Qualified procedures and a list of names and identification symbols of qualified welders and welding operators.

SD-04 Drawings

Gas Piping System; GA.

Drawings showing location, size and all branches of pipeline; location of all required shutoff valves; and instructions necessary for the installation of connectors and supports.

SD-9 Reports

Testing; GA.

Pressure Tests; GA.

Test With Gas; GA.

Test reports in booklet form tabulating test and measurements performed. The reports shall be dated after award of this contract, shall state the contractor's name and address, shall name the project and location, and shall list the specific requirements which are being certified.

## 2 PRODUCTS

### 2.1 PIPE AND FITTINGS

#### 2.1.1 Steel Pipe, Joints, and Fittings

Steel pipe shall conform to ASME B36.10M. Malleable-iron threaded fittings shall conform to ASME B16.3. Steel pipe flanges and flanged fittings including bolts, nuts, and bolt pattern shall be in accordance with ASME B16.5. Wrought steel butt welding fittings shall conform to ASME B16.9. Socket welding and threaded forged steel fittings shall conform to ASME B16.11.

#### 2.1.2 Sealants for Steel Pipe Threaded Joints

Joint sealing compound shall be listed in UL Gas & Oil Dir, Class 20 or less. Tetrafluoroethylene tape shall conform to UL Gas & Oil Dir.

#### 2.1.3 Identification

Pipe flow markings and metal tags shall be provided as required.

#### 2.1.4 Flange Gaskets

Gaskets shall be non-asbestos compressed material in accordance with ASME B16.21, 1/16 inch thickness, full face or self-centering flat ring type. The gaskets shall contain aramid fibers bonded with styrene butadiene rubber (SBR) or nitrile butadiene rubber (NBR) suitable for a maximum 600 degree F service. NBR binder shall be used for hydrocarbon service.

#### 2.1.5 Pipe Threads

Pipe threads shall conform to ASME B1.20.1.

#### 2.1.6 Insulating Pipe Joints

##### 2.1.6.1 Insulating Joint Material

Insulating joint material shall be provided between flanged or threaded metallic pipe systems where shown to control galvanic or electrical action.

#### 2.1.6.2 Threaded Pipe Joints

Joints for threaded pipe shall be steel body nut type dielectric unions with insulating gaskets.

#### 2.1.6.3 Flanged Pipe Joints

Joints for flanged pipe shall consist of full-face sandwich-type flange insulating gasket of the dielectric type, insulating sleeves for flange bolts, and insulating washers for flange nuts.

### 2.2 VALVES

Valves shall be suitable for shutoff or isolation service and shall conform to the following:

#### 2.2.1 Natural Gas Valves 2 Inches and Smaller

Valves 2 inches and smaller shall be plug type and conform to [ASME B16.33](#) and shall be of materials and manufacture compatible with system materials used.

#### 2.2.2 Natural Gas Valves 2-1/2 Inches and Larger

Valves 2-1/2 inches and larger shall be plug type carbon steel conforming to [API Spec 6D](#), Class 150.

### 2.3 PIPE HANGERS AND SUPPORTS

Pipe hangers and supports shall conform to [MSS SP-58](#) and [MSS SP-69](#). Additional information, restrictions and requirements for pipe hangars shall be as shown.

## 3 EXECUTION

### 3.1 GAS PIPING SYSTEM

Gas piping system shall be from the point of connection to the existing gas main pipe to the connections to the existing branch and equipment service piping as shown.

#### 3.1.1 Protection of Materials and Components

Pipe and tube openings shall be closed with caps or plugs during installation. Equipment shall be protected from dirt, water, and chemical or mechanical damage. At the completion of all work, the entire system shall be thoroughly cleaned.

#### 3.1.2 Workmanship and Defects

Piping, tubing and fittings shall be clear and free of cutting burrs and defects in structure or threading and shall be thoroughly brushed and chip-and scale-blown. Defects in piping, tubing or fittings shall not be repaired. When defective piping, tubing, or fittings are located in a system, the defective material shall be replaced.

## 3.2 PROTECTIVE COVERING

### 3.2.1 Metallic Piping System

#### 3.2.1.1 Ferrous Surfaces

Shop primed surfaces shall be touched up with ferrous metal primer. Surfaces that have not been shop primed shall be solvent cleaned. Surfaces that contain loose rust, loose mill scale and other foreign substances shall be mechanically cleaned by power wire brushing and primed with ferrous metal primer. Primed surface shall be finished with two coats of exterior oil paint. Base natural gas line pipe color shall be yellow with actual color designation to be as directed by the Contracting Officers Representative (COR).

## 3.3 INSTALLATION

### 3.3.1 Connection to Government Owned/Operated Gas Lines

The Contractor shall provide connections to the existing as and where shown and all new gas piping between the connection point to the existing low pressure gas main and the connections to the existing branch and equipment service lines. Deactivation of any portion of the existing system shall only be done by the Government. Reactivation of any existing gas lines will only be done by the Government. The Contractor shall have field verified all existing piping locations and all reconnection points to existing piping. The Contractor's Connection and gas system piping Plans shall be submitted and approved prior to making any connections to existing gas lines. The Contractor shall notify the Contracting Officer, in writing, 14 days before connections to existing lines are to be made. All new gas piping shall be installed before existing piping can be deactivated. Then connect new piping to the existing inlet and distribution and supply piping points (all connections to existing) and test and get the existing and new piping activated. Only after the new piping is in, connected to existing, tested and reactivated may any old existing piping be removed; the only exception is small sections of piping required to make connection of new piping to existing connection points.

Installation of the gas system shall be in applicable provisions of [NFPA 54/ANSI Z223.1](#), [AGA Mnl](#), and as indicated. Pipe cutting shall be done without damage to the pipe. Unless otherwise authorized, cutting shall be done by an approved type of mechanical cutter. Wheel cutters shall be used where practicable. On steel pipe 6 inches and larger, an approved gas cutting and beveling machine may be used.

### 3.3.2 Metallic Piping Installation

Changes in direction of piping shall be made with fittings only; mitering or notching pipe to form elbows and tees or other similar type construction will not be permitted. Branch connection may be made with either tees or forged branch outlet fittings. Branch outlet fittings shall be forged, flared for improvement of flow where attached to the run, and reinforced against external strains.

### 3.3.3 Aboveground Piping

Aboveground piping shall be run as straight as practicable along the alignment indicated and with a minimum of joints. Piping shall be separately supported. All piping shall be rigid metallic pipe and fittings.

## 3.4 PIPE JOINTS

Pipe joints shall be designed and installed to effectively sustain the longitudinal pull-out forces caused by contraction of the piping or superimposed loads.

### 3.4.1 Threaded Metallic Joints (used only at connection to existing solenoid gas valves).

Threaded joints in metallic pipe shall have tapered threads evenly cut and shall be made with UL approved graphite joint sealing compound for gas service or tetrafluoroethylene tape applied to the male threads only. Threaded joints up to 1-1/2 inches in diameter may be made with approved tetrafluoroethylene tape. Threaded joints up to 2 inches in diameter may be made with approved joint sealing compound. After cutting and before threading, pipe shall be reamed and burrs shall be removed. Caulking of threaded joints to stop or prevent leaks shall not be permitted.

### 3.4.2 Welded Metallic Joints

Beveling, alignment, heat treatment, and inspection of welds shall conform to ASME B31.2. Weld defects shall be removed and repairs made to the weld, or the weld joints shall be entirely removed and rewelded. After filler metal has been removed from its original package, it shall be protected or stored so that its characteristics or welding properties are not affected adversely. Electrodes that have been wetted or have lost any of their coating shall not be used.

## 3.5 BUILDING STRUCTURE

Building structure shall not be weakened by the installation of any gas piping. Beams or joists shall not be cut or notched.

## 3.6 PIPING SYSTEM SUPPORTS

Gas piping systems in buildings shall be supported with hangers suitable for the size of piping with special requirements as shown. Gas piping system shall not be supported by other piping. Spacing of supports in gas piping and tubing installations shall conform to the requirements of NFPA 54/ANSI Z223.1. The selection and application of supports in gas piping installations shall conform to the requirements of MSS SP-69. A clearance of 1/8 inch shall be provided between the pipe and clip or clamp for all piping which may be subjected to thermal expansion.

## 3.7 ELECTRICAL BONDING AND GROUNDING

A gas piping system within a building shall be electrically continuous and bonded to a grounding electrode as required by NFPA 70. This shall be provided for the new gas piping.

### 3.8 SHUTOFF VALVE

A new main gas shutoff valve, which is provided and install at the new gas piping connection to the existing low pressure main, to controlling the gas piping system shall be easily accessible for operation and shall be installed as indicated, protected from physical damage, and marked with a metal tag to clearly identify the piping system controlled.

### 3.9 TESTING

Before any section of a gas piping system is put into service, it shall be carefully tested to assure that it is gas tight. Prior to testing, the system shall be blown out, cleaned and cleared of all foreign material. Each joint shall be tested by means of an approved gas detector, soap and water, or an equivalent nonflammable solution. Testing shall be completed before any work is covered, enclosed, or concealed. All testing of piping systems shall be done with due regard for the safety of employees and the public during the test. Bulkheads, anchorage and bracing suitably designed to resist test pressures shall be installed if necessary. Oxygen shall not be used as a testing medium.

#### 3.9.1 Pressure Tests

Before appliances are connected, piping systems shall be filled with air or an inert gas and shall withstand a minimum pressure of 3 pounds gauge for a period of not less than 10 minutes as specified in [NFPA 54/ANSI Z223.1](#) without showing any drop in pressure. Oxygen shall not be used. Pressure shall be measured with a mercury manometer, slope gauge, or an equivalent device so calibrated as to be read in increments of not greater than 0.1 pound. The source of pressure shall be isolated before the pressure tests are made.

#### 3.9.2 Test With Gas

Before turning gas under pressure into any piping, all openings from which gas can escape shall be closed. Immediately after turning on the gas, the piping system shall be checked for leakage by using a laboratory-certified gas meter, an appliance orifice, a manometer, or equivalent device. All testing shall conform to the requirements of [NFPA 54/ANSI Z223.1](#). If leakage is recorded, the gas supply shall be shut off, the leak shall be repaired, and the tests repeated until all leaks have been stopped.

