SOLICITATION, OFFER, AND AWARD *(Construction, Alteration, or Repair)*	1. SOLICITATION NUMBER	2. TYPE OF SOLICITATION	3. DATE ISSUED	PAGE OF PAGES
	DACA67-02-R-0202	☐ SEALED BID *(IFB)* ☒ NEGOTIATED *(RFP)*	8 February 2002	1 6

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

CONTRACT NUMBER	5. REQUISITION/PURCHASE REQUEST NUMBER	6. PROJECT NUMBER
DACA67-02-C-0212	W68MD9-1208-9973	

7. ISSUED BY CODE	8. ADDRESS OFFER TO
W68MD9 Seattle District, Corps of Engineers ATTN: CENWS-CT-CB-MU PO Box 3755 Seattle, WA 98124-3755	Seattle District, Corps of Engineers PO Box 3755 ATTN: CENWS-CT-CB-MU Seattle, WA 98124-3755 HAND CARRY: Seattle District Corps of Engineers Contracting Division 4735 East Marginal Way South Seattle, WA 98134-2385

9. FOR INFORMATION CALL ▶	A. NAME	B. TELEPHONE NUMBER *(Include area code) (NO COLLECT CALLS)*
	See Information Page inside Front Cover	See Information Page inside Front Cover

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 number, date):*

Furnish all labor, materials and equipment and perform all work for Design Build: Vehicle Maintenance Facilities, Fort Lewis, Washington in accordance with the attached Contract Clauses, Special Clauses, Technical Specifications and Drawings.

1. Solicitation No. DACA67-02-R-0202 dated 8 February 2002 with 4 amendments thereto.
2. Wage Determination No. WA020001 with 6 modifications and Wage Determination No. WA020002 with 7 modifications thereto.
3. Drawings as listed in Section 00800.
4. See page 00010-3 for alterations to the Contract

NOTE: Award will be made pursuant to the Small Business Competitive Development Program

11. The Contractor shall begin performance within 10 calendar days and complete it * calendar days after ☐ award, ☒ notice to proceed. This performance period is ☒ mandatory, ☐ negotiable. *(See* * Paragraph SC-1, 00800 *.)*

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE PAYMENT BONDS? *(If "YES," indicate within how many calendar days after award in Item 12B.)*	12B. CALENDAR DAYS
☒ YES ☐ NO	10

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and 0 copies to perform the work required are due at the place specified in Item 8 3:00 p.m. *(hour)* local time ~~29 March 2002~~ 4/19/02 *(date)*. If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due. (amnd. #0004)

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

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

D. Offers providing less than 90 calendar days for Government acceptance after the date offers are due will not be considered and be rejected.

OFFER *(Must be fully completed by offeror)*

DACA67-02-C-0212

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*	15. TELEPHONE NUMBER *(Include area code)*
OSBORNE CONSTRUCTION COMPANY P.O. BOX 97010 KIRKLAND, WA 98083 Tax ID No: 91-1389341 DUNS No: 19-678-9440 eMail: occ@osborne.cc	(425) 827-4221 Fax No.: (425) 828-4314 16. REMITTANCE ADDRESS *(Include only if different than Item 14)*
CODE 0JD38 FACILITY CODE	

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 accepted by the Government in writing within _____ calendar days after the date offers are due. *(Insert any number equal or greater than minimum requirement stated in 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)*

AMOUNTS ▶ See Pages 00010-5 thru 00010-8

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.	0001	0002	0003	0004						
DATE	03/19/02	03/27/02	04/05/02	04/08/02						

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*	20B. SIGNATURE	20C. OFFER DATE
Daniel C. Jacobson, Executive Vice President		04/19/02

AWARD *(To be completed by Government)*

21. ITEMS ACCEPTED

Base Items 0001, 0002, 0003, 0004, 0005, and Optional Items 0008 and 0009.

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA
$12,892,761	See Alterations to Contract Page 00010-3

24. SUBMIT INVOICES TO ADDRESS SHOWN IN ▶ *(4 copies unless otherwise specified)*	ITEM 26	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO ☐ 10 U.S.C. 2304(c) ( ) ☐ 41 U.S.C. 253(c) ( )
26. ADMINISTERED BY CODE United States Army Corps of Engineers, Seattle District Northwest Area Office PO Box 92146 Tillicum, WA 98492-0146		27. PAYMENT WILL BE MADE BY US Army Corps of Engineers Finance Center CEFC-AO-P 5722 Integrity Drive Millington, TN 38054-5005

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

☐ 28. NEGOTIATED AGREEMENT *(Contractor is required to sign document and return _____ copies to the issuing office.)* Contractor agrees to furnish and deliver all items or perform all work requirements identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications incorporated by reference in or attached to this

☒ 29. AWARD. *(Contractor is not required to sign this document.)* offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists 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 *(Type or print)*		31A. NAME OF CONTRACTING OFFICER *(Type or print)* KENT R. PAUL	
30B. SIGNATURE	30C. DATE	31B. UNITED STATES OF AMERICA BY	31C. AWARD DATE 15 MAY 02

STANDARD FORM 1442 BACK (REV. 4-85)

ALTERATIONS IN CONTRACT (FAR 52.252-4)(APR 1984)
PORTIONS OF THIS CONTRACT ARE ALTERED AS FOLLOWS:

A. The Contractor's letter, dated 13 May 2002, agreeing to incorporation of the following modifications into General Wage Decisions No. WA020001 and WA020002 into the contract, with no increase to the proposed prices, is provided immediately following the pricing schedule as page ALT-1:

1. General Wage Decision No. WA020001: Modification No. 4, dated 04/19/2002, Modification No. 5, dated 05/03/2002 and Modification No. 6, dated 05/10/2002

2. General Wage Decision No. WA020002: Modification No. 5, dated 04/19/2002, Modification No. 6, dated 05/03/2002 and Modification No. 7, dated 05/10/2002

B. The firm's subcontracting plan is hereby incorporated into the contract and can be found immediately following page ALT-1 as pages SBP-1 through SBP-17.

C. The firm's pre-qualification proposal dated 1 March 2002 is hereby incorporated into this contract in its entirety by reference.

D. The firm's technical proposal, dated 19 April 2002, consisting of volumes 1 and 2, is hereby incorporated by reference in its entirety into the contract:

E. The proposed schedule of 430 calendar days supersedes and replaces the schedule stated on Page 00800-1, SC-1, COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK.

F. The following modifications to the general wage decisions are incorporated into the contract:

1. General Wage Decision No. WA020001:
   a. Modification No. 4, dated 04/19/2002
   b. Modification No. 5, dated 05/03/2002
   c. Modification No. 6, dated 05/10/2002

2. General Wage Decision No. WA020002:
   a. Modification No. 5, dated 04/19/2002
   b. Modification No. 6, dated 05/03/2002
   c. Modification No. 7, dated 05/10/2002

G. ACCOUNTING AND APPROPRIATION DATA:

1. Invoices for all work associated with CLINS 0001AA, 0002AA, 0003AA, 0004AA, 0005AA, 0008 and 0009 must be billed to this line of accounting and appropriations data: 21220500000 088082 32305HJGD810540680000 DA3G 35026 000000000000 = $6,588,182.00

2. Invoices for all work associated with CLINS 0001BB, 0002BB, 0003BB, 0004BB, and 0005BB, must be billed to this line of accounting and appropriations data: 21220500000 088082 323041KHB510541130000 DA3G 35026 000000000000 = $6,304,579.00

END OF ALTERATIONS TO CONTRACT

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IF THE CONTRACTOR IS A CORPORATION OR PARTNERSHIP, THE **APPLICABLE PORTION** OF THE FORM LISTED BELOW MUST BE COMPLETED. IN THE ALTERNATIVE, OTHER EVIDENCE MUST BE SUBMITTED TO SUBSTANTIATE THE AUTHORITY OF THE PERSON SIGNING THE CONTRACT. IF A CORPORATION, **THE SAME OFFICER SHALL NOT EXECUTE BOTH THE CONTRACT AND THE CERTIFICATE.**

CORPORATE CERTIFICATE

I, Gayle Larson, certify that I am the Assistant Secretary of the Corporation named as Contractor herein; that Daniel C. Jacobson, who signed this contract on behalf of the Contractor was then Executive Vice Pres. of said corporation; that said contract was duly signed for and on behalf of said corporation by authority of its governing body and is within the scope of its corporate powers.

Gayle A. Larson
Assistant (Secretary) (CORPORATE SEAL)

AUTHORITY TO BIND PARTNERSHIP

This is to certify that the names, signatures and Social Security Numbers of all partners are listed below and that the person signing the contract has authority actually to bind the partnership pursuant to its partnership agreements. Each of the partners individually has full authority to enter into and execute contractual instruments on behalf of said partnership with the United States of America, except as follows: (state "none" or describe limitations, if any)

_____

This authority shall remain in full force and effect until such time as the revocation of authority by any cause whatsoever has been furnished in writing to, and acknowledged by, the Contracting Officer.

(Names, Signatures and Social Security Numbers of all Partners)

NAME	SIGNATURE	SOCIAL SECURITY NO.