#### 3.9.3 Purging

After testing is completed, and before connecting any appliances, all gas piping shall be fully purged. LPG piping tested using fuel gas with appliances connected does not require purging. Piping shall not be purged into the combustion chamber of an appliance. The open end of piping systems being purged shall not discharge into confined spaces or areas where there are ignition sources unless the safety precautions recommended in [NFPA 54/ANSI Z223.1](#) are followed.

#### 3.9.4 Labor, Materials and Equipment

All labor, materials and equipment necessary for conducting the testing and purging shall be furnished by the Contractor.

FT SILL STARSHIP BARRACKS

- END OF SECTION -

SECTION 15191

IDENTIFICATION OF PIPING

1 GENERAL

1.1 SUMMARY

This section covers identification of the mechanical piping systems.

2 PRODUCTS

2.1 PAINT FOR IDENTIFICATION BANDS AND BLOCKS

Bands or block paints shall be as specified in SECTION 09900 - PAINTING, GENERAL for the finish specified.

2.2 COLOR

The colors used shall conform to the color chips submitted by the Contractor and approved by the Government. Colors shall be as follows:

2.3 PRESSURE SENSITIVE PIPE MARKERS

At the option of the Contractor, pressure-sensitive pipe markers of the applicable size and color may be used.

2.4 BRASS TAGS

Where pipes are too small for such application, a brass identification tag shall be fastened securely at specified locations. Tags shall be 1 1/2-inch in diameter with depressed black figures 1/2-inch high.

3 EXECUTION

3.1 APPLICATION

Bands and blocks shall be a minimum of two coats of gloss paint. Surface preparation, materials, and application of paint shall conform to the requirements of the SECTION 09900 PAINTING, GENERAL. Color of bands or blocks shall be as specified hereinafter. Legends and bands or blocks shall be placed to be easily read from operating positions. Adjacent to legend, arrows shall be painted to indicate the direction of flow of material under normal operating conditions.

3.2 LOCATIONS

All piping in buildings and heating tunnels shall be identification painted with bands or blocks and legends of colors herein designated. Banding or blocking and legends shall be applied to the piping at locations as follows:

- a. Adjacent to each valve.
- b. At not more than 20 feet spacing on straight pipe runs.

3.3 BAND OR BLOCK AND LETTER SIZE

The band or block and letter sizes corresponding to the applicable outside diameter of pipe or pipe covering shall be used. Upper case letters and Arabic numerals shall be used. Sizes are as follows:

FT SILL STARSHIP BARRACKS

| Outside Diameter<br>of Pipe or Covering | Width of Color<br>Band or Block | Size of Legend<br>Letters and Numerals |
|---|---------------------------------|--|
| 3/4" to 1 1/4"                          | 8"                              | 1/2"                                   |
| 1 1/2" to 2"                            | 8"                              | 3/4"                                   |
| 2 1/2" to 6"                            | 12"                             | 1 1/4"                                 |
| 8" to 10"                               | 24"                             | 2 1/2"                                 |
| Over 10"                                | 32"                             | 3 1/2"                                 |

3.4 LEGENDS

The applicable legends and bands or blocks shall be selected from the following:

| <u>Service</u>                           | <u>Legend</u> | Band or Block<br><u>Color</u> | Legend<br><u>Color</u> |
|--|---------------|-------------------------------|------------------------|
| Gas                                      | Gas           | Black                         | Yellow                 |
| Potable Water<br>(Domestic Hot and Cold) | Potable Water | Black                         | Green                  |

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- END OF SECTION -

SECTION 15400

PLUMBING, GENERAL PURPOSE  
**08/94**

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.

AIR CONDITIONING AND REFRIGERATION INSTITUTE (ARI)

ARI 700 (1995) Specifications for Fluorocarbon and Other Refrigerants

ARI 1010 (1994) Self-Contained, Mechanically-Refrigerated Drinking-Water Coolers

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z21.10.1 (1993; Z21.10.1a; Z21.10.1b; Z21.10.1c) Gas Water Heaters Vol. I Storage Water Heaters with Input Ratings of 75,000 Btu Per Hour or Less

ANSI Z21.10.3 (1993; Z21.10.3a; Z21.10.3b) Gas Water Heaters Vol. III Storage, With Input Ratings Above 75,000 Btu Per Hour, Circulating and Instantaneous Water Heaters

ANSI Z21.22 (1986; Z21.22a) Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 47 (1990; R 1995) Ferritic Malleable Iron Castings

ASTM A 47M (1990; R 1996) Ferritic Malleable Iron Castings

ASTM A 53 (1997) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

ASTM A 74 (1996) Cast Iron Soil Pipe and Fittings

ASTM A 105/A 105M (1996) Carbon Steel Forgings for Piping Applications

ASTM A 183 (1983; R 1990) Carbon Steel Track Bolts and Nuts

FT SILL STARSHIP BARRACKS

|                   |   |
|-------------------|---|
| ASTM A 193/A 193M | (1997a) Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service                            |
| ASTM A 515/A 515M | (1992) Pressure Vessel Plates, Carbon Steel, for Intermediate- and Higher-Temperature Service                     |
| ASTM A 516/A 516M | (1990; R 1996) Pressure Vessel Plates, Carbon Steel, for Moderate- and Lower-Temperature Service                  |
| ASTM A 518        | (1992; R 1997) Corrosion-Resistant High-Silicon Iron Castings   |
| ASTM A 518M       | (1992; R 1997) Corrosion-Resistant High-Silicon Iron Castings (Metric)  |
| ASTM A 536        | (1984; R 1993) Ductile Iron Castings  |
| ASTM A 733        | (1993) Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples                               |
| ASTM A 888        | (1996) Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications |
| ASTM B 32         | (1996) Solder Metal   |
| ASTM B 42         | (1996) Seamless Copper Pipe, Standard Sizes   |
| ASTM B 43         | (1996) Seamless Red Brass Pipe, Standard Sizes  |
| ASTM B 75         | (1995a) Seamless Copper Tube  |
| ASTM B 88         | (1996) Seamless Copper Water Tube   |
| ASTM B 88M        | (1996) Seamless Copper Water Tube (Metric)  |
| ASTM B 111        | (1995) Copper and Copper-Alloy Seamless Condenser Tubes and Ferrule Stock   |
| ASTM B 117        | (1997) Operating Salt Spray (FOG) Apparatus   |
| ASTM B 152        | (1994) Copper Sheet, Strip, Plate, and Rolled Bar   |
| ASTM B 152M       | (1994) Copper Sheet, Strip, Plate, and Rolled Bar (Metric)  |
| ASTM B 306        | (1996) Copper Drainage Tube (DWV)   |
| ASTM B 370        | (1992) Copper Sheet and Strip for Building Construction   |

FT SILL STARSHIP BARRACKS

|             |   |
|-------------|---|
| ASTM B 584  | (1996) Copper Alloy Sand Castings for General Applications  |
| ASTM B 641  | (1993) Seamless and Welded Copper Distribution Tube (Type D)                                      |
| ASTM B 813  | (1993) Liquid and Paste Fluxes for Soldering Applications of Copper and Copper Alloy Tube         |
| ASTM B 828  | (1992) Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings          |
| ASTM C 564  | (1995a) Rubber Gaskets for Cast Iron Soil Pipe and Fittings                                       |
| ASTM C 920  | (1995) Elastomeric Joint Sealants   |
| ASTM C 1053 | (1990; R 1995) Borosilicate Glass Pipe and Fittings for Drain, Waste, and Vent (DWV) Applications |
| ASTM D 638  | (1996) Tensile Properties of Plastics   |
| ASTM D 638M | (1996) Tensile Properties of Plastics (Metric)  |
| ASTM D 1004 | (1994a) Initial Tear Resistance of Plastic Film and Sheeting                                      |
| ASTM D 1248 | (1984; R 1989) Polyethylene Plastics Molding and Extrusion Materials                              |
| ASTM D 1785 | (1996a) Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120                        |
| ASTM D 2000 | (1996) Rubber Products in Automotive Applications   |
| ASTM D 2235 | (1996a) Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings        |
| ASTM D 2239 | (1996a) Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter              |
| ASTM D 2241 | (1996a) Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)                               |
| ASTM D 2447 | (1995) Polyethylene (PE) Plastic Pipe, Schedules 40 and 80, Based on Outside Diameter             |
| ASTM D 2464 | (1996a) Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80                    |
| ASTM D 2466 | (1996a) Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40                             |

|             |  |
|-------------|--|
| ASTM D 2467 | (1996a) Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80  |
| ASTM D 2485 | (1991; R 1996) Evaluating Coatings for High Temperature Service  |
| ASTM D 2564 | (1996a) Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems  |
| ASTM D 2657 | (1996) Heat Fusing Joining Polyolefin Pipe and Fittings  |
| ASTM D 2661 | (1996) Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings  |
| ASTM D 2665 | (1996) Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings   |
| ASTM D 2672 | (1996a) Joints for IPS PVC Pipe Using Solvent Cement   |
| ASTM D 2683 | (1995) Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing  |
| ASTM D 2737 | (1996a) Polyethylene (PE) Plastic Tubing   |
| ASTM D 2822 | (1991; R 1997) Asphalt Roof Cement   |
| ASTM D 2846 | (1996) Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems  |
| ASTM D 2855 | (1996) Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings  |
| ASTM D 2996 | (1995) Filament-Wound "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe   |
| ASTM D 3035 | (1995) Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter   |
| ASTM D 3122 | (1995) Solvent Cements for Styrene-Rubber (SR) Plastic Pipe and Fittings   |
| ASTM D 3138 | (1995) Solvent Cements for Transition Joints Between Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Non-Pressure Piping Components |
| ASTM D 3139 | (1996a) Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals   |
| ASTM D 3212 | (1996a) Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals  |

|             |   |
|-------------|---|
| ASTM D 3261 | (1996) Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing          |
| ASTM D 3308 | (1991a) PTFE Resin Skived Tape  |
| ASTM D 3311 | (1994) Drain, Waste, and Vent (DWV) Plastic Fittings Patterns   |
| ASTM D 4060 | (1995) Abrasion Resistance of Organic Coatings by the Taber Abraser   |
| ASTM D 4101 | (1996a) Propylene Plastic Injection and Extrusion Materials   |
| ASTM D 4551 | (1996) Poly(Vinyl Chloride) (PVC) Plastic Flexible Concealed Water-Containment Membrane                           |
| ASTM E 1    | (1995) ASTM Thermometers  |
| ASTM E 96   | (1995) Water Vapor Transmission of Materials  |
| ASTM F 409  | (1995) Thermoplastic Accessible and Replaceable Plastic Tube and Tubular Fittings                                 |
| ASTM F 437  | (1993) Threaded Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80                        |
| ASTM F 438  | (1993) Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 40                     |
| ASTM F 439  | (1993a) Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80                    |
| ASTM F 441  | (1995) Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80                                  |
| ASTM F 442  | (1994) Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe (SDR-PR)  |
| ASTM F 477  | (1995) Elastomeric Seals (Gaskets) for Joining Plastic Pipe   |
| ASTM F 493  | (1993a) Solvent Cements for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe and Fittings                     |
| ASTM F 628  | (1995) Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe with a Cellular Core |
| ASTM F 891  | (1993a) Coextruded Poly(Vinyl Chloride) (PVC) Plastic Pipe with a Cellular Core                                   |

ASTM F 1290 (1993) Electrofusion Joining Polyolefin Pipe and Fittings

ASTM F 1760 (1996) Poly(Vinyl Chloride) (PVC) Non-Pressure Plastuc Pipe Having Reprocessed-Recycled Content.

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE 34 (1992; Addenda a-j) Number Designation and Safety Classification of Refrigerants

ASHRAE 90.1 (1989; 90.1b; 90.1c; 90.1d; 90.1e; 90.1g; 90.1i) Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings

ASME INTERNATIONAL (ASME)

ASME A112.1.2 (1991) Air Gaps in Plumbing Systems

ASME A112.6.1M (1997) Supports for Off-the-Floor Plumbing Fixtures for Public Use

ASME A112.14.1 (1975; R 1990) Backwater Valves

ASME A112.18.1M (1996) Plumbing Fixture Fittings

ASME A112.19.1M (1994) Enameled Cast Iron Plumbing Fixtures

ASME A112.19.2M (1995; Errata) Vitreous China Plumbing Fixtures

ASME A112.19.3M (1987; R 1996) Stainless Steel Plumbing Fixtures (Designed for Residential Use)

ASME A112.19.4M (1994; Errata Nov 1996) Porcelain Enameled Formed Steel Plumbing Fixtures

ASME A112.21.1M (1991) Floor Drains

ASME A112.21.2M (1983) Roof Drains

ASME A112.36.2M (1991) Cleanouts

ASME B1.20.1 (1983; R 1992) Pipe Threads, General Purpose (Inch)

ASME B16.3 (1992) Malleable Iron Threaded Fittings

ASME B16.4 (1992) Gray Iron Threaded Fittings

ASME B16.5 (1996) Pipe Flanges and Flanged Fittings NPS 1/2 thru NPS 24

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|                     |  |
|---------------------|--|
| ASME B16.12         | (1991) Cast Iron Threaded Drainage Fittings  |
| ASME B16.15         | (1985; R 1994) Cast Bronze Threaded Fittings<br>Classes 125 and 250  |
| ASME B16.18         | (1984; R 1994) Cast Copper Alloy Solder Joint<br>Pressure Fittings   |
| ASME B16.21         | (1992) Nonmetallic Flat Gaskets for Pipe<br>Flanges  |
| ASME B16.22         | (1995) Wrought Copper and Copper Alloy Solder<br>Joint Pressure Fittings   |
| ASME B16.23         | (1992; Errata Jan 1994) Cast Copper Alloy<br>Solder Joint Drainage Fittings - DWV  |
| ASME B16.24         | (1991; Errata) Cast Copper Alloy Pipe<br>Flanges, Class 150, 300, 400, 600, 900, 1500,<br>and 2500, and Flanged Fittings, Class 150 and<br>300 |
| ASME B16.29         | (1994) Wrought Copper and Wrought Copper<br>Alloy Solder Joint Drainage Fittings - DWV   |
| ASME B16.34         | (1996) Valves - Flanged, Threaded, and<br>Welding End  |
| ASME B16.39         | (1986; R 1994) Malleable Iron Threaded Pipe<br>Unions Classes 150, 250, and 300  |
| ASME B31.1          | (1995; B31.1a; B31.1b; B31.1c) Power Piping  |
| ASME B31.5          | (1992; B31.5a) Refrigeration Piping  |
| ASME B40.1          | (1991) Gauges - Pressure Indicating Dial Type<br>- Elastic Element   |
| ASME BPV VIII Div 1 | (1998) Boiler and Pressure Vessel Code;<br>Section VIII, Pressure Vessels Division 1 -<br>Basic Coverage                                       |
| ASME BPV IX         | (1998) Boiler and Pressure Vessel Code;<br>Section IX, Welding and Brazing<br>Qualifications   |
| ASME CSD-1          | (1995; CSD-1a; CSD-1b) Controls and Safety<br>Devices for Automatically Fired Boilers  |

AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE)

|                     |   |
|---------------------|---|
| ASSE ANSI/ASSE 1001 | (1990) Pipe Applied Atmospheric Type Vacuum<br>Breakers |
| ASSE 1002           | (1986) Water Closet Flush Tank Ball Cocks               |

FT SILL STARSHIP BARRACKS

|                     |   |
|---------------------|---|
| ASSE ANSI/ASSE 1003 | (1995) Water Pressure Reducing Valves for Domestic Water Supply Systems                     |
| ASSE 1005           | (1986) Water Heater Drain Valves - 3/4-Inch Iron Pipe Size                                  |
| ASSE ANSI/ASSE 1006 | (1989) Residential Use (Household) Dishwashers  |
| ASSE ANSI/ASSE 1011 | (1995) Hose Connection Vacuum Breakers  |
| ASSE ANSI/ASSE 1012 | (1995) Backflow Preventers with Intermediate Atmospheric Vent                               |
| ASSE 1013           | (1993) Reduced Pressure Principle Backflow Preventers                                       |
| ASSE 1018           | (1986) Trap Seal Primer Valves Water Supply Fed   |
| ASSE ANSI/ASSE 1037 | (1986; Rev thru Mar 1990) Pressurized Flushing Devices (Flushometers) for Plumbing Fixtures |

AMERICAN WATER WORKS ASSOCIATION (AWWA)

|                           |   |
|---------------------------|---|
| AWWA-01                   | (1995) Standard Methods for the Examination of Water and Wastewater                                       |
| AWWA B300                 | (1992) Hypochlorites  |
| AWWA B301                 | (1992) Liquid Chlorine  |
| AWWA ANSI/AWWA C105/A21.5 | (1993) Polyethylene Encasement for Ductile-Iron Pipe Systems  |
| AWWA C203                 | (1991) Coal-Tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape - Hot-Applied |
| AWWA C606                 | (1987) Grooved and Shouldered Joints  |
| AWWA ANSI/AWWA C700       | (1995) Cold-Water Meters - Displacement Type, Bronze Main Case  |
| AWWA D100                 | (1996) Welded Steel Tanks for Water Storage   |
| AWWA M20                  | (1973) Manual: Water Chlorination Principles and Practices  |

AMERICAN WELDING SOCIETY (AWS)

|          |  |
|----------|--|
| AWS A5.8 | (1992) Filler Metals for Brazing and Braze Welding     |
| AWS B2.2 | (1991) Brazing Procedure and Performance Qualification |

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CAST IRON SOIL PIPE INSTITUTE (CISPI)

- CISPI 301 (1995) Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications
- CISPI 310 (1995) Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications
- CISPI HSN-85 (1985) Neoprene Rubber Gaskets for Hub and Spigot Cast Iron Soil Pipe and Fittings

CODE OF FEDERAL REGULATIONS (CFR)

- 10 CFR 430 Energy Conservation Program for Consumer Products
- 21 CFR 175 Indirect Food Additives: Adhesives and Components of Coatings

COMMERCIAL ITEM DESCRIPTIONS (CID)

- CID A-A-240 (Rev A) Shower Head, Ball Joint
- CID A-A-50012 (Basic) Garbage Disposal Machine, Commercial

COPPER DEVELOPMENT ASSOCIATION (CDA)

- CDA-02 (1995) Copper Tube Handbook

COUNCIL OF AMERICAN BUILDING OFFICIALS (CABO)

- CABO A117.1 (1992; Errata Jun 1993) Accessible and Usable Buildings and Facilities

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (FCCHR)

- FCCHR-01 (1993) Manual of Cross-Connection Control

HYDRAULIC INSTITUTE (HI)

- HI ANSI/HI 1.1-1.5 (1994) Centrifugal Pumps

INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS

- IAPMO ANSI/IAPMO Z124.1 (1995) Plastic Bathtub Units
- IAPMO ANSI/IAPMO Z124.2 (1995) Plastic Shower Receptors and Shower Stalls
- IAPMO ANSI/IAPMO Z124.3 (1995) Plastic Lavatories
- IAPMO ANSI/IAPMO Z124.5 (1997) Plastic Toilet (Water Closets) Seats

IAPMO ANSI/IAPMO z124.9

(1993) Plastic Urinal Fixtures

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS  
INDUSTRY (MSS)

MSS SP-25

(1998) Standard Marking System for Valves,  
Fittings, Flanges and Unions

MSS SP-44

(1996) Steel Pipeline Flanges

MSS SP-58

(1993) Pipe Hangers and Supports - Materials,  
Design and Manufacture

MSS SP-67

(1995) Butterfly Valves

MSS SP-69

(1996) Pipe Hangers and Supports - Selection  
and Application

MSS SP-70

(1990) Cast Iron Gate Valves, Flanged and  
Threaded Ends

MSS SP-71

(1997) Cast Iron Swing Check Valves, Flanges  
and Threaded Ends

MSS SP-72

(1992) Ball Valves with Flanged or Butt-  
Welding Ends for General Service

MSS SP-73

(1991; R 1996) Brazing Joints for Copper and  
Copper Alloy Pressure Fittings

MSS SP-78

(1987; R 1992) Cast Iron Plug Valves, Flanged  
and Threaded Ends

MSS SP-80

(1997) Bronze Gate, Globe, Angle and Check  
Valves

MSS SP-83

(1995) Class 3000 Steel Pipe Unions Socket-  
Welding and Threaded

MSS SP-85

(1994) Cast Iron Globe & Angle Valves,  
Flanged and Threaded Ends

MSS SP-110

(1996) Ball Valves Threaded, Socket-Welding,  
Solder Joint, Grooved and Flared Ends

NATIONAL ASSOCIATION OF PLUMBING-HEATING-COOLING CONTRACTORS (NAPHCC)