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SCHEDULE

FY02 VEHICLE MAINTENANCE FACILITY
FT LEWIS, WASHINGTON
PN: 54068 & 54113

Item No.	Description of Item	Quantity	Unit	Unit Price	Amount
	BASE ITEMS				
0001	Provide all labor, professional services, materials, equipment and transportation necessary for the complete design (including professional oversight services during construction), of FY02 Vehicle Maintenance Facility at Fort Lewis, Washington, as described herein and as further required to provide for development in accordance with the Contractor's proposed design and construction schedule, except for Optional Items 0006 through 0008				
0001AA	Provide all labor, professional services, materials, equipment and transportation necessary for the complete design for FY02 Vehicle Maintenance Facility PN 54068 which includes the MARC, RSTA, and Engineering Company	1	JOB	L.S.	$ 360,535
0001BB	Provide all labor, professional services, materials, equipment and transportation necessary for the complete design for FY02 Vehicle Maintenance Facility PN 54113 which includes the CSSC and Infantry BN	1	JOB	L.S.	$ 360,535
0002	Provide all labor, material, equipment, and transportation necessary for the complete construction and equipping of FY02 Vehicle Maintenance Facility at Fort Lewis, Washington, including all related site work, utility work, and assembly and installation of Government furnished items, as described herein and as further required to provide for development in accordance with the Contractor's proposed design and construction schedule, except for Base Items 0003 through 0005 and Optional Items 0006 through 0008				
0002AA	FY02 Vehicle Maintenance Facility PN 54068 which includes the MARC, RSTA, and Engineering Company	1	JOB	L.S	$5,895,544

Item No.	Description of Item	Quantity	Unit	Unit Price	Amount
0002BB	FY02 Vehicle Maintenance Facility PN 54113 which includes the CSSC and Infantry BN	1	JOB	L.S	$5,895,544
0003	All Work for As-Built Drawings in Electronic Format as Specified, from Preparation to Final Submittal, for base bid and any option exercised				
0003AA	All Work for As-Built Drawings in Electronic Format for FY02 Vehicle Maintenance Facility PN 54068 which includes the MARC, RSTA, and Engineering Company	1	JOB	L.S.	$12,500
0003BB	All Work for As-Built Drawings in Electronic Format for FY02 Vehicle Maintenance Facility PN 54113 which includes the CSSC and Infantry BN	1	JOB	L.S.	$12,500
0004	All Work for O&M Manuals, as Specified, from Preparation to Final Submittal, for base bid and any option exercised				
0004AA	All Work for O&M Manuals for FY02 Vehicle Maintenance Facility PN 54068 which includes the MARC, RSTA, and Engineering Company	1	JOB	L.S.	$30,000
0004BB	All Work for O&M Manuals for FY02 Vehicle Maintenance Facility PN 54113 which includes the CSSC and Infantry BN	1	JOB	L.S.	$30,000
0005	All Work for 1354 Data/ Installed Equipment List, as Specified, from Preparation to Final Submittal, for base bid and any option exercised				
0005AA	All Work for 1354 Data/ Installed Equipment List for FY02 Vehicle Maintenance Facility PN 54068 which includes the MARC, RSTA, and Engineering Company	1	JOB	L.S.	$6,000
0005BB	All Work for 1354 Data/ Installed Equipment List for FY02 Vehicle Maintenance Facility PN 54113 which includes the CSSC and Infantry BN	1	JOB	L.S.	$6,000
	TOTAL BASE ITEMS				$12,609,158

Item No.	Description of Item	Quantity	Unit	Unit Price	Amount
	OPTIONAL ITEMS				
0006	Provide all labor, professional services, materials, equipment and transportation necessary for the complete design (including professional oversight services during construction) and construction of Sig Co.facility, as specified herein.	1	JOB	L.S.	$ 174,140
0007	Provide all labor, professional services, materials, equipment and transportation necessary for the complete design (including professional oversight services during construction) and construction of MI Co. facility, including parking for 32 vehicles, as specified herein.	1	JOB	L.S.	$ 176,671
0008	~~Provide all labor, professional services, materials, and equipment for MI Company vehicle parking for 32 vehicles~~ Provide all labor, professional services, materials, equipment and transportation necessary for the complete design (including professional oversight services during construction) and construction of Brigade HQ, including parking for 60 vehicles, as specified herein.	1	JOB	L.S.	$242,286
0009	Provide all labor, professional services, materials, and equipment for fifth bay at the RSTA Deployment Equipment Storage Building	1	JOB	L.S.	$ 41,317
	TOTAL OPTIONAL ITEMS				**$ 634,414**
	TOTAL BASE AND OPTIONAL ITEMS				**$13,243,572**

NOTE: 1. The offeror shall not revise the dollar amounts established for Items 0003, 0004 and 0005.

2. No partial or total payment will be made for Items 0003, 0004 and 0005, until the as-built drawings, the O&M Manuals, and the 1354 Data/ Installed Equipment List are fully approved (A or B action).

ATTENTION:

TOTAL AMOUNT OF FUNDS AVAILABLE FOR DESIGN AND CONSTRUCTION IS $16,922,000. THE GOVERNMENT MAY CHOOSE TO EXCEED THIS AMOUNT.

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DACA67-02-C-0212

AK Lic. AA-18978
WA Lic. OSBORCC 133PB

Anchorage, Alaska
Fairbanks, Alaska
Kirkland, Washington

May 13, 2002

Seattle District, Corps of Engineers
Contracting Division
4735 East Marginal Way South
Seattle, Washington 9813-2385

Attention: **Mary Mitton**

Reference: **RFP - Solicitation DACA67-02-R-0202**
FY02 Design-Build: Vehicle Maintenance Facilities
Fort Lewis, Washington

Subject: Modifications to General Wage Decisions

Dear Ms. Mitton:

We have reviewed the modifications to the General Wage Decisions WA020001 and WA020002 and agree to incorporation of the following modifications into any contract resulting from Solicitation No. DACA67-02-R-0202 at no increase to our proposed price:

1. General Wage Decision No. WA020001:
   a. Modification No. 4, dated 04/19/2002
   b. Modification No. 5, dated 05/03/2002
   c. Modification No. 6, dated 05/10/2002

2. General Wage Decision No. WA020002:
   a. Modification No. 5, dated 04/19/2002
   b. Modification No. 6, dated 05/03/2002
   c. Modification No. 7, dated 05/10/2002

Sincerely,

OSBORNE CONSTRUCTION COMPANY

Tom S. Vasilatos
Vice President – Special Projects

Reply to:

☐ 3510 Spenard Rd., Suite 105, Anchorage, AK 99503 Phone: (907) 258-3701 Fax: (907) 258-1514
☐ P.O. Box 73370, Fairbanks, Alaska 99701 Phone: (907) 451-0079 Fax: (907) 451-1146
☑ P.O. Box 97010, Kirkland, Washington 98083 Phone: (425) 827-4224 Fax: (425) 827-4244

ALT-1

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SUBCONTRACTING PLAN

FIRM Osborne Construction Company
10602 N.E. 38th Pl., Suite
Kirkland, WA 98033

Sol. No. DACA67-02-R-0202

PROJECT TITLE
FY02 Design-Build: Vehicle Maintenance Facilities, Fort Lewis, Washington

CONTRACT SPECIALIST RESPONSIBLE FOR PRE-AWARD - _____

NAME OF OFFICE ADMINISTERING CONTRACT TO INCLUDE SUBCONTRACTING PLAN:
(If more than one office, name all offices/responsible parties): _____

I. Dollar Amounts (If possible, DO NOT include indirect costs):

	BASE
a. Total amount of contract	$ 12,609,158
b. Total estimated amount of planned subcontracting dollars	$ 8,352,319
c. Total dollars planned to be subcontracted to small business (including d., e. & f. below)	$ 7,812,781
d. Total dollars planned to be subcontracted to small disadvantaged business	$ 774,058
e. Total dollars planned to be subcontracted to small, women-owned business	$ 2,132,432
f. Total dollars planned to be subcontract to veteran-owned small businesses	$ 255,000

g. Total dollars planned to be subcontracted to HUB-Zone small business $ 227,000

II. Percentage goals (expressed in terms of percentage of total planned subcontracting dollars).

a. Percentage of contract to be subcontract (Ib divided by Ia) 67 %

b. Percentage of subcontracting dollars to be subcontracted to small business (Ic divided by Ib) 93.5 %

c. Percentage of subcontracting dollars to be subcontracted to small disadvantaged business (Id divided by Ib) 9.3 %

d. Percentage of subcontracting dollars to be subcontracted to small women-owned business (Ie divided by Ib) 25.5 %

e. Percentage of subcontracting dollars to be subcontracted to small veteran-owned business (Ie divided by Ib) 3.1 %

f. Percentage of subcontracting dollars to be subcontracted to HUBZone small business. (If divided by Ib) 2.7 %

1. A. Osborne Policy. See Exhibit 1 (attached).

B. Subcontracting. Osborne places special emphasis on subcontracting with SB, SDB, WOSB, HUBZone SB, Veteran-Owned SB firms (collectively "SB/SDB") by (1) identifying SB/SDB's with expertise in areas applicable to projects upon which Osborne bids/proposes; (2) soliciting bids from such SB/SDB entities; (3) subcontracting with competitive SB/SDBs when practicable; (4) monitoring and mentoring SB/SDBs with which Osborne subcontracts during subcontract performance itself.

C. Corporate/Management Commitment to Subcontracting Plan. See Exhibits 2,3, and Exhibit 2 shows Osborne's Subcontracting Plan commitments on this project as against the project goals. Exhibit 3 shows Osborne's SB/SDB Subcontractors with which Osborne proposes to contract assuming that Osborne is awarded the contract

and these subcontractors are ready, willing and able to perform the categories of work indicated. Exhibit 4 shows Osborne's SB/SDB subcontract performance on the Design/Build: Whole Neighborhood Revitalization Project at Ft. Lewis, Washington, Contract NO. DACA67-00-C-0025 completed in June 2001 ("Ft. Lewis Project").

2. A. Efforts to Broaden SB/SDB Base. Osborne takes the following steps to broaden the SB/SDB base from which it seeks subcontractors:

(1) Identify categories of work suitable for SB/SDBs;

(2) Review State and Federal agencies' publications listings to identify additional potential SB/SDBs;

(3) Advertise in trade publications and local newspapers to solicit potential SB/SDB bidders for individual projects; and

(4) Utilize SBA Pro-Net for the geographical areas (i.e. Western, central and Interior Alaska, Western and Eastern Washington) in which Osborne operates.