NAPHCC-01

(1996) National Standard Plumbing Code

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA 250

(1991) Enclosures for Electrical Equipment  
(1000 Volts Maximum)

FT SILL STARSHIP BARRACKS

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

- NFPA 31 (1997) Installation of Oil Burning Equipment
- NFPA NFPA 54/ANSI Z223.1 (1996; Errata) National Fuel Gas Code
- NFPA 90A (1996) Installation of Air Conditioning and Ventilating Systems

NSF INTERNATIONAL (NSF)

- NSF 3 (1996) Commercial Spray-Type Dishwashing and Glasswashing Machines
- NSF 5 (1992) Water Heaters, Hot Water Supply Boilers, and Heat Recovery Equipment
- NSF ANSI/NSF 14 (1996) Plastics Piping Components and Related Materials

PLASTIC PIPE AND FITTINGS ASSOCIATION (PPFA)

- PPFA-01 (1991) Plastic Pipe in Fire Resistive Construction

PLUMBING AND DRAINAGE INSTITUTE (PDI)

- PDI G-101 (1996) Testing and Rating Procedure for Grease Interceptors with Appendix of Sizing and Installation Data
- PDI WH 201 (1992) Water Hammer Arresters

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

- SAE J 1508 (1996) Hose Clamps

THE SOCIETY FOR PROTECTIVE COATING (SSPC)

- SSPC SP 5 (1994) White Metal Blast Cleaning

UNDERWRITERS LABORATORIES (UL)

- UL 174 (1996; Rev thru Nov 1997) Household Electric Storage Tank Water Heaters
- UL 430 (1994; Rev thru Oct 1996) Waste Disposers
- UL 732 (1995; Rev Oct 1997) Oil-Fired Storage Tank Water Heaters
- UL 749 (1997) Household Dishwashers
- UL 921 (1996) Commercial Electric Dishwashers

## 1.2 STANDARD PRODUCTS

Specified materials and equipment shall be standard products of a manufacturer regularly engaged in the manufacture of such products. Specified equipment shall essentially duplicate equipment that has performed satisfactorily at least two years prior to bid opening.

## 1.3 PERFORMANCE REQUIREMENTS

### 1.3.1 Welding

Piping shall be welded in accordance with qualified procedures using performance-qualified welders and welding operators. Procedures and welders shall be qualified in accordance with ASME BPV IX. Welding procedures qualified by others, and welders and welding operators qualified by another employer, may be accepted as permitted by ASME B31.1. The Contracting Officer shall be notified 24 hours in advance of tests, and the tests shall be performed at the work site if practicable. Welders or welding operators shall apply their assigned symbols near each weld they make as a permanent record.

## 1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Welding; FIO.

A copy of qualified procedures and a list of names and identification symbols of qualified welders and welding operators.

SD-04 Drawings

Plumbing System; GA.

Detail drawings consisting of illustrations, schedules, performance charts, instructions, brochures, diagrams, and other information to illustrate the requirements and operations of each system. Where piping and equipment are to be supported other than as indicated, details shall include loadings and proposed support methods. Mechanical drawing plans, elevations, views, and details, shall be drawn to scale.

SD-06 Instructions

Plumbing System; FIO.

Diagrams, instructions, and other sheets proposed for posting. Manufacturer's recommendations for the installation of bell and spigot and hubless joints for cast iron soil pipe.

SD-09 Reports

Tests, Flushing and Disinfection ;GA.

Test reports in booklet form showing all field tests performed to adjust each component and all field tests performed to prove compliance with the specified performance criteria, completion and testing of the installed system. Each test report shall indicate the final position of controls.

#### SD-13 Certificates

##### Materials and Equipment; GA.

Where materials or equipment are specified to comply with requirements of AGA, or ASME, proof of such compliance. The label or listing of the specified agency will be acceptable evidence. In lieu of the label or listing, a written certificate may be submitted from an approved, nationally recognized testing organization equipped to perform such services, stating that the items have been tested and conform to the requirements and testing methods of the specified agency. Where equipment is specified to conform to requirements of the ASME Boiler and Pressure Vessel Code, the design, fabrication, and installation shall conform to the code.

##### Bolts; FIO.

Written certification by the bolt manufacturer that the bolts furnished comply with the specified requirements. The certification shall include illustrations of product-required markings, the date of manufacture, and the number of each type of bolt to be furnished based on this certification.

## 1.5 REGULATORY REQUIREMENTS

Plumbing work shall be in accordance with [NAPHCC-01](#).

## 1.6 PROJECT/SITE CONDITIONS

The Contractor shall become familiar with details of the work, verify dimensions in the field, field verify locations of all connections to existing piping and advise the Contracting Officer of any discrepancy before performing any work.

## 2 PRODUCTS

### 2.1 MATERIALS

Materials for various services shall be in accordance with TABLES I and II. Pipe schedules shall be selected based on service requirements. Pipe fittings shall be compatible with the applicable pipe materials. Pipe threads (except dry seal) shall conform to [ASME B1.20.1](#). Material or equipment containing lead shall not be used in any potable water system. Hubless cast-iron soil pipe shall not be used or proposed

#### 2.1.1 Pipe Joint Materials

Grooved pipe and hubless cast-iron soil pipe shall not be used. Joints and gasket materials shall conform to the following:

- a. Coupling for Cast-Iron Pipe: For hub and spigot type [ASTM A 74](#), [AWWA C606](#).

- b. Flange Gaskets: Gaskets shall be made of non-asbestos material in accordance with [ASME B16.21](#). Gaskets shall be flat, 1/16 inch thick, and contain Aramid fibers bonded with Styrene Butadiene Rubber (SBR) or Nitro Butadiene Rubber (NBR). Gaskets shall be the full face or self-centering flat ring type. Gaskets used for hydrocarbon service shall be bonded with NBR.
- c. Neoprene Gaskets for Hub and Cast-Iron Pipe and Fittings: [CISPI HSN-85](#).
- d. Brazing Material: Brazing material shall conform to [AWS A5.8](#), BCuP-5.
- e. Brazing Flux: Flux shall be in paste or liquid form appropriate for use with brazing material. Flux shall be as follows: lead-free; have a 100 percent flushable residue; contain slightly acidic reagents; contain potassium borides; and contain fluorides. Silver brazing materials shall be in accordance with [AWS A5.8](#).
- f. Solder Material: Solder metal shall conform to [ASTM B 32](#) 95-5 tin-antimony.
- i. Solder Flux: Flux shall be liquid form, non-corrosive, and conform to [ASTM B 813](#), Standard Test 1.
- j. Rubber Gaskets for Cast-Iron Soil Pipe and Fittings (hub and spigot type and hubless type): [ASTM C 564](#).
- k. Flexible Elastomeric Seals: [ASTM D 3139](#), [ASTM D 3212](#) or [ASTM F 477](#).
- l. Flanged fittings including flanges, bolts, nuts, bolt patterns, etc., shall be in accordance with [ASME B16.5](#) class 150 and shall have the manufacturer's trademark affixed in accordance with [MSS SP-25](#). Flange material shall conform to [ASTM A 105/A 105M](#). Blind flange material shall conform to [ASTM A 516/A 516M](#) cold service and [ASTM A 515/A 515M](#) for hot service. Bolts shall be high strength or intermediate strength with material conforming to [ASTM A 193/A 193M](#).

### 2.1.2 Miscellaneous Materials

Miscellaneous materials shall conform to the following:

- a. Hose Clamps: [SAE J 1508](#).
- b. Metallic Cleanouts: [ASME A112.36.2M](#).
- c. Hypochlorites: [AWWA B300](#).
- d. Liquid Chlorine: [AWWA B301](#).

### 2.1.3 Pipe Insulation Material

Insulation shall be as specified in Section 15080 THERMAL INSULATION FOR MECHANICAL SYSTEMS.

## 2.2 PIPE HANGERS, INSERTS, AND SUPPORTS

Pipe hangers, inserts, and supports shall conform to MSS SP-58 and MSS SP-69. All supports and anchors shall be galvanized.

## 2.3 VALVES

Valves 2-1/2 inches and smaller shall be bronze with threaded bodies for pipe and solder-type connections for tubing. Valves 3 inches and larger shall have flanged iron bodies and bronze trim. Pressure ratings shall be based upon the application. Valves shall conform to the following standards:

| Description                                 | Standard  |
|---|-----------|
| Bronze Gate, Globe, Angle, and Check Valves | MSS SP-80 |

### 2.3.1 Valve Identification

All valves shall be identified with a brass identification tag fastened securely at specified locations. Tags shall be 1 1/2-inch in diameter with depressed black figures 1/2-inch high. Reference contract drawings for information to put on tags.

## 3 EXECUTION

### 3.1 GENERAL INSTALLATION REQUIREMENTS

The plumbing system shall be installed complete with necessary fittings, traps, valves, and accessories. Valves shall be installed with control no lower than the valve body.

#### 3.1.1 Water Pipe, Fittings, and Connections

##### 3.1.1.1 Utilities

The piping shall be connected to the existing piping at the locations shown. The hot-water and cold-water piping shall be arranged and installed to permit draining with capped drain down valves with hose-end threads installed at low points and as shown.

##### 3.1.1.2 Cutting and Repairing

The work shall be carefully laid out in advance, and unnecessary cutting of construction shall be avoided. Damage to building, piping, wiring, or equipment as a result of cutting shall be repaired by mechanics skilled in the trade involved.

##### 3.1.1.3 Protection of Fixtures, Materials, and Equipment

Pipe openings shall be closed with caps or plugs during installation. Upon completion of the work, materials shall be thoroughly cleaned and all construction debris shall be removed.

#### 3.1.1.4 Mains, Branches, and Runouts

Piping shall be installed as indicated. Pipe shall be accurately cut and worked into place without springing or forcing. Structural portions of the building shall not be weakened. Piping shall run parallel with the lines of the building as shown. Branch pipes from service lines may be taken from top, bottom, or side of main, using crossover fittings required by structural or installation conditions. Supply pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering on the different services. Bare and insulated water lines shall not bear directly against building structural elements so as to transmit sound to the structure or to prevent flexible movement of the lines. Changes in pipe sizes shall be made with reducing fittings. Use of bushings will not be permitted except for use in situations in which standard factory fabricated components are furnished to accommodate specific excepted installation practice. Change in direction shall be made with fittings.

#### 3.1.1.5 Pipe Drains

Pipe drains indicated shall consist of 3/4 inch hose bibb with renewable seat and gate valve ahead of hose bibb Provide brass hose caps for all drain down valves.