B. Increasing SB/SDB Subcontracting. By broadening solicitation of quotations from SB/SDB's (see item #2A above) Osborne attempts to get better and broader SB/SDB competition for non-complex and general housekeeping supply/services. Osborne also encourages SB/SDB quotations for work categories such as those listed in 4A Exhibit 3.

C. Plans to Restrict Competition to SB/SDBs. See Exhibit 3. For this project, we restricted consideration of bidders for such items of work as the earthwork, utilities, masonry, metal buildings painting, fencing, and landscaping to SB/SDBs.

3. A. Outreach for Non-Traditional Items.

1. See 2A above.
2. Direct contact with manufacturers, distributors and dealers.
3. Utilization of the SBA Procurement Automated Source System (PASS) to identify SB/SBDs.
4. Contact State and Federal agencies for listing of SB/SDBs.
5. Advertise in trade publications (e.g., Daily Journal of Commerce).

B. Qualification Reviews. Osborne routinely seeks qualification information from potential bidders including SB/SDBs. When SB/SDBs indicate interest in or an intent to submit bids to Osborne for a particular project, the experience, qualifications, certifications, financial/bonding capability of such SB/SDBs are explored; preferably prior to bid and in any event, prior to subcontracting. Whenever a potential SB/SDB bidder requests or appears to need technical assistance, Osborne endeavors to provide it to the maximum extent possible.

4. A. Planned SB/SDB Subcontracting for this Project. See Exhibit 3.

   B. Review of Major Product Systems. In actual practice, SB/SDBs self-identify their own expertise and specialties, thus enabling Osborne to subcontract parts of major systems or have its large business enterprise ("LBE") subcontractors do so.

   C. Review of SB/SDB Competence. See 3B above.

   D. Flow Down to Large Sub-Business Enterprise Subcontractors. Osborne actively works with LBE subcontractors (often mechanical and electrical) to identify potential SB/SDBs for sub-subcontracts, to determine the extent to which LBE subcontractors are willing/able to subcontract to SB/SDBs, negotiates with LBE subcontractors to encourage subcontracting with SB/SDBs and monitors the performance of the SB/SDB obligations of LBE subcontractors during the course of project performance. See, for example, Exhibit 5.

5. A. SB/SDB Results for this Project. See Exhibit 2.

   B. Evaluation of SB/SDB Subcontracting. Osborne will track its SB/SDB performance in the same manner as it did for its Fort Lewis Project as demonstrated by Exhibit 5. See also Exhibit 4.

   C. SB/SDBs Intended to be Used for this Project. See Exhibit 3.

   D. Long–Range Relationships. Osborne intends to continue to develop working relationships with SB/SDBs by taking the steps identified in 2A, 2B, 3A, and 3B above.

6. Osborne's Subcontracting Plan. See Exhibit 2.

7. Osborne's Past Subcontracting Plan Performance. See Exhibits 4 and 5. Note: Information on previous successful Osborne Subcontracting Plans for other Federal projects available on request.

8. A. Subcontracting Goals. See Exhibit 2.

   B. Subtracting Goals (Basic Contract). See Exhibit 2.

   C. Osborne's Subcontracting Plan Manager: Ralph Smith. Mr. Smith is the Vice President, Operations Manager. He is responsible for all construction operations and administrative requirements relating to this Project.

      Ralph Smith
      Vice President, Operations Manager
      Osborne Construction Company
      P.O. Box 97010
      Kirkland, WA 98083
      425-827-4221

   D. Statement of Intent. Osborne will include FAR Clause 52.219-8 entitled, Utilization of Small Business Concerns, Small Disadvantaged, Women-Owned Small Business Concerns, in all subcontracts which offer further subcontracting opportunities and will

require all subcontractors (except small business concerns) that receive subcontracts in excess of $500,000.00 to adopt and comply with a plan similar to the plan required by the clause at FAR Clause 52.219.9 Alternate II, Small Business Subcontracting Plan.

E. Willingness to Provide Reports. Osborne will submit such periodic reports and cooperate in any studies or surveys as may be required by the Corps of Engineers, Seattle District or the Small Business Administration in order to determine the extent of compliance by Osborne with its Subcontracting Plan as follows:

Osborne will submit Standard Form (SF) 294, Subcontracting Report for Individual Contract, and SF 295, Summary Subcontract in accordance with the instructions on the forms. The name, address, and telephone number of the office responsible for preparation and submission of these reports is:

Ralph Smith
Vice President, Operations Manager
Osborne Construction Company
P.O. Box 97010
Kirkland, WA 98083
425-827-4221

I, the undersigned, a designated official of Osborne Construction Company, do hereby State that Osborne agrees to carry out the Government's policy to provide the maximum practicable opportunity for small business concerns and small business concerns owned and controlled by socially and economically disadvantaged individuals to participate in the performance of this contract consistent with its efficient performance.

Ralph Smith

F. Indirect Cost Exclusion. Indirect Costs are excluded from the proposed goals. See Sections 1-5 above.

G. SB/SDB Participation in Project. See Exhibits 2 & 3.

H. Record Keeping. A recitation of the types of records maintained to demonstrate procedures adopted to comply with the requirements and goals in the plan as follows:

Osborne will maintain the following types of records to demonstrate procedures, which have been adopted, to comply with the requirements and goals set forth in the plan:

(1) SB, SDB, WOSB, HUBZone SB, Veteran-Owned SB, Service-disabled Veteran-Owned SB, lists, guides, and other data identifying vendors.

(2) Organizations contacted or to be contacted for SB, SDB, WOSB, HUBZone SB, Veteran-Owned SB, and Service-disabled Veteran-Owned SB sources.

(3) Record of all subcontract solicitations indicating on each solicitation (i) whether SB, SDB, WOSB, HUBZone SB and Veteran-Owned SBs were solicited, and if not, why not.

(4) Records to support other outreach efforts, to include the following: contact with minority and small business trade associations, contact with business development organizations, and attendance at small and minority business procurement conferences and trade fairs.

(5) Records to support internal activities to guide and encourage buyers to include the following: workshops, seminars, training programs, and monitoring activities to evaluate compliance.

(6) Records to support award data on a contract-by-contract basis submitted to the Government to include name, address, and business size of subcontractor

(7) See Exhibit 5.

OSBORNE CONSTRUCTION COMPANY'S REPRESENTATIVE

SIGNATURE

Ralph Smith
Vice President, Operations Manager

GOVERNMENT REVIEW

SIGNATURE_____
Contract Specialist

NAME & TITLE_____

GOVERNMENT REVIEW – Continued

Deputy for Small Business (DSB) Review:

1. Subcontracting Plan Received: Date: _____
2. Plan Returned to Contract Specialist / Deficiencies Noted: Date:_____
3. Memo Recommendation to Contracting Officer Date:_____

CONTRACTING OFFICER'S APPROVAL

SIGNATURE_____
Contract Specialist

NAME & TITLE_____

DATE_____

EXHIBIT 1

FY02 Design-Build: Vehicle Maintenance Facilities, Fort Lewis, WA
Solicitation No. DAC067-02-R-0202

OSBORNE CONSTRUCTION COMPANY

Subcontracting with Small and/or Disadvantaged Business Enterprises

It is the policy of Osborne Construction Company ("Osborne") to identify and encourage the submission of bids from, and subcontract with, responsible, responsive and qualified Small Business ("SB"), Small Disadvantaged Business ("SDB"), Women-Owned Business ("WOBSB"), HUBZone Small Business ("HUBZone SB") and Veteran-Owned Small Business ("VOSB") Enterprises (collectively "Entities").

Osborne's Lead Estimator for each estimate/proposal shall be responsible for the identification of and encouragement of submission of bids by such Entities for that Project estimate/proposal.

The Osborne Division Manager or Vice President of Operations sponsoring a project, when and if awarded, shall be responsible for subcontract execution and administration with such Entities and with all reporting related to subcontracts with such Entities.

Osborne's Executive Vice President shall be responsible of oversight of this Policy.

(EEO-5/Rev.1/01)

EXHIBIT 2

FY02 Design-Build: Vehicle Maintenance Facilities, Fort Lewis, WA
Solicitation No. DAC067-02-R-0202

OSBORNE CONSTRUCTION COMPANY
SUBCONTRACTING PLAN

	Corps of Engineers' Subcontracting Goal Percentages	Osborne Subcontracting Plan Percentages
Small Business	65.0%	93.5%
Small Disadvantaged	9.0%	9.3%
Woman-Owned Small Business	5.0%	25.5%
HUBZone Business	2.5%	2.7%
Veteran-Owned Small Business	3.0%	3.1%

Note: Osborne Construction Company has exceeded the Corps of Engineers Subcontracting Goal percentage for each subcontract item as indicated above.