#### 3.1.1.6 Expansion and Contraction of Piping

Allowance shall be made throughout for expansion and contraction of water pipe. Each hot-water and hot-water circulation riser shall have offsets, changes in direction, etc. Branch connections from risers shall be made with ample swing or offset to avoid undue strain on fittings or short pipe lengths. Sufficient flexibility shall be provided on branch runouts from mains and risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that piping will spring enough to allow for expansion without straining.

#### 3.1.2 Joints

Installation of pipe and fittings shall be made in accordance with the manufacturer's recommendations. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints shall be made up with fittings of compatible material and made for the specific purpose intended.

##### 3.1.2.1 Union and Flanges

Unions, flanges and mechanical couplings shall not be concealed in partitions. Unions shall be used on pipe sizes 2-1/2 inches and smaller; flanges shall be used on pipe sizes 3 inches and larger.

##### 3.1.2.2 Cast Iron Soil, Waste and Vent Pipe

Bell and spigot compression joints for soil, waste and vent piping shall be installed per the manufacturer's recommendations.

### 3.1.2.3 Copper Tube and Pipe

The tube or fittings shall not be annealed when making connections. Connections shall be made with a multi-flame torch.

- a. Brazed. Brazed joints shall be made in conformance with AWS B2.2, MSS SP-73, and CDA-02 with flux and are acceptable for line sizes. Copper to copper joints shall include the use of copper-phosphorus or copper-phosphorus-silver brazing metal without flux. Brazing of dissimilar metals (copper to bronze or brass) shall include the use of flux with either a copper-phosphorus, copper-phosphorus-silver or a silver brazing filler metal.
- b. Soldered. Soldered joints shall be made with flux and are only acceptable for lines 2 inches and smaller. Soldered joints shall conform to ASME B31.5 and CDA-02.

### 3.1.3 Dissimilar Pipe Materials

Connections between ferrous and non-ferrous copper pipe shall be made with dielectric unions or flange waterways.

### 3.1.4 Pipe Sleeves and Flashing

New pipe sleeves shall be furnished and set in their proper and permanent location.

#### 3.1.4.1 Sleeve Requirements

Pipes passing through concrete or masonry floors shall be provided with pipe sleeves fitted into place as and where shown. Pipe sleeves passing through floors in wet areas (dishwashing/dish preparation for washing areas of dining halls) shall extend a minimum of 4-inches above the finished floor. Unless otherwise indicated, sleeves shall be of a size to provide a minimum of ¼-inch clearance between bare pipe and inside of sleeve or between jacket over insulation and sleeves. Sleeves for membrane waterproof floors shall be steel pipe. The annular space between pipe and sleeve, or between jacket over insulation and sleeve, shall be sealed with noncorrosive RTV type sealant. All existing piping shall be sealed at the bottom of the dining hall floor with non-corrosive RTV type sealant. Sealing of sleeve and piping at underside of floor may require cleaning off small areas of approximately 1-inch thick spray on insulation around existing piping.

### 3.1.5 Supports

#### 3.1.5.1 General

The existing floor is a structural concrete floor approximately 4 inches thick with tile flooring on the top side. The existing floor includes integral concrete beams supported by concrete piers. Hangers used to support piping 2 inches and larger shall be fabricated to permit adequate adjustment after erection while still supporting the load. Pipe guides and anchors shall be installed to keep pipes in accurate alignment, to direct the expansion movement, and to prevent buckling, swaying, and undue strain. Piping subjected to vertical movement when operating temperatures exceed ambient temperatures shall be supported by variable spring hangers and supports or by constant support hangers. In the support of multiple pipe

runs on a common base member, a clip or clamp shall be used where each pipe crosses the base support member. Spacing of the base support members shall not exceed the hanger and support spacing required for an individual pipe in the multiple pipe run. Threaded sections of rods shall not be formed or bent.

### 3.1.5.2 Pipe Supports and Structural Bracing, Seismic Requirements

Piping and attached valves shall be supported and braced to resist seismic loads. Structural steel required for reinforcement to properly support piping, headers, and equipment, but not shown, shall be provided. Material used for supports shall be as specified in Section 05120 STRUCTURAL STEEL.

### 3.1.5.3 Pipe Hangers, Inserts, and Supports

Installation of pipe hangers, inserts and supports shall conform to MSS SP-58 and MSS SP-69, except as modified herein. Pipe hangers used shall be compatible with and not damage the existing structural concrete kitchen and dining hall floor. Pipe hanger types and their supports shall be submitted for Government approval. All piping will be installed hanging inside the existing dining hall crawl space. Existing piping is supported mostly from adjustable clevis hangers or trapeze and u-bolt supports where many supply runouts exist in parallel. New pipe hanger support anchors should normally be installed in the vertical faces of the floor horizontal concrete floor beams. Supports that cannot be attached to the vertical faces of the floor beams, that is for anchors in between beam faces install them using approved wedge stud anchors in predrilled holes. The predrilled hole lengths shall not exceed 2/3rds of the thickness of the existing floor slab.

- a. Types 5, 12, and 26 shall not be used.
- b. Type 3 shall not be used on insulated pipe.
- c. Type 24 may be used only on trapeze hanger systems or on fabricated frames.
- d. Type 39 saddles shall be used on insulated pipe 4 inches and larger when the temperature of the medium is 60 degrees F or higher. Type 39 saddles shall be welded to the pipe.
- e. Type 40 shields shall:
  - (1) Be used on insulated pipe less than 4 inches.
  - (2) Be used on insulated pipe 4 inches and larger when the temperature of the medium is 60 degrees F or less.
  - (3) Have a high density insulation insert to support the piping at the shield. High density inserts shall have a density of 8 pcf or greater.
- f. Horizontal pipe supports shall be spaced as specified in MSS SP-69 and a support shall be installed not over 1 foot from the pipe fitting joint at each change in direction of the piping. Pipe supports shall be spaced not over 5 feet apart at valves. Horizontal pipe runs shall include allowances for expansion and contraction.

- g. Vertical pipe risers shall include allowances for expansion and contraction.
- h. Type 40 shields used on insulated pipe shall have high density inserts with a density of 8 pounds per cubic foot (pcf) or greater.
- i. Pipe hangers on horizontal insulated pipe shall be the size of the outside diameter of the insulation. The insulation shall be continuous through the hanger on all pipe sizes and applications.

### 3.1.6 Pipe Cleanouts

Pipe clean outs shall be the same size and type as the clean outs shown.

## 3.2 TESTS, FLUSHING AND DISINFECTION

### 3.2.1 Plumbing System

The following tests shall be performed on the plumbing system in accordance with NAPHCC-01.

- a. Drainage and Vent Systems Tests.
- b. Water Supply Systems Tests.

### 3.2.2 Defective Work

If inspection or test shows defects, such defective work or material shall be replaced or repaired as necessary and inspection and tests shall be repeated. Repairs to piping shall be made with new materials.

### 3.2.3 System Flushing

Before tests, potable water piping shall be flushed. In general, sufficient water shall be used to produce a minimum water velocity of 2.5 feet per second through piping being flushed. Flushing shall be continued until entrained dirt and other foreign materials have been removed and until discharge water shows no discoloration. System shall be drained at low points. After flushing and cleaning, systems shall be prepared for service by immediately filling water piping with clean, fresh potable water. Any stoppage, discoloration, or other damage to the finish, furnishings, or parts of the building due to the Contractor's failure to properly clean the piping system shall be repaired by the Contractor. When the system flushing is complete, the hot-water system shall be adjusted for uniform circulation. Flushing devices and automatic control systems shall be adjusted for proper operation.

### 3.2.4 Operational Test

Upon completion of and prior to acceptance of the installation, the Contractor shall subject the plumbing system to operating tests to demonstrate satisfactory functional and operational efficiency. Such operating tests shall cover a period of not less than 8 hours for each system and shall include the following information in a report with conclusion as to the adequacy of the system:

- a. Time, date, and duration of test.

c. Operation of each valve.

### 3.2.5 Disinfection

After operational tests are complete, the entire (new piping and existing) domestic hot- and cold-water distribution system shall be disinfected. System shall be flushed as specified, before introducing chlorinating material. The chlorinating material shall be hypochlorites or liquid chlorine. Water chlorination procedure shall be in accordance with [AWWA M20](#). The chlorinating material shall be fed into the water piping system at a constant rate at a concentration of at least 50 parts per million (ppm). A properly adjusted hypochlorite solution injected into the main with a hypochlorinator, or liquid chlorine injected into the main through a solution-feed chlorinator shall be used. The chlorine residual shall be checked at intervals to ensure that the proper level is maintained. Chlorine application shall continue until the entire main is filled. The water shall remain in the system for a minimum of 24 hours. Each valve in the system being disinfected shall be opened and closed several times during the contact period to ensure its proper disinfection. Following the 24-hour period, no less than 25 ppm chlorine residual shall remain in the system. Water tanks shall be disinfected by the addition of chlorine directly to the filling water. Following a 6 hour period, no less than 50 ppm chlorine residual shall remain in the tank. The system including the tanks shall then be flushed with clean water until the residual chlorine is reduced to less than one part per million. During the flushing period each valve and faucet shall be opened and closed several times. From several points in the system the Contracting Officer will take samples of water in proper disinfection containers for bacterial examination. The samples of water shall be tested for total coliform organisms (coliform bacteria, fecal coliform, streptococcal, and other bacteria) in accordance with [AWWA-01](#). The testing method used shall be either the multiple-tube fermentation technique or the membrane-filter technique. The sterilizing shall be repeated until tests indicate the absence of coliform organisms (zero mean coliform density per 100 milliliters) in the samples for at least 2 full days. The system will not be accepted until satisfactory bacteriological results have been obtained.