E. BIT 3

Design Build Vehicle Maintenance Facility, Ft. Lewis, Wa
Solicitation No. DACA67-02-R-0202

OSBORNE CONSTRUCTION COMPANY
SUBCONTRACTING PLAN

Subcontractor/Trade	Amount	Small Business	Small Disadvantaged Business	Woman-Owned Small Business	Veteran-Owned Business	HUB-Zone Business
Earthwork/Utilities (Partial)	$454,000	$454,000	$227,000			$227,000
Woodworth Company	$558,000	$558,000				
Summit Fencing	$128,390	$128,390				
Specilized Landscaping	$147,320	$147,320				
Concrete -Supply	$235,000	$0				
Tyee Concrete	$250,000	$250,000	$250,000			
Keystone Masonry	$651,688	$651,688				
Misc Steel/Fabrication & Erection	$255,000	$255,000			$255,000	
Steel Doors/Security Doors	$154,000	$154,000				
Glass and Glazing	$86,000	$86,000	$86,000			
Cressy Company	$304,538	$0				
Floorcoverings	$34,500	$34,500	$34,500			
Painting	$176,558	$176,558	$176,558			
Pre Engineered Metal Buildings	$1,411,868	$1,411,868				
Kaverit	$177,657	$177,657				
Fire Sprinklers	$100,000	$100,000				
BJ Fisher	$2,132,432	$2,132,432		$2,132,432		
Le Electric	$1,050,814	$1,050,814				
Prestige Commmunciations	$44,554	$44,554				
Osborne $ Amount	$8,352,319	$7,812,781	$774,058	$2,132,432	$255,000	$227,000
COE $ Goal	$8,352,319	$5,429,007	$751,709	$417,616	$250,570	$208,808
Osborne Percentage		93.5%	9.3%	25.5%	3.1%	2.7%
COE Percentage		65.0%	9.0%	5.0%	3.0%	2.5%

EXHIBIT 4

D/B Whole Neighborhood Revitalization, Ft. Lewis, WA

SUBCONTRACTING REPORT FOR INDIVIDUAL CONTRACTORS
(See instructions on reverse)

OMB No. 90000-0006
Expires: 04/30/2001

Public reporting burden for this collection of information is estimated to average 8 hours per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to the FAR Secretariat (MVR), Federal Acquisition Policy Division, GSA, Washington, DC 20405

1. CORPORATION, COMPANY OR SUBDIVISION COVERED

a. COMPANY NAME: **OSBORNE CONSTRUCTION COMPANY**

b. STREET ADDRESS: **401 PARKPLACE, SUITE 400**

c. CITY: **KIRKLAND** | d. STATE: **WA** | e. ZIP CODE: **98033**

2. CONTRACTORS ESTABLISHMENT CODE: **196789440**

3. DATE SUBMITTED: **May 31, 2001**

4. REPORTING PERIOD FROM INCEPTION OF CONTRACT THRU: [ ] Mar 31 [ ] Sept 30 YEAR: **2001**

5. TYPE OF REPORT: [ ] REGULAR [X] FINAL [ ] REVISED

6. ADMINISTERING ACTIVITY (Please check applicable box)

[X] ARMY [ ] NAVY [ ] AIR FORCE [ ] GSA [ ] DOE [ ] DEFENSE LOGISTICS AGENCY [ ] NASA [ ] OTHER FEDERAL AGENCY (Specify)

7. REPORT SUBMITTED AS (Check one and provide appropriate number)

[X] PRIME CONTRACTOR — PRIME CONTRACTOR NUMBER: **DACA67-00-C-0225**

[ ] SUBCONTRACTOR — SUBCONTRACT NUMBER:

8. AGENCY OR CONTRACTOR AWARDING CONTRACT

a. AGENCY'S OR CONTRACTOR'S NAME: **U.S. Army C.O.E.**

b. STREET ADDRESS: **P.O. Box 3755, CENWS-CT-CB-MU**

c. CITY: **Ft. Lewis** | STATE: **WA** | ZIP: **98124**

DOLLARS AND PERCENTAGES IN THE FOLLOWING BLOCKS:
[ ] DO INCLUDE INDIRECT COST [ ] DO NOT INCLUDE INDIRECT COSTS

SUBCONTRACT AWARD

TYPE	CURRENT GOAL WHOLE DOLLARS	CURRENT GOAL PERCENT	ACTUAL CUMULATIVE WHOLE DOLLARS	ACTUAL CUMULATIVE PERCENT
10a. SMALL BUSINESS CONCERNS (Include SDB, WOSB, HBCU/MI) (Dollar Amount and Percent of 10c.)	2,723,136	75%	4,742,009	93%
10b. LARGE BUSINESS CONCERNS (Dollar Amount and Percent)	907,712		482,524	7%
10c. TOTAL (Sum of 10a and 10b)	3,630,848	100.0%	5,083,668	100%
11. SMALL DISADVANTAGED (SDB) CONCERNS (Include HBCU/MI) (Dollar amount and Percent of 10c.)	399,393	11%	589,114	11.5%
12. WOMEN-OWNED SMALL BUSINESS (WOSB) CONCERNS (Dollar Amount and Percent of 10c.)	181,524	5%	1,066,771	21%
13. HISTORICALLY BLACK COLLEGES AND UNIVERSITIES (HBCU) AND MINORITY INSTITUTIONS)(MI) (if applicable) (Dollar Amount and Percent of 10c.)	0	0%	0	0%
14. HUBZONE SMALL BUSINESS (HUBzone SB) CONCERNS (Dollar Amount and Percent of 10c.)	54,562	1.5%	40,546	1%

15. REMARKS

16A. NAME OF INDIVIDUAL ADMINISTERING SUBCONTRACTING PLAN

`ave Peterson, Project Manager

16b. TELEPHONE NUMBER — AREA CODE: **425** NUMBER: **828-7322**

JTHORIZED FOR LOCAL REPRODUCTION
Previous edition is not usable

STANDARD FORM 294 (REV. 12-98)
Prescribed by GSA – FAR (48 CFR) 53.219(a)

EXHIBIT 5

SMALL, SMALL DISADVANTAGED AND WOMEN-OWNED SMALL BUSINESS SUBCONTRACTING PLAN

DATE: May 5, 2000

CONTRACTOR: OSBORNE CONSTRUCTION COMPANY

ADDRESS: P.O. BOX 97010
KIRKLAND, WASHINGTON 98083-9710

PHONE NO: (425) 827-4221

PROJECT TITLE: WHOLE HOUSING REVITALIZATION

SOLICITATION NO: DACA67-00-R-0020

1. In accordance with the contract clauses at 52.219-8 and 52.219-9, Osborne Construction Company submits the following Subcontracting Plan for Small, Small Disadvantaged, and Women-owned Business Concerns.

2. Corresponding dollar values for percentages cited in para. 3:

   a. Total contract amount is $7,652,000.

   b. Total dollars planned to be subcontracted: $3,630,848.

   c. Total dollars planned to be subcontracted to small business concerns: $2,723,136.

   d. Total dollars planned to be subcontracted to HUBZone small business: $54,462.

   e. Total dollars planned to be subcontracted to small disadvantaged business concerns: $399,393.

   f. Total dollars planned to be subcontracted to small woman-owned business concerns: $181,524.

3. The following percentage goals are applicable to the contract awarded under the solicitation cited above.

   a. The total estimated percentage of all planned subcontracting to all types of business concerns under this contract is: 48 %.

   b. Small Business Concerns: 75 % of total planned subcontracting dollars under this contract will go to subcontractors who are small business concerns including 3c. and 3d.

   c. Small HUBZone Business Concerns: 1.5 % of total planned subcontracting dollars under this contract will go to subcontractors who are HUBZone small business contractors.

   d. Small Disadvantaged Business Concerns: 11 % of total planned subcontracting dollars under this contract will go to subcontractors who are small disadvantaged individuals.

   e. Small Woman-Owned Business Concerns: 5 % of total planned subcontracting dollars under this contract will go to subcontractors who are small woman-owned businesses.

Ft. Lewis 4b ..t D/B Housing
Project No. 2046, Contract No. DACA67-00-C-0225

K. Pagano, D. Peterson (R. Smith, T.Casad)

CONTRACTOR	COST CODE	TYPE	DATE	CONTRACT/ CHANGE ORDER	CHANGES	AMOUNT	FORM 294 Line 10a-10c LARGE	FORM 294 Line 10a-10c SMALL	FORM 294 Lines 11 - 14 SMALL DISV.	FORM 294 Lines 11 - 14 HUBZONE	FORM 294 Lines 11 - 14 WOMAN	CUMULATIVE
AHBL	010510S	DC	11/29/2000	Original Contract		75,000		75,000				
			12/13/2000	Change Order #1		158		158				
			12/13/2000	Change Order #2		1,407		1,407				
			02/15/2001	Change Order #3		839		839				
												77,404
BOE ARCHITECTS	010510S	DC	08/19/2000	Original Contract		40,000		40,000		40,000		
			12/08/2000	Change Order #1		557		557		557		
			12/08/2000	Change Order #2		39		39		39		
												40,596
MBA	010510S	DC	10/06/2000	Original Contract		54,830		54,830				
			01/04/2001	Change Order #1		5,287		5,287				
												60,117
J. BECKER & ASSOCIATES, INC.	010510S	DC	08/15/2000	Original Contract		29,290		29,290				
			12/13/2000	Change Order #1		1,100		1,100				
Surveying												30,390
TOTAL												208,506
AMERICAN DRAPERY	125000S	SC	01/22/2001	Original Contract		20,743		20,743				
												20,743
CASTLE	150000S	SC	10/30/2000	Original Contract		243,898		243,898				
												243,898
CLEO'S ROOFING	073100S	SC	11/01/2000	Original Contract		129,430		129,430	129,430			
			01/02/2001	Change Order #1		4,725		4,725	4,725			
												134,155
CR GUTTER	076500S	SC	2//19/01	Original Contract		24,332		24,332			24,332	
			03/30/2001	Change Order No. 1		146		146			146	
												24,478
DEPENDABLE CLEANING SERVICE	071000S	SC	03/27/2001	Original Contract		12,648		12,648			12,648	
												12,648

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DACA67-02-C-0212

Ft. Lewis 4[illegible] . D/B Housing
Project No. 2046, Contract No. DACA67-00-C-0225