### 3.3 TABLES

TABLE I  
 PIPE AND FITTING MATERIALS FOR  
 DRAINAGE, WASTE, AND VENT PIPING SYSTEMS

| Item # | Pipe and Fitting Materials   | SERVICE |   |   |   |
|--------|--|---------|---|---|---|
|        |  | A       | B | C | D |
| 1      | Cast iron soil pipe and fittings, hub and spigot, ASTM A 74 with compression gaskets                             |         | X |   | X |
| 2      | Cast iron soil pipe and fittings hubless, CISPI 301 and ASTM A 888   |         | X |   | X |
| 11     | Seamless red brass pipe, ASTM B 43   |         | X |   |   |
| 12     | Bronzed flanged fittings, ASME B16.24 for use with Items 11 and 14   |         |   |   | X |
| 13     | Cast copper alloy solder joint pressure fittings, ASME B16.18 for use with Item 14                               |         |   |   | X |
| 14     | Seamless copper pipe, ASTM B 42  |         |   |   | X |
| 15     | Cast bronze threaded fittings, ASME B16.15   |         |   |   | X |
| 16     | Copper drainage tube, (DWV), ASTM B 306  |         | X |   | X |
| 17     | Wrought copper and wrought alloy solder-joint drainage fittings. ASME B16.29                                     |         | X |   | X |
| 18     | Cast copper alloy solder joint drainage fittings, DWV, ASME B16.23   |         | X |   | X |
| 22     | High-silicon content cast iron pipe and fittings (hub and spigot, and mechanical joint), ASTM A 518, ASTM A 518M |         | X |   |   |

SERVICE:

- A - Not Used
- B - Aboveground Soil, Waste, Drain In Buildings
- C - Not Used
- D - Aboveground Vent

TABLE II  
 PIPE AND FITTING MATERIALS FOR PRESSURE PIPING SYSTEMS\*

| Item No. | Pipe and Fitting Materials  | SERVICE |     |   |   |
|----------|---|---------|-----|---|---|
|          |   | A       | B   | C | D |
| 1        | Bronze flanged fittings,<br>ASME B16.24 for use with Item 2                                     | X       | X   |   |   |
| 2        | Seamless copper pipe,<br>ASTM B 42  | X       | X   |   |   |
| 3        | Seamless copper water tube,<br>ASTM B 88, ASTM B 88M  | X**     | X** |   |   |
| 4        | Seamless and welded copper distribution<br>tube (Type D) ASTM B 641                             | X**     | X** |   |   |
| 5        | Cast bronze threaded fittings,<br>ASME B16.15 for use<br>with Item 2 (unions only)              | X       | X   |   |   |
| 6        | Wrought copper and bronze solder-joint<br>pressure fittings,<br>ASME B16.22 for use with Item 2 | X       | X   |   |   |
| 7        | Cast copper alloy solder-joint<br>pressure fittings, ASME B16.18<br>for use with Items 3 and 4  | X       | X   |   |   |

- A - Cold Water Aboveground
- B - Hot Water 180 degrees F Maximum Aboveground
- C - Not Used
- D - Not Used

\* - Pressure piping includes domestic hot and cold water piping. All piping materials shall be hard temper only.

Indicated types are minimum wall thicknesses as given below:

\*\* - Type K - Hard temper with brazed joints only

- END OF SECTION -

SECTION 15895

AIR SUPPLY, DISTRIBUTION, VENTILATION, AND EXHAUST SYSTEM  
02/94

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.

AIR CONDITIONING AND REFRIGERATION INSTITUTE (ARI)

ARI Guideline D (1996) Application and Installation of  
Central Station Air-Handling Units

AIR MOVEMENT AND CONTROL ASSOCIATION (AMCA)

AMCA ANSI/AMCA 210 (1985) Laboratory Methods of Testing Fans for  
Rating

AMCA Std 300 (1996) Reverberant Room Method for Sound  
Testing of Fans

AMERICAN BEARING MANUFACTURERS ASSOCIATION (AFBMA)

AFBMA ANSI B3.15/AFBMA Std 9 (1990) Load Ratings and Fatigue Life for Ball  
Bearings

AFBMA ANSI B3.16/AFBMA Std 11 (1990) Load Ratings and Fatigue Life for  
Roller Bearings

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 53 (1997) Pipe, Steel, Black and Hot-Dipped,  
Zinc-Coated, Welded and Seamless

ASTM A 123/A 123M (1997a) Zinc (Hot-Dip Galvanized) Coatings on  
Iron and Steel Products

ASTM A 924/A 924M (1997a) General Requirements for Steel Sheet,  
Metallic-Coated by the Hot-Dip Process

ASTM B 117 (1997) Operating Salt Spray (FOG) Apparatus

ASTM D 520 (1984; R 1995) Zinc Dust Pigment

ASTM D 1654 (1992) Evaluation of Painted or Coated  
Specimens Subjected to Corrosive Environments

ASTM D 3359 (1995a) Measuring Adhesion by Tape Test

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION  
(SMACNA)

SMACNA HVAC Duct Construction Standards

(1995; Addenda Nov 1997) HVAC Duct  
Construction Standards - Metal and Flexible

1.2 COORDINATION OF TRADES

Ductwork, piping offsets, fittings, and accessories shall be furnished as required to provide a complete installation and to eliminate interference with other construction.

1.3 DELIVERY AND STORAGE

Equipment delivered and placed in storage shall be stored with protection from the weather, humidity and temperature variations, dirt and dust, or other contaminants.

1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Components and Equipment Data; GA.

Manufacturer's catalog data shall be included with the detail drawings for the following items. The data shall be highlighted to show model, size, options, etc. that are intended for consideration. Data shall be adequate to demonstrate compliance with contract requirements for the following:

- a. Ductwork Components
- b. Air Systems Equipment

SD-04 Drawings

Air Supply, Distribution, Ventilation, and Exhaust Equipment; GA.

Drawings shall consist of equipment layout including assembly and installation details and electrical connection diagrams; ductwork layout showing the location of all supports and hangers, typical hanger details, gauge reinforcement, reinforcement spacing rigidity classification, and static pressure and seal classifications; and piping layout showing the location of all guides and anchors, the load imposed on each support or anchor, and typical support details. Drawings shall include any information required to demonstrate that the system has been coordinated and will properly function as a unit and shall show equipment relationship to other parts of the work, including clearances required for operation and maintenance.

SD-06 Instructions

Test Procedures; GA.

Proposed test procedures for performance tests of systems, at least 2 weeks prior to the start of related testing.

#### SD-07 Schedules

Test Schedules; GA.

Proposed test schedules for hydrostatic test of piping, ductwork leak test, and performance tests, at least 2 weeks prior to the start of related testing.

Welding Qualification; FIO.

A list of names and identification symbols of qualified welders and welding operators, at least 2 weeks prior to the start of welding operations.

#### SD-09 Reports

Test Reports; GA.

Test reports for the performance tests in booklet form, upon completion of testing. Reports shall document phases of tests performed including initial test summary, repairs/adjustments made, and final test results.

#### SD-13 Certificates

#### SD-19 Operation and Maintenance Manuals

Ventilation, and Exhaust Manuals; GA.

Six manuals listing step-by-step procedures required for system startup, operation, shutdown, and routine maintenance, at least 2 weeks prior to field training. The manuals shall include the manufacturer's name, model number, parts list, list of parts and tools that should be kept in stock by the owner for routine maintenance including the name of a local supplier, simplified wiring and controls diagrams, troubleshooting guide, and recommended service organization (including address and telephone number) for each item of equipment.

## 2 PRODUCTS

### 2.1 STANDARD PRODUCTS

Components and equipment shall be standard products of a manufacturer regularly engaged in the manufacturing of products that are of a similar material, design and workmanship. The standard products shall have been in satisfactory commercial or industrial use for 2 years before bid opening. The 2-year experience shall include applications of components and equipment under similar circumstances and of similar size. The 2 years must be satisfactorily completed by a product which has been sold or is offered for sale on the commercial market through advertisements, manufacturers' catalogs, or brochures. Products having less than a 2-year field service record will be acceptable if a certified record of satisfactory field operation, for not less than 6000 hours exclusive of the manufacturer's

factory tests, can be shown. The equipment items shall be supported by a service organization.

## 2.2 ASBESTOS PROHIBITION

Asbestos and asbestos-containing products shall not be used.

## 2.3 NAMEPLATES

Equipment shall have a nameplate that identifies the manufacturer's name, address, type or style, model or serial number, and catalog number.

## 2.4 EQUIPMENT GUARDS AND ACCESS

Belts, pulleys, chains, gears, couplings, projecting setscrews, keys, and other rotating parts exposed to personnel contact shall be fully enclosed or guarded according to OSHA requirements.

## 2.5 DUCTWORK COMPONENTS

### 2.5.1 Metal Ductwork

Crawl space exhaust ductwork pressure class shall be low-pressure ½-inch water gage. All aspects of metal ductwork construction, including all fittings and components, shall comply with **SMACNA HVAC Duct Construction Standards** unless otherwise specified. Elbows shall be radius type with a centerline radius of 1-1/2 times the width or diameter of the duct where space permits. Otherwise, elbows having a minimum radius equal to the width or diameter of the duct or square elbows with factory fabricated turning vanes may be used. Static pressure Class ½ shall meet the requirements of Seal Class A. Sealants shall conform to fire hazard classification specified in Section 15080 THERMAL INSULATION FOR MECHANICAL SYSTEMS. Pressure sensitive tape shall not be used as a sealant. Spiral lock seam duct, and flat oval shall be made with duct sealant and locked with not less than three equally spaced drive screws or other approved methods indicated in **SMACNA HVAC Duct Construction Standards**. The sealant shall be applied to the exposed male part of the fitting collar so that the sealer will be on the inside of the joint and fully protected by the metal of the duct fitting. One brush coat of the sealant shall be applied over the outside of the joint to at least 2-inch band width covering all screw heads and joint gap. Dents in the male portion of the slip-fitting collar will not be acceptable. Outdoor air intake ducts and plenums shall be fabricated with watertight soldered or brazed joints and seams.

#### 2.5.1.1 Transitions

Diverging air flow transitions shall be made with each side pitched out a maximum of 15 degrees, for an included angle of 30 degrees. Transitions for converging air flow shall be made with each side pitched in a maximum of 30 degrees, for an included angle of 60 degrees, or shall be as indicated. Factory-fabricated reducing fittings for systems using round duct sections when formed to the shape of the ASME short flow nozzle, need not comply with the maximum angles specified.

### 2.5.2 Ductwork Accessories

### 2.5.2.1 Manual Balancing Dampers

Manual balancing dampers shall be furnished with accessible operating mechanisms. Where operators occur in finished portions of the building, operators shall be chromium plated with all exposed edges rounded. Manual volume control dampers shall be operated by locking-type quadrant operators. Dampers shall be 2 gauges heavier than the duct in which installed. Unless otherwise indicated, multi-leaf dampers shall be opposed blade type with maximum blade width of 12 inches. Access doors or panels shall be provided for all concealed damper operators and locking setscrews. Unless otherwise indicated, the locking-type quadrant operators for dampers, when installed on ducts to be thermally insulated, shall be provided with stand-off mounting brackets, bases, or adapters to provide clearance between the duct surface and the operator not less than the thickness of the insulation. Stand-off mounting items shall be integral with the operator or standard accessory of the damper manufacturer. Volume dampers shall be provided where indicated.

### 2.5.3 Duct Sleeves, Framed Prepared Openings, Closure Collars

#### 2.5.3.1 Duct Sleeves

Duct sleeves shall be provided for round ducts 15 inches in diameter or less passing through floors, walls, ceilings, or roof, and installed during construction of the floor, wall, ceiling, or roof. Round ducts larger than 15 inches in diameter and square, rectangular, and oval ducts passing through floors, walls, ceilings, or roof shall be installed through framed prepared openings. The Contractor shall be responsible for the proper size and location of sleeves and prepared openings. Sleeves and framed openings are also required where grilles, registers, and diffusers are installed at the openings. Framed prepared openings shall be fabricated from 20 gauge galvanized steel, unless otherwise indicated. Where sleeves are installed in bearing walls or partitions, black steel pipe, [ASTM A 53](#), Schedule 20 shall be used. Sleeve shall provide 1 inch clearance between the duct and the sleeve or 1 inch clearance between the insulation and the sleeve for insulated ducts.

#### 2.5.3.2 Framed Prepared Openings

Openings shall have ½-inch clearance between the duct and the opening.

#### 2.5.3.3 Closure Collars

Collars shall be fabricated of galvanized sheet metal not less than 4-inches wide, unless otherwise indicated, and shall be installed on exposed ducts on each side of walls or floors where sleeves or prepared openings are provided. Collars shall be installed tight against surfaces. Collars shall fit snugly around the duct or insulation. Sharp edges of the collar around insulated duct shall be ground smooth to preclude tearing or puncturing the insulation covering or vapor barrier. Collars for round ducts 15 inches in diameter or less shall be fabricated from 20 gauge galvanized steel. Collars for round ducts larger than 15 inches and square, and rectangular ducts shall be fabricated from 18 gauge galvanized steel. Collars shall be installed with fasteners on maximum 6-inch centers, except that not less than 4 fasteners shall be used.

## 2.6 AIR SYSTEMS EQUIPMENT

### 2.6.1 Fans

Fans shall be tested and rated according to [AMCA ANSI/AMCA 210](#). Fans may be connected to the motors either directly or indirectly with V-belt drive. V-belt drives shall be designed for not less than 120 percent of the connected driving capacity. Motor sheaves shall be variable pitch for 15 hp and below and fixed pitch as defined by [ARI Guideline D](#). Variable pitch sheaves shall be selected to drive the fan at a speed which will produce the specified capacity when set at the approximate midpoint of the sheave adjustment. When fixed pitch sheaves are furnished, a replaceable sheave shall be provided when needed to achieve system air balance. Motors for V-belt drives shall be provided with adjustable rails or bases. Removable metal guards shall be provided for all exposed V-belt drives, and speed-test openings shall be provided at the center of all rotating shafts. Fans shall be provided with personnel screens or guards on both suction and supply ends, except that the screens need not be provided, unless otherwise indicated, where ducts are connected to the fan. Fan and motor assemblies shall be provided with vibration-isolation supports or mountings as indicated. Vibration-isolation units shall be standard products with published loading ratings. Each fan shall be selected to produce the capacity required at the fan static pressure indicated. Sound power level shall be as indicated. The sound power level values shall be obtained according to [AMCA Std 300](#). Standard AMCA arrangement, rotation, and discharge shall be as indicated.

#### 2.6.1.1 Centrifugal Fans

Centrifugal fans shall be fully enclosed, single-width single-inlet, or double-width double-inlet, AMCA Pressure Class I, II, or III as required or indicated for the design system pressure. Impeller wheels shall be rigidly constructed, accurately balanced both statically and dynamically. Fan wheels 36 inches or less in diameter may have one or more extra long bearings between the fan wheel and the drive. Bearings shall be sleeve type, self-aligning and self-oiling with oil reservoirs, or precision self-aligning roller or ball-type with accessible grease fittings or permanently lubricated type. Grease fittings shall be connected to tubing and serviceable from a single accessible point. Bearing life shall be L50 rated at not less than 200,000 hours as defined by [AFBMA ANSI B3.15/AFBMA Std 9](#) and [AFBMA ANSI B3.16/AFBMA Std 11](#). Fan shafts shall be steel, accurately finished, and shall be provided with key seats and keys for impeller hubs and fan pulleys. Each fan outlet shall be of ample proportions and shall be designed for the attachment of angles and bolts for attaching flexible connections. Motors, unless otherwise indicated, shall not exceed 1800 rpm and shall have totally enclosed enclosures. Motor starters shall be manual type with watertight enclosure.

#### 2.6.1.2 Centrifugal Type Power Roof Ventilators

Fans shall be direct driven with backward inclined, non-overloading wheel. Motor compartment housing shall be hinged or removable and weatherproof, constructed of heavy gauge aluminum. Fans shall be provided with bird screen, disconnect switch, gravity backdraft dampers, and extended base. Motors enclosure shall be totally enclosed fan cooled. Lubricated and lubricatable bearings shall be provided.

## 2.7 FACTORY PAINTING

Units which are not of galvanized construction according to [ASTM A 123/A 123M](#) or [ASTM A 924/A 924M](#) shall be factory painted with a corrosion resisting paint finish. Internal and external ferrous metal surfaces shall be cleaned, phosphatized and coated with a paint finish which has been tested according to [ASTM B 117](#), [ASTM D 1654](#), and [ASTM D 3359](#). Evidence of satisfactory paint performance for a minimum of 125 hours for units to be installed indoors and 500 hours for units to be installed outdoors shall be submitted. Rating of failure at the scribe mark shall be not less than 6, average creepage not greater than 1/8 inch. Rating of the inscribed area shall not be less than 10, no failure. On units constructed of galvanized steel which have been welded, exterior surfaces of welds or welds that have burned through from the interior shall receive a final shop docket of zinc-rich protective paint according to [ASTM D 520](#) Type I.

## 3 EXECUTION

### 3.1 INSTALLATION

Work shall be installed as shown and according to the manufacturer's diagrams and recommendations.

#### 3.1.1 Sleeved and Framed Openings

For non-fire rated penetrations, the space shall be packed as specified in Section [07900](#) JOINT SEALING.

#### 3.1.2 Metal Ductwork

Installation shall be according to [SMACNA HVAC Duct Construction Standards](#) unless otherwise indicated. Duct supports for sheet metal ductwork shall be according to [SMACNA HVAC Duct Construction Standards](#), unless otherwise specified. Friction beam clamps indicated in [SMACNA HVAC Duct Construction Standards](#) shall not be used. Risers on high velocity ducts shall be anchored in the center of the vertical run to allow ends of riser to move due to thermal expansion. Supports on the risers shall allow free vertical movement of the duct. Supports shall be attached only to structural framing members and concrete slabs. Supports shall not be anchored to metal decking unless a means is provided and approved for preventing the anchor from puncturing the metal decking. Where supports are required between structural framing members, suitable intermediate metal framing shall be provided. Where C-clamps are used, retainer clips shall be provided.

#### 3.1.3 Duct Test Holes

Holes with closures or threaded holes with plugs shall be provided in ducts and plenums as indicated or where necessary for the use of pitot tube in balancing the air system. Extensions, complete with cap or plug, shall be provided where the ducts are insulated.

#### 3.1.4 Power Roof Ventilator Mounting

Foamed ½-inch thick, closed-cell, flexible elastomer insulation shall cover width of roof curb mounting flange. Where wood nailers are used, holes shall be pre-drilled for fasteners.

### 3.1.5 Power Transmission Components Adjustment

V-belts and sheaves shall be tested for proper alignment and tension prior to operation and after 72 hours of operation at final speed. Belts on drive side shall be uniformly loaded, not bouncing. Alignment of direct driven couplings shall be to within 50 percent of manufacturer's maximum allowable range of misalignment.

### 3.2 FIELD PAINTING AND PIPING IDENTIFICATION

Finish painting of items only primed at the factory or surfaces not specifically noted otherwise and identification for piping are specified in Section 09900 PAINTING, GENERAL.

Equipment shall be wiped clean, with traces of oil, dust, dirt, or paint spots removed. Temporary filters shall be provided prior to startup of all fans that are operated during construction, and new filters shall be installed after all construction dirt has been removed from the building, and the ducts, plenums, casings, and other items specified have been vacuum cleaned. System shall be maintained in this clean condition until final acceptance. Bearings shall be properly lubricated with oil or grease as recommended by the manufacturer. Belts shall be tightened to proper tension. Control valves and other miscellaneous equipment requiring adjustment shall be adjusted to setting indicated or directed. Fans shall be adjusted to the speed indicated by the manufacturer to meet specified conditions.

### 3.3 TESTING, ADJUSTING, AND BALANCING

Testing, adjusting, and balancing shall be as specified in Section 15990 TESTING, ADJUSTING AND BALANCING OF HVAC SYSTEMS. Testing, adjusting, and balancing shall begin only when the air supply and distribution, including controls, has been completed, with the exception of performance tests.

### 3.4 PERFORMANCE TESTS

After testing, adjusting, and balancing has been completed as specified, each system shall be tested as a whole to see that all items perform as integral parts of the system and temperatures and conditions are evenly controlled throughout the building. Corrections and adjustments shall be made as necessary to produce the conditions indicated or specified. Capacity tests and general operating tests shall be conducted by an experienced engineer. Tests shall cover a period of not less than 1 day for each system and shall demonstrate that the entire system is functioning according to the specifications.

SECTION 15990

TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS  
08/97

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.

ASSOCIATED AIR BALANCE COUNCIL (AABC)

AABC MN-1 (1989) National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems

NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB)

NEBB-01 (1991) Procedural Standards for Testing Adjusting Balancing of Environmental Systems

1.2 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 01330 SUBMITTAL PROCEDURES:

SD-01 Data

TAB Related HVAC Submittals; FIO.

A list of the TAB Related HVAC Submittals, no later than 7 days after the approval of the TAB Specialist.

SD-04 Drawings

TAB Schematic Drawings and Report Forms; GA.