K. Pagano, D. Peterson (R. Smith, T.Casad)

CONTRACTOR	COST CODE	TYPE	DATE	CONTRACT/ CHANGE ORDER	CHANGES	AMOUNT	FORM 294 Line 10a-10c LARGE	FORM 294 Line 10a-10c SMALL	FORM 294 Lines 11 - 14 SMALL DISV.	FORM 294 Lines 11 - 14 HUBZONE	FORM 294 Lines 11 - 14 WOMAN	CUMULATIVE
EAST HILL MASONRY	042000S	SC	12/07/2000	Original Contract		27,963		27,963				
			03/05/2001	Change Order No. 1		3,744		3,744				
												31,707
EXCEL DRYWALL	092500S	SC	12/12/2000	Original Contract		275,997		275,997				
			02/26/2001	Change Order No. 1		1,500		1,500				
												277,497
FENCE SPECIALISTS	057200S	SC	02/22/2001	Original Contract		7,874	7,874					
	061780S	SC	02/22/2001	Original Contract		50,547	50,547					
												58,421
INTERWEST INDUSTRIES, United dbi	72191S	SC	11/08/2000	Original Contract		93,096		93,096				
			12/27/2000	Change Order #1		1,836		1,836				
			02/20/2001	Change Order #2		(436)		(436)				
			01/22/2001	Change Order #3		1,114		1,114				
												95,610
L.E. ELECTRIC	150000S	SC	11/03/2000	Original Contract		714,805		714,805				
			02/13/2001	Change Order No. 1		3,695		3,695				
			02/13/2001	Change Order No. 2		2,366		2,366				
			02/13/2001	Change Order No. 3		736		736				
			03/19/2001	Change Order No. 4		552		552				
												722,154
NEW LIFE PAINTING	099000S	SC	12/08/2000	Original Contract		149,500		149,500	149,500			
			12/13/2000	Change Order #1		4,300		4,300	4,300			
			01/11/2001	Change Order #2		(4,800)		(4,800)	(4,800)			
												149,000
NORTHWEST DOOR	083600S	SC	12/12/2000	Original Contract		30,648	30,648					
												30,648
NORTHWEST LANDSCAPE	028000S	SC	04/19/2001	Original Contract		167,732		167,732				
			Pending	Change Order No. 1	*	(19,465)		(19,465)				
												148,267
RAINIER VIEW PLUMBING	1500001S	SC	10/30/2000	Original Contract		199,372		199,372				
												199,372
REDHAWK CONSTRUCTION	092500S	SC	NA	Original Contract		BAILED						

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DACA67-02-C-0212

K. Pagano, D. Peterson (R. Smith, T.Casad)

CONTRACTOR	COST CODE	TYPE	DATE	CONTRACT/ CHANGE ORDER	CHANGES	AMOUNT	FORM 294 Line 10a-10c LARGE	FORM 294 Line 10a-10c SMALL	FORM 294 Lines 11 - 14 SMALL DISV.	FORM 294 Lines 11 - 14 HUBZONE	FORM 294 Lines 11 - 14 WOMAN	CUMULATIVE
												0
SECO	022000S	SC	09/27/2000	Original Contract		805,000		805,000				
			02/14/2001	Change Order #1		369		369				
			02/14/2001	Change Order #2		450		450				
			02/26/2001	Change Order #3		369		369				
			03/01/2001	Change Order #4		6,870		6,870				
			04/13/2001	Change Order #5		(9,493)		(9,493)				
			04/05/2001	Change Order #6		369		369				
			04/05/2001	Change Order #7		246		246				
			04/05/2001	Change Order #8		(146)		(146)				
			Pending	Change Order #9	*	(369)		(369)				
												803,665
SPOKANE SUPERIOR	074150S	SC	11/01/2000	Original Contract		231,000		231,000			231,000	
			01/02/2001	Change Order #1		4,000		4,000			4,000	
												235,000
SOUND TURF FARMS	088100S	SC	02/14/2001	Original Contract		23,383		23,383	23,383			
												23,383
SUPERFLOORS	096000S	SC	01/23/2001	Original Contract		18,034	18,034					
	096500S			Original Contract		64,467	64,467					
	096800S			Original Contract		76,499	76,499					
												159,000
SUNRISE GLASS	088100S	SC	02/14/2001	Original Contract		36,625		36,625				
												36,625
TIMBERLAND	061960S	SC	10/30/2000	Original Contract		799,000		799,000			799,000	
			01/04/2001	Change Order #1		(4,000)		(4,000)			(4,000)	
			02/05/2001	Change Order #2		(450)		(450)			(450)	
			02/21/2001	Change Order #3		1,080		1,080			1,080	
												795,630
TUCCI	02100S	SC	11/06/2000	Original Contract		98,708		98,708				
												98,708
TYEE CONCRETE	026410S	SC	01/31/2001	Original Contract		30,000		30,000	30,000			
			02/08/2001	Change Order A		(3,828)		(3,828)	(3,828)			
												26,172

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Ft. Lewis 4b ..nt D/B Housing
Project No. 2046, Contract No. DACA67-00-C-0225

K. Pagano, D. Peterson (R. Smith, T.Casad)

CONTRACTOR	COST CODE	TYPE	DATE	CONTRACT/ CHANGE ORDER	CHANGES	AMOUNT	FORM 294 Line 10a-10c LARGE	FORM 294 Line 10a-10c SMALL	FORM 294 Lines 11 - 14 SMALL DISV.	FORM 294 Lines 11 - 14 HUBZONE	FORM 294 Lines 11 - 14 WOMAN	CUMULATIVE
TOTAL												4,326,780
ARMEX	086300S	PO	10/12/2000	Original Contract		97,757		97,757	97,757			
												97,757
CABINETS & COUNTERTOPS dba TS	123000S	PO	02/01/2001	Original Contract		141,000		141,000				
												141,000
CUSICK & ASSOCIATES	027000S	PO	02/12/2001	Original Contract		46,848		46,848				
		DAVE	Pending	Change Order No. 1		63		63				
			Pending	Change Order No. 2		1,129		1,129				
	027002S	PO	02/12/2001	Original Contract		9,459		9,459				
	027001S	PO	02/12/2001	Original Contract		12,021		12,021				
												69,520
LI'L CHIEF SPECIALTIES	10800S	PO	01/15/2001	Original Contract		12,162		12,162	12,162			
												12,162
SEARS	114520S	PO	01/19/2001	Original Contract		62,490	62,490					
												62,490
YI & ASSOCIATES	082550S	PO	12/22/2000	Original Contract		31,006		31,006	31,006			
	082600S	PO		Original Contract		37,320		37,320	37,320			
	062210S	PO		Original Contract		34,834		34,834	34,834			
			03/06/2001	Change Order No. 2		6,046		6,046	6,046			
	087120S	PO		Original contract		10,879		10,879	10,879			
			03/06/2001	Change Order No. 1		1,679		1,679	1,679			
												121,763
TOTAL												504,692
BRUNDAGE BONE	180020S	SO	11/03/2000	Original Contract		X						
												0
PROFESSIONAL SERVICES INC.	014200S	SC	10/30/2000	Original Contract		25,750	25,750					
			Pending	Change Order No. 1		3,801	3,801					
												29,551
TOTAL												29,551

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DACA67-02-C-0212

Ft. Lewis 4b ..t D/B Housing
Project No. 2046, Contract No. DACA67-00-C-0225

K. Pagano, D. Peterson (R. Smith, T.Casad)

CONTRACTOR	COST CODE	TYPE	DATE	CONTRACT/ CHANGE ORDER	CHANGES	AMOUNT	FORM 294 Line 10a-10c LARGE	FORM 294 Line 10a-10c SMALL	FORM 294 Lines 11 - 14 SMALL DISV.	FORM 294 Lines 11 - 14 HUBZONE	FORM 294 Lines 11 - 14 WOMAN	CUMULATIVE
AGRA EARTH & ENVIRONMENTAL		Other	08/13/2000			1,550	1,550					1,550
TOTAL												1,550
PAGE TOTAL						5,071,079	341,659	4,729,420	564,392	40,596	1,067,756	5,071,079
Percentages:							6.74%	93.26%	11.13%	0.80%	21.06%	
PROJECT/CONTRACT GOALS IN $$						$3,630,848		$2,723,136	$399,393	$54,462	$181,524	
PROJECT/CONTRACT GOALS IN %								75.0%	11.0%	1.5%	5.0%	

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DACA67-02-C-0212

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AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
J	1 | 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
0004	08-Apr-2002	W68MD9-1208-9973	

6. ISSUED BY CODE DACA67
USA ENGINEER DISTRICT, SEATTLE
ATTN: CENWS-CT
P.O. BOX 3755
SEATTLE WA 98124-3755

7. ADMINISTERED BY (If other than item 6) CODE
See Item 6

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)

CODE FACILITY CODE

X	9A. AMENDMENT OF SOLICITATION NO. DACA67-02-R-0202
X	9B. DATED (SEE ITEM 11) 08-Feb-2002
	10A. MOD. OF CONTRACT/ORDER NO.
	10B. DATED (SEE ITEM 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer [X] is extended, [ ] is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning 0 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

[ ] A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

[ ] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

[ ] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[ ] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

DESIGN-BUILD: VEHICLE MAINTENANCE FACILITIES, FORT LEWIS, WA - SEE ATTACHED

ADDRESS TECHNICAL QUESTIONS TO: techbid@nws02.usace.army.mil

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED 08-Apr-2002

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

This amendment is issued to revise the solicitation as follows:

A. Section 00010, Schedule, is revised to change line items 0007 and 0008.

B. Section 00860, Statement of Work, Part II: para. 3.4.17, Plumbing, is revised.

C. Appendix B, Conceptual Drawing: Drawing Sheets C-2, C-5, C-6, C-7, C-8, A-8 and A-9 are revised by notation to the drawings.

D. The time and date for receipt of proposals are extended to 3:00 p.m., local time, on 19 April 2002.

E. Offerors must acknowledge receipt of this amendment by number and date on the SF1442 BACK in block 19.

Enclosures:
Rev. Schedule
Rev. 00860
Rev. Appendix B

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 | 3

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
0003	05-Apr-2002	W68MD9-1208-9973	

6. ISSUED BY CODE DACA67
USA ENGINEER DISTRICT, SEATTLE
ATTN: CENWS-CT
P.O. BOX 3755
SEATTLE WA 98124-3755

7. ADMINISTERED BY (If other than item 6) CODE
See Item 6

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)

CODE FACILITY CODE

X	9A. AMENDMENT OF SOLICITATION NO. DACA67-02-R-0202
X	9B. DATED (SEE ITEM 11) 08-Feb-2002
	10A. MOD. OF CONTRACT/ORDER NO.
	10B. DATED (SEE ITEM 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer [ ] is extended, [X] is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

[ ] A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

[ ] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

[ ] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[ ] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Design Build: Vehicle Maintenance Facilities Fort Lewis, WA SEE ATTACHED

Address technical questions to: techbid@nws02@usace.army.mil.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED 05-Apr-2002

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

This amendment number 3 is issued to revise the solicitation as follows:

A. The Contract Requirements are revised as follows:

1. The RFP page that appears before the Table of Contents, which starts out "This Procurement is Open to both Large and Small Business" is revised by pen-and-ink change to correct the email address for technical questions to delete the dot between the "nws" and the "02." The correct email address is: techbid@nws02.usace.army.mil.

2. Section 00010, is revised as follows:

   a) Standard Form 1442, BACK, page 00010-2, Block 17, is revised to reflect the number of pages that make up the pricing schedule.

   b) The Schedule is revised to change the line items.

   c) Section 00100-INTRO, is revised as follows:

      i. Paragraph 4.5.1, Project Schedule, is revised to delete the reference to Section 00820, paragraph 1.3.1.3, and to state "paragraph 1.3 Phase II Requirements."

3. Section 00800 – Special Clauses is revised to Add SC-4 and SC-13, and revise SC-1.1.

4. Section 00810 – Design Build Contract Procedures is revised to to correct design submittal requirements.

5. Section 00860 – Statement of Work

   a) Part I contains a revision to Paragraph 1.1.1.

   b) Part II contains miscellaneous revisions.

6. Section 00890 – Outline Specifications contains miscellaneous revisions.

7. Davis Bacon General Wage Decisions have been modified. The following updated versions are included:

   a) WA020001 with 3 amendments dated 03/29/2002.

   b) WA020002 with 4 amendments dated 04/05/2002.

B. The Technical Specifications have been revised as follows:

1. The Table of Contents has been changed to reflect changes in the Technical Specifications

2. Section 15910 – Direct Digital Control Systems has been added.

3. Appendix B has been revised to include notations of revisions to drawing sheets C-2, C-7, C-8, A-8 and A-9.

C. Changes to plans are as follows:

1. Drawing sheets GT-11, A-2, E-1, E-2, E-3, E-4, E-5, E-6, E-10, E-11 and E-12 have been revised.

2. Drawing sheets E-7, E-8 and E-9 have been deleted.

D. The time and date for receipt of proposals remain unchanged at 3:00 p.m., local time, on 12 April 2002

E. Offerors must acknowledge receipt of this amendment by number and date on the SF1442 BACK in block 19.

Enclosures:
Rev. SF1442 (back)
Rev. Pages 00010-5 thru 00010-8 - Bid Schedule
Rev. Section 00100- Intro – Instructions Conditions and Notices to Firms
Rev. Section 00800 – Special Clauses
Rev. Section 00810 – Design Build Contract Procedures
Rev. Section 00860 – Statement of Work Part One
Rev. Section 00860 – Statement of Work Part Two (includes attachments)
Rev. Section 00890 - Outline Specifications
Modified General Wage Decisions WA020001 and WA020002
Added Section 15910 – Direct Digital Control Systems
Rev. Appendix B

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AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 | 3

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
0002	27-Mar-2002	W68MD9-1208-9973	

6. ISSUED BY CODE DACA67
USA ENGINEER DISTRICT, SEATTLE
ATTN: CENWS-CT
P.O. BOX 3755
SEATTLE WA 98124-3755

7. ADMINISTERED BY (If other than item 6) CODE
See Item 6

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)

CODE FACILITY CODE

X	9A. AMENDMENT OF SOLICITATION NO. DACA67-02-R-0202
X	9B. DATED (SEE ITEM 11) 08-Feb-2002
	10A. MOD. OF CONTRACT/ORDER NO.
	10B. DATED (SEE ITEM 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer [X] is extended, [ ] is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning 0 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

[ ] A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

[ ] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

[ ] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[ ] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
DESIGN-BUILD: VEHICLE MAINTENANCE FACILITIES, FORT LEWIS, WA - SEE ATTACHED

address technical questions to techbid@nws02.usace.army.mil

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED 27-Mar-2002

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

This amendment is issued to revise the solicitation as follows:

A. Section 00010, is revised as follows:

1. An additional corporate certificate page for joint ventures is added as page 00010-4(a).

2. Notice to Large Business Firms, page 00010-7, paragraph b, is revised to increase goal for the planned subcontracting dollars that may be placed with HUBZone small business concerns from 2% up to 2.5%.

3. A copy of the AFARS guide for evaluating subcontracting plans are provided immediately behind the sample subcontracting plan as new pages 00010-14 through 00010-16. This information is provided as a tool for offerors to use in order to determine how their proposed subcontracting plans will be evaluated.

B. Section 00100-INTRO, is revised as follows:

1. Paragraph 2.2, Technical Criteria, is revised to delete the work zone traffic control plan and to break out criterion 7, Team Qualifications, into sub-criteria 7.1, Team qualifications from the pre-qualification phase (other than telecommunications subcontractor), and 7.2, Qualifications and experience of telecommunications subcontractor.

2. Paragraph 4.5.1, Project Schedule, is revised to add the following sentence: “The schedule of the successful offeror shall become the contract completion schedule.”

3. Paragraph 4.5.9 Team Qualifications, is revised to include submittal requirements for
the qualifications and experience of the telecommunications subcontractor, and describe the evaluation technique that will be used for Government review of this information.

4. Paragraph 6.1 is added to provide submission instructions for joint ventures.

5. Other miscellaneous revisions have been made to reflect the changes made in paragraphs 1-3 above.

C. Section 00600, Representations and Certifications: Provision 52.219-1, Small Business Program Representations Alternate I and Alternate II (on RFP page 18 of 120), is revised to increase the small business size standard from $27.5 million to $28.5 million.

D. A new page (i.e., WD-i) has been added in front of the Davis Bacon General Wage Decisions. This page explains when the contractor should pay "building" wage rates and when to pay "heavy and highway" rates.

E. Davis Bacon General Wage Decisions WA010001 and WA010002 are hereby superceded and replaced by new General Wage Decisions WA020001 and WA020002. General Wage Decision No. WA020001 has two amendments dated 03/08/2002 and 03/15/2002, respectively. General Wage Decision No. WA020002 has two amendments dated 03/08/2002 and 03/22/2002, respectively.

F. RESPONSE TO OFFEROR QUESTION REGARDING INFORMATION FROM PREVIOUS VEHICLE MAINTENANCE FACILITIES BUILT ON FORT LEWIS: Several vehicle maintenance facilities were built on Fort Lewis by the firm F2M under a FY92 contract. As-builts for these buildings are available from Public Works at Fort Lewis in Building 2012. The point of contact for viewing these drawings is Lyle Anthony at telephone no. (253) 966-1662.

G. The sign-in sheet and minutes of the pre-proposal conference and site visit that took place on 14 March 2002 are provided for information purposes only and do not become part of the contract.

H. The time and date for receipt of proposals are extended to 3:00 p.m., local time, on 12 April 2002.

I. Offerors must acknowledge receipt of this amendment by number and date on the SF1442 BACK in block 19.

Enclosures:
New Page 00010-4(a)
Rev. Page 00010-7
New Pages 00010-14 through 00010-16 (subcontracting plan evaluations guide)
Rev. Section 00100-INTRO
Rev. Section 00600
New Page WD-i
New General Wage Decisions WA020001 and WA020002
Sign-in sheet from the pre-proposal conference and site visit
Minutes of the pre-proposal conference and site visit

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AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 | 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
0001	19-Mar-2002	W68MD9-1208-9973	

6. ISSUED BY CODE DACA67
USA ENGINEER DISTRICT, SEATTLE
ATTN: CENWS-CT
P.O. BOX 3755
SEATTLE WA 98124-3755

7. ADMINISTERED BY (If other than item 6) CODE
See Item 6

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)

CODE FACILITY CODE

X	9A. AMENDMENT OF SOLICITATION NO. DACA67-02-R-0202
X	9B. DATED (SEE ITEM 11) 08-Feb-2002
	10A. MOD. OF CONTRACT/ORDER NO.
	10B. DATED (SEE ITEM 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer [X] is extended, [ ] is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning 0 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

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[ ] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[ ] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Design-Build: Vehicle Maintenance Facilities, Fort Leiws, WA - Address technical questions to: Hugh Markey at techbid@nws02.usace.army.mil
The time and date for receipt of proposals are extended to 3:00 p.m., local time, on 5 April 2002.
Offerors must acknowledge receipt of this amendment by number and date in block 19 of the SF1442 BACK.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED 19-Mar-2002

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SECTION 00700 Contract Clauses