Three copies of the TAB Schematic Drawings and Report Forms, no later than 21 days prior to the start of TAB field measurements.

SD-06 Instructions

TAB Procedures; GA.

Proposed procedures for TAB, submitted with the TAB Schematic Drawings and Report Forms.

SD-07 Schedules

Systems Readiness Check; GA.

Proposed date and time to begin the Systems Readiness Check, no later than 7 days prior to the start of the Systems Readiness Check.

TAB Execution; GA.

Proposed date and time to begin field measurements, making adjustments, etc., for the TAB Report, submitted with the Systems Readiness Check Report.

TAB Verification; GA.

Proposed date and time to begin the TAB Verification, submitted with the TAB Report.

#### SD-08 Statements

TAB Firm; GA.

Certification of the proposed TAB Firm's qualifications by either AABC or NEBB to perform the duties specified herein and in other related Sections, no later than 21 days after the Notice to Proceed. The documentation shall include the date that the Certification was initially granted and the date that the current Certification expires. Any lapses in Certification of the proposed TAB Firm or disciplinary action taken by AABC or NEBB against the proposed TAB Firm shall be described in detail.

TAB Specialist; GA.

Certification of the proposed TAB Specialist's qualifications by either AABC or NEBB to perform the duties specified herein and in other related Sections, no later than 21 days after the Notice to Proceed. The documentation shall include the date that the Certification was initially granted and the date that the current Certification expires. Any lapses in Certification of the proposed TAB Specialist or disciplinary action taken by AABC or NEBB against the proposed TAB Specialist shall be described in detail.

Instrument Calibration; FIO.

List of each instrument to be used during TAB, stating calibration requirements required or recommended by both the TAB Standard and the instrument manufacturer and the actual calibration history of the instrument, submitted with the TAB Procedures. The calibration history shall include dates calibrated, the qualifications of the calibration laboratory, and the calibration procedures used.

#### SD-09 Reports

Design Review Report; GA.

A copy of the Design Review Report, no later than 14 days after approval of the TAB Firm and the TAB Specialist.

Systems Readiness Check Report; GA.

A copy of completed checklists for each system, each signed by the TAB Specialist, at least 7 days prior to the start of TAB Execution. All items in the Systems Readiness Check Report shall be signed by the TAB Specialist

and shall bear the seal of the Professional Society or National Association used as the TAB Standard.

**TAB Report; GA.**

Three copies of the completed TAB Reports, no later than 7 days after the execution of TAB. All items in the TAB Report shall be signed by the TAB Specialist and shall bear the seal of the Professional Society or National Association used as the TAB Standard.

**TAB Verification Report; GA.**

Three copies of the completed TAB Verification Report, no later than 7 days after the execution of TAB Verification. All items in the TAB Verification Report shall be signed by the TAB Specialist and shall bear the seal of the Professional Society or National Association used as the TAB Standard.

**SD-13 Certificates**

**1.3 SIMILAR TERMS**

In some instances, terminology differs between the Contract and the TAB Standard primarily because the intent of this Section is to use the industry standards specified, along with additional requirements listed herein to produce optimal results. The following table of similar terms is provided for clarification only. Contract requirements take precedent over the corresponding AABC or NEBB requirements where differences exist.

**SIMILAR TERMS**

| Contract Term           | AABC Term   | NEBB Term   |
|-------------------------|---|---|
| TAB Standard            | National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems | Procedural Standards for Systems Adjusting Balancing of Environmental Systems |
| TAB Specialist          | TAB Engineer  | TAB Supervisor  |
| Systems Readiness Check | Construction Phase Inspection   | Field Readiness Check & Preliminary Field Procedures.                         |

**1.4 TAB STANDARD**

TAB shall be performed in accordance with the requirements of the standard under which the TAB Firm's qualifications are approved, i.e., **AABC MN-1** or **NEBB-01**, unless otherwise specified herein. All recommendations and suggested practices contained in the TAB Standard shall be considered mandatory. The provisions of the TAB Standard, including checklists, report forms, etc., shall, as nearly as practical, be used to satisfy the Contract requirements. The TAB Standard shall be used for all aspects of TAB, including qualifications for the TAB Firm and Specialist and calibration of TAB instruments. Where the instrument manufacturer calibration recommendations are more stringent than those listed in the TAB Standard, the manufacturer's recommendations shall be adhered to. All quality assurance provisions of the TAB Standard such as performance guarantees shall be part

of this contract. For systems or system components not covered in the TAB Standard, TAB procedures shall be developed by the TAB Specialist. Where new procedures, requirements, etc., applicable to the Contract requirements have been published or adopted by the body responsible for the TAB Standard used (AABC or NEBB), the requirements and recommendations contained in these procedures and requirements shall be considered mandatory.

## 1.5 QUALIFICATIONS

### 1.5.1 TAB Firm

The TAB Firm shall be either a member of AABC or certified by the NEBB and certified in all categories and functions where measurements or performance are specified on the plans and specifications. The certification shall be maintained for the entire duration of duties specified herein. If, for any reason, the firm loses subject certification during this period, the Contractor shall immediately notify the Contracting Officer and submit another TAB Firm for approval. Any firm that has been the subject of disciplinary action by either the AABC or the NEBB within the five years preceding Contract Award shall not be eligible to perform any duties related to the HVAC systems, including TAB. All work specified in this Section and in other related Sections to be performed by the TAB Firm shall be considered invalid if the TAB Firm loses its certification prior to Contract completion and must be performed by an approved successor. These TAB services are to assist the prime Contractor in performing the quality oversight for which it is responsible. The TAB Firm shall be a subcontractor of the prime Contractor, and shall report to and be paid by the prime Contractor.

### 1.5.2 TAB Specialist

The TAB Specialist shall be either a member of AABC or an experienced technician of the Firm certified by the NEBB. The certification shall be maintained for the entire duration of duties specified herein. If, for any reason, the Specialist loses subject certification during this period, the Contractor shall immediately notify the Contracting Officer and submit another TAB Specialist for approval. Any individual that has been the subject of disciplinary action by either the AABC or the NEBB within the five years preceding Contract Award shall not be eligible to perform any duties related to the HVAC systems, including TAB. All work specified in this Section and in other related Sections performed by the TAB Specialist shall be considered invalid if the TAB Specialist loses its certification prior to Contract completion and must be performed by the approved successor.

## 1.6 TAB SPECIALIST RESPONSIBILITIES

All TAB work specified herein and in related sections shall be performed under the direct guidance of the TAB Specialist.

## 2 PRODUCTS (NOT APPLICABLE)

## 3 EXECUTION

### 3.1 TAB RELATED HVAC SUBMITTALS

The TAB Specialist shall prepare a list of the submittals from the Contract Submittal Register that relate to the successful accomplishment of all HVAC TAB. The submittals identified on this list shall be accompanied by a letter

of approval signed and dated by the TAB Specialist when submitted to the Government. The TAB Specialist shall also ensure that the location and details of ports, terminals, connections, etc., necessary to perform TAB are identified on the submittals.

### 3.2 TAB SCHEMATIC DRAWINGS AND REPORT FORMS

A schematic drawing showing each system component, including balancing devices, shall be provided for each system. Each drawing shall be accompanied by a copy of all report forms required by the TAB Standard used for that system. Where applicable, the acceptable range of operation or appropriate setting for each component shall be included on the forms or as an attachment to the forms. The schematic drawings shall identify all testing points and cross reference these points to the report forms and procedures.

### 3.3 TESTING, ADJUSTING, AND BALANCING

#### 3.3.1 TAB Procedures

Step-by-step procedures for each measurement required during TAB Execution shall be provided. The procedures shall be oriented such that there is a separate section for each system. The procedures shall include measures to ensure that each system performs as specified in all operating modes, interactions with other components (such as exhaust fans, kitchen hoods, fume hoods, relief vents, etc.) and systems, and with all seasonal operating differences, diversity, simulated loads, and pressure relationships required.

#### 3.3.2 Systems Readiness Check

The TAB Specialist shall inspect each system to ensure that it is complete, including installation and operation of controls, and that all aspects of the facility that have any bearing on the HVAC systems, including installation of ceilings, walls, windows, doors, and partitions, are complete to the extent that TAB results will not be affected by any detail or touch-up work remaining. The TAB Specialist shall also verify that all items such as ductwork and piping ports, terminals, connections, etc., necessary to perform TAB shall be complete during the Systems Readiness Check.

#### 3.3.3 Preparation of TAB Report

Preparation of the TAB Report shall begin only when the Systems Readiness Report has been approved. The Report shall be oriented so that there is a separate section for each system. The Report shall include a copy of the appropriate approved Schematic Drawings and TAB Related Submittals, such as pump curves, fan curves, etc., along with the completed report forms for each system. The operating points measured during successful TAB Execution and the theoretical operating points listed in the approved submittals shall be marked on the performance curves and tables. Where possible, adjustments shall be made using an "industry standard" technique which would result in the greatest energy savings, such as adjusting the speed of a fan instead of throttling the flow. Any deficiencies outside of the realm of normal adjustments and balancing during TAB Execution shall be noted along with a description of corrective action performed to bring the measurement into the specified range. If, for any reason, the TAB Specialist determines during TAB Execution that any Contract requirement cannot be met, the TAB Specialist shall immediately provide a written description of the deficiency and the

corresponding proposed corrective action necessary for proper system operation to the Contracting Officer.

#### 3.3.4 TAB Verification

The TAB Specialist shall recheck ten percent of the measurements listed in the Tab Report and prepare a TAB Verification Report. The measurements selected for verification and the individuals that witness the verification will be selected by the Contracting Officer's Representative (COR). The measurements will be recorded in the same manner as required for the TAB Report. All measurements that fall outside the acceptable operating range specified shall be accompanied by an explanation as to why the measurement does not correlate with that listed in the TAB Report and a description of corrective action performed to bring the measurement into the specified range.

#### 3.3.5 Marking of Setting

Following approval of TAB Verification Report, the setting of all HVAC adjustment devices including valves, splitters, and dampers shall be permanently marked by the TAB Specialist so that adjustment can be restored if disturbed at any time.

#### 3.3.6 Identification of Test Ports

The TAB Specialist shall permanently and legibly identify the location points of duct test ports. If the ductwork has exterior insulation, the identification shall be made on the exterior side of the insulation. All penetrations through ductwork and ductwork insulation shall be sealed to prevent air leakage or to maintain integrity of vapor barrier.