CLAUSES INCORPORATED BY FULL TEXT

CLAUSE INDEX: SECTION 00700 Contract Clauses

52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Disabled Veterans And Veterans Of The Vietnam Era	DEC 2001
52.223-3	Hazardous Material Identification And Material Safety Data	JAN 1997
52.223-5	Pollution Prevention and Right-to-Know Information	APR 1998
52.223-6	Drug Free Workplace	MAY 2001
52.223-14	Toxic Chemical Release Reporting	OCT 2000
52.225-5	Trade Agreements	DEC 2001
52.225-11	Buy American Act--Balance of Payments Program--Construction Materials Under Trade Agreements	FEB 2000
52.225-13	Restrictions on Certain Foreign Purchases	JUL 2000
52.226-1	Utilization Of Indian Organizations And Indian-Owned Economic Enterprises	JUN 2000
52.227-1	Authorization and Consent	JUL 1995
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	AUG 1996
52.227-4	Patent Indemnity-Construction Contracts	APR 1984
52.228-2	Additional Bond Security	OCT 1997
52.228-3	Worker's Compensation Insurance (Defense Base Act)	APR 1984
52.228-11	Pledges Of Assets	FEB 1992
52.228-12	Prospective Subcontractor Requests for Bonds	OCT 1995
52.228-14	Irrevocable Letter of Credit	DEC 1999
52.228-15	Performance and Payment Bonds--Construction	JUL 2000
52.229-3	Federal, State And Local Taxes	JAN 1991
52.232-5	Payments under Fixed-Price Construction Contracts	MAY 1997
52.232-9	Limitation On Withholding Of Payments	APR 1984
52.232-17	Interest	JUN 1996
52.232-23	Assignment Of Claims	JAN 1986
52.232-27	Prompt Payment for Construction Contracts	MAY 2001
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	MAY 1999
52.233-1	Disputes	DEC 1998
52.233-3	Protest After Award	AUG 1996
52.236-2	Differing Site Conditions	APR 1984
52.236-3	Site Investigation and Conditions Affecting the Work	APR 1984
52.236-5	Material and Workmanship	APR 1984
52.236-6	Superintendence by the Contractor	APR 1984
52.236-7	Permits and Responsibilities	NOV 1991
52.236-8	Other Contracts	APR 1984
52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	APR 1984
52.236-10	Operations and Storage Areas	APR 1984
52.236-11	Use and Possession Prior to Completion	APR 1984
52.236-12	Cleaning Up	APR 1984
52.236-13	Accident Prevention	NOV 1991
52.236-15	Schedules for Construction Contracts	APR 1984
52.236-21	Specifications and Drawings for Construction	FEB 1997
52.236-23	Responsibility of the Architect-Engineer Contractor	APR 1984
52.236-24	Work Oversight in Architect-Engineer Contracts	APR 1984
52.236-25	Requirements for Registration of Designers	APR 1984
52.236-26	Preconstruction Conference	FEB 1995
52.242-13	Bankruptcy	JUL 1995
52.242-14	Suspension of Work	APR 1984
52.243-4	Changes	AUG 1987
52.244-4	Subcontractors and Outside Associates and Consultants (Architect-	AUG 1998

	Engineer Services)	
52.244-6	Subcontracts for Commercial Items	DEC 2001
52.246-12	Inspection of Construction	AUG 1996
52.246-21	Warranty of Construction	MAR 1994
52.249-2 Alt I	Termination for Convenience of the Government (Fixed-Price) (Sep 1996) - Alternate I	SEP 1996
52.249-10	Default (Fixed-Price Construction)	APR 1984
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	MAR 1999
252.203-7002	Display Of DOD Hotline Poster	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	MAR 1998
252.215-7000	Pricing Adjustments	DEC 1991
252.219-7003	Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan (DOD Contracts)	APR 1996
252.223-7004	Drug Free Work Force	SEP 1988
252.223-7006	Prohibition On Storage And Disposal Of Toxic And Hazardous Materials	APR 1993
252.227-7023	Drawings and Other Data to become Property of Government	MAR 1979
252.227-7033	Rights in Shop Drawings	APR 1966
252.231-7000	Supplemental Cost Principles	DEC 1991
252.236-7000	Modification Proposals-Price Breakdown	DEC 1991
252.242-7000	Postaward Conference	DEC 1991
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.247-7023	Transportation of Supplies by Sea	MAR 2000
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000

Successor Contracting Officers (52.201-4001)

The Contracting Officer who signed this contract is the primary Contracting Officer for the contract. Neverthless, any Contracting Officer assigned to the Seattle District and acting within his/her authority may take formal action on this contract when a contract action needs to be taken and the primary Contracting Officer is unavailable.

52.202-1 DEFINITIONS (MAY 2001) --ALTERNATE I (MAY 2001)

(a) Agency head or head of the agency means the Secretary (Attorney General, Administrator, Governor, Chairperson, or other chief official, as appropriate) of the agency, unless otherwise indicated, including any deputy or assistant chief official of the executive agency.

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

(c) 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.

(d) Component means any item supplied to the Government as part of an end item or of another component, except that for use in 52.225-9, and 52.225-11 see the definitions in 52.225-9(a) and 52.225-11(a).

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

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

(End of clause)

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) of this clause, the Government is entitled--

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

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

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

(End of clause)

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)

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 any kickback. The Contracting Officer may order the 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 this subparagraph (c)(5) but excepting subparagraph (c)(1), in all subcontracts under this contract which exceed $100,000.

(End of clause)

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 1996 National Defense Authorization Act for Fiscal Year 1996 (Pub. L. 104-106), the Government may--

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

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

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

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

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

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

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

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

(End of clause)

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)

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)

52.204-4 PRINTED OR COPIED DOUBLE-SIDED ON RECYCLED PAPER (AUG 2000)

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

“Postconsumer material” means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of “recovered material.” For paper and paper products, postconsumer material means “postconsumer fiber” defined by the U.S. Environmental Protection Agency (EPA) as--

(1) Paper, paperboard, and fibrous materials from retail stores, office buildings, homes, and so forth, after they have passed through their end-usage as a consumer item, including: used corrugated boxes; old newspapers; old magazines; mixed waste paper; tabulating cards; and used cordage; or

(2) All paper, paperboard, and fibrous materials that enter and are collected from municipal solid waste; but not

(3) Fiber derived from printers' over-runs, converters' scrap, and over-issue publications.

“Printed or copied double-sided” means printing or reproducing a document so that information is on both sides of a sheet of paper.

“Recovered material,” for paper and paper products, is defined by EPA in its Comprehensive Procurement Guideline as “recovered fiber” and means the following materials:

(1) Postconsumer fiber; and

(2) Manufacturing wastes such as--

(i) Dry paper and paperboard waste generated after completion of the papermaking process (that is, those manufacturing operations up to and including the cutting and trimming of the paper machine reel into smaller rolls or rough sheets) including: envelope cuttings, bindery trimmings, and other paper and paperboard waste resulting from printing, cutting, forming, and other converting operations; bag, box, and carton manufacturing wastes; and butt rolls, mill wrappers, and rejected unused stock; and

(ii) Repulped finished paper and paperboard from obsolete inventories of paper and paperboard manufacturers, merchants, wholesalers, dealers, printers, converters, or others.

(b) In accordance with Section 101 of Executive Order 13101 of September 14, 1998, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition, the Contractor is encouraged to submit paper documents, such as offers, letters, or reports, that are printed or copied double-sided on recycled paper that meet minimum content standards specified in Section 505 of Executive Order 13101, when not using electronic commerce methods to submit information or data to the Government.

(c) If the Contractor cannot purchase high-speed copier paper, offset paper, forms bond, computer printout paper, carbonless paper, file folders, white wove envelopes, writing and office paper, book paper, cotton fiber paper, and cover stock meeting the 30 percent postconsumer material standard for use in submitting paper documents to the Government, it should use paper containing no less than 20 percent postconsumer material. This lesser standard should be used only when paper meeting the 30 percent postconsumer material standard is not obtainable at a reasonable price or does not meet reasonable performance standards.

(End of clause)

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

(a) The Government suspends or debars Contractors to protect the Government's interests. The Contractor shall not enter into any subcontract in excess of the $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 principles, 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)

52.212-4007 ENVIRONMENTAL LITIGATION

(a) If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the "Suspension of Work" clause of this contract. The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

(b) The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantially or procedurally, the effect of the work on the environment.

52.215-2 AUDIT AND RECORDS--NEGOTIATION (JUN 1999)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(End of clause)

52.215-8 ORDER OF PRECEDENCE--UNIFORM CONTRACT FORMAT (OCT 1997)

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

(a) The Schedule (excluding the specifications).

(b) Representations and other instructions.

(c) Contract clauses.

(d) Other documents, exhibits, and attachments.

(e) The specifications.

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

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

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

(c) Any reduction in the contract price under paragraph (b) of this clause due to defective data from a prospective subcontractor that was not subsequently awarded the subcontract shall be limited to the amount, plus applicable overhead and profit markup, by which--

(1) The actual subcontract; or

(2) The actual cost to the Contractor, if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor; provided, that the actual subcontract price was not itself affected by defective cost or pricing data.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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.

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.

52.219-8 UTILIZATION OF SMALL BUSINESS CONCERNS (OCT 2000)

(a) It is the policy of the United States that small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns 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, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns.

(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.

Definitions. As used in this contract--

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.

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

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

Small disadvantaged business concern means a small business concern that represents, as part of its offer that--

(1) It has received certification as a small disadvantaged business concern consistent with 13 CFR part 124, subpart B;

(2) No material change in disadvantaged ownership and control has occurred since its certification;

(3) Where the concern is owned by one or more individuals, the net worth of each individual upon whom the certification is based does not exceed $750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and

(4) It is identified, on the date of its representation, as a certified small disadvantaged business in the database maintained by the Small Business Administration (PRO-Net).

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

Women-owned small business concern means a small business concern--

(1) That 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) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as a small business concern, a veteran-owned small business concern, a service-disabled veteran-owned small business concern, a HUBZone small business concern, a small disadvantaged business concern, or a women-owned small business concern.

(End of clause)

52.219-9 SMALL BUSINESS SUBCONTRACTING PLAN (OCT 2001) ALTERNATE II (OCT 2001)

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

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

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

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

Individual contract plan means a subcontracting plan that covers the entire contract period (including option periods), applies to a specific contract, and has goals that are based on the offeror's planned subcontracting in

support of the specific contract, except that indirect costs incurred for common or joint purposes may be allocated on a prorated basis to the contract.

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

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

(c) Proposals submitted in response to this solicitation shall include a subcontracting plan that separately addresses subcontracting with small business, veteran-owner small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns. If the offeror is submitting an individual contract plan, the plan must separately address subcontracting with small business, veteran-owner small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns, with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be negotiated within the time specified by the Contracting Officer. Failure to submit and negotiate a subcontracting plan shall make the offeror ineligible for award of a contract.

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

(1) Goals, expressed in terms of percentages of total planned subcontracting dollars, for the use of small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns as subcontractors. Service-disabled veteran-owned small business concerns meet the definition of veteran-owned small business concerns, and offerors may include them within the subcontracting plan goal for veteran-owned small business concerns. A separate goal for service-disabled veteran-owned small business concerns is not required. 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 veteran-owned small business concerns;

(iv) Total dollars planned to be subcontracted to service-disabled veteran-owned small business;

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

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

(vi) 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) Veteran-owned small business concerns;

(iii) Service-disabled veteran-owned small business concerns;

(iv) HUBZone small business concerns;

(v) Small disadvantaged business concerns; and

(vi) 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), veterans service organizations, 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 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, veteran-owned small, (iii) Service-disabled veteran-owned small business concerns; HUBZone small, small disadvantaged, and women-owned small business source list. Use of PRO-Net as its source list does not relieve a firm of its responsibilities (e.g., outreach, assistance, counseling, or publicizing subcontracting opportunities) in this clause.

(6) A statement as to whether or not the offeror in 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) Veteran-owned small business concerns;

(iii) Service-disabled veteran-owned small business concerns;

(iv) HUBZone small business concerns;

(v) Small disadvantaged business concerns; and

(vi) 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, veteran-owned small business, service-disabled veteran-owned 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 paragraph (j) of this clause. The reports shall provide information on subcontract awards to small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, women-owned small business concerns, and Historically Black Colleges and Universities and Minority Institutions. Reporting shall be in accordance with the instructions on the forms or as provided in agency regulations.

(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, veteran-owned small business, service-disabled veteran-owned 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, veteran-owner small business, service-disabled veteran-owned 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, veteran-owned small business, service-disabled veteran-owned 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 veteran-owned small business concerns were solicited and, if not, why not;

(C) Whether service-disabled veteran-owned small business concerns were solicited and, if not, why not;

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

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

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

(G) 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;

(C) Conferences and trade fairs to locate small, HUBZone small, small disadvantaged, and women-owned small business sources; and

(D) Veterans service organizations.

(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, veteran-owner small business, service-disabled veteran-owned 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, veteran-owner small business, service-disabled veteran-owned 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, veteran-owner small business, service-disabled veteran-owned 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, veteran-owner small business, service-disabled veteran-owned 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, veteran-owner small business, 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 of 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 North American Industry Classification System (NAICS) Industry Subsector. For a commercial plan, the Contractor may obtain from each of its subcontractors a predominant NAICS Industry Subsector and report all awards to that subcontractor under its predominant NAICS Industry Subsector.

(End of clause)

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)

52.219-25 SMALL DISADVANTAGED BUSINESS PARTICIPATION PROGRAM—DISADVANTAGED STATUS AND REPORTING (OCT 1999)

(a) Disadvantaged status for joint venture partners, team members, and subcontractors. This clause addresses disadvantaged status for joint venture partners, teaming arrangement members, and subcontractors and is applicable if this contract contains small disadvantaged business (SDB) participation targets. The Contractor shall obtain representations of small disadvantaged status from joint venture partners, teaming arrangement members, and subcontractors through use of a provision substantially the same as paragraph (b)(1)(i) of the provision at FAR 52.219-22, Small Disadvantaged Business Status. The Contractor shall confirm that a joint venture partner, team member, or subcontractor representing itself as a small disadvantaged business concern, is identified as a certified small disadvantaged business in the database maintained by the Small Business Administration (PRO-Net) or by contacting the SBA's Office of Small Disadvantaged Business Certification and Eligibility.

(b) Reporting requirement. If this contract contains SDB participation targets, the Contractor shall report on the participation of SDB concerns at contract completion, or as otherwise provided in this contract. Reporting may be on Optional Form 312, Small Disadvantaged Business Participation Report, or in the Contractor's own format providing the same information. This report is required for each contract containing SDB participation targets. If this contract contains an individual Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan, reports may be submitted with the final Subcontracting Report for Individual Contracts (Standard Form 294) at the completion of the contract.

(End of clause)

52.222-1 NOTICE TO THE GOVERNMENT OF LABOR DISPUTES (FEB 1997)

If the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice, including all relevant information, to the Contracting Officer.

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)

52.222-4 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION. (SEP 2000)

(a) Overtime requirements. No Contractor or subcontractor employing laborers or mechanics (see Federal Acquisition Regulation 22.300) shall require or permit them to work over 40 hours in any workweek unless they are paid at least 1 and 1/2 times the basic rate of pay for each hour worked over 40 hours.

(b) Violation; liability for unpaid wages; liquidated damages. The responsible Contractor and subcontractor are liable for unpaid wages if they violate the terms in paragraph (a) of this clause. In addition, the Contractor and subcontractor are liable for liquidated damages payable to the Government. The Contracting Officer will assess liquidated damages at the rate of $10 per affected employee for each calendar day on which the employer required or permitted the employee to work in excess of the standard workweek of 40 hours without paying overtime wages required by the Contract Work Hours and Safety Standards Act.

(c) Withholding for unpaid wages and liquidated damages. The Contracting Officer will withhold from payments due under the contract sufficient funds required to satisfy any Contractor or subcontractor liabilities for unpaid wages and liquidated damages. If amounts withheld under the contract are insufficient to satisfy Contractor or subcontractor liabilities, the Contracting Officer will withhold payments from other Federal or Federally assisted contracts held by the same Contractor that are subject to the Contract Work Hours and Safety Standards Act.

(d) Payrolls and basic records.

(1) The Contractor and its subcontractors shall maintain payrolls and basic payroll records for all laborers and mechanics working on the contract during the contract and shall make them available to the Government until 3 years after contract completion. The records shall contain the name and address of each employee, social security number, labor classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. The records need not duplicate those required for construction work by Department of Labor regulations at 29 CFR 5.5(a)(3) implementing the Davis-Bacon Act.

(2) The Contractor and its subcontractors shall allow authorized representatives of the Contracting Officer or the Department of Labor to inspect, copy, or transcribe records maintained under paragraph (d)(1) of this clause. The Contractor or subcontractor also shall allow authorized representatives of the Contracting Officer or Department of Labor to interview employees in the workplace during working hours.

(e) Subcontracts. The Contractor shall insert the provisions set forth in paragraphs (a) through (d) of this clause in subcontracts exceeding $100,000 and require subcontractors to include these provisions in any lower tier subcontracts. The Contractor shall be responsible for compliance by any subcontractor or lower-tier subcontractor with the provisions set forth in paragraphs (a) through (d) of this clause.

(End of clause)

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.

(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.

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.

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 the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(b)(1) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph (a) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The Prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify--

(i) That the payroll for the payroll period contains the information required to be maintained under paragraph (a) of this clause and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR Part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (b)(2) of this clause.

(4) The falsification of any of the certifications in this clause may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(c) The Contractor or subcontractor shall make the records required under paragraph (a) of this clause available for inspection, copying, or transcription by the Contracting Officer or authorized representatives of the Contracting Officer or the Department of Labor. The Contractor or subcontractor shall permit the Contracting Officer or representatives of the Contracting Officer or the Department of Labor to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit required records or to make them available, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

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.

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.

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.

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.

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.

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 or their representatives.

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.

52.222-21 PROHIBITION OF SEGREGATED FACILITIES (FEB 1999)

(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 or necessary dressing or sleeping areas provided to assure privacy between the sexes.

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

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

(End of clause)

52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)

(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

6.2%	**6.9%**

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

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

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

(1) Name, address, and telephone number of the subcontractor;

(2) Employer'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 **Pierce County, Washington.**

52.222-26 EQUAL OPPORTUNITY (FEB 1999)

(a) If, during any 12-month period (including the 12 months preceding the award of this contract), the Contractor has been or is awarded nonexempt Federal contracts and/or subcontracts that have an aggregate value in excess of $10,000, the Contractor shall comply with subparagraphs (b)(1) through (11) of this clause. Upon request, the Contractor 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. However, it shall not be a violation of this clause for the Contractor to extend a publicly announced preference in employment to Indians living on or near an Indian reservation, in connection with employment opportunities on or near an Indian reservation, as permitted by 41 CFR 60-1.5.

(2) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. This shall include,

but not be limited to, (i) employment, (ii) upgrading, (iii) demotion, (iv) transfer, (v) recruitment or recruitment advertising, (vi) layoff or termination, (vii) rates of pay or other forms of compensation, and (viii) selection for training, including apprenticeship.

(3) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(4) The Contractor shall, in all solicitations or 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 also file Standard Form 100 (EEO-1), or any successor form, as prescribed in 41 CFR part 60-1. Unless the Contractor has filed within the 12 months preceding the date of contract award, the Contractor shall, within 30 days after contract award, apply to either the regional Office of Federal Contract Compliance Programs (OFCCP) or the local office of the Equal Employment Opportunity Commission for the necessary forms.

(8) The Contractor shall permit access to its premises, during normal business hours, by the contracting agency or the OFCCP for the purpose of conducting on-site compliance evaluations and complaint investigations. The Contractor shall permit the Government to inspect and copy any books, accounts, records (including computerized records), and other material that may be relevant to the matter under investigation and pertinent to compliance with Executive Order 11246, as amended, and rules and regulations that implement the Executive Order.

(9) If the OFCCP determines that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts, under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended; in the rules, regulations, and orders of the Secretary of Labor; or as otherwise provided by law.

(10) The Contractor shall include the terms and conditions of subparagraphs (b)(1) through (11) of this clause in every subcontract or purchase order that is not exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each 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)

52.222-27 AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION (FEB 1999)

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

"Deputy Assistant Secretary," as used in this clause, means Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, or a designee.

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

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

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

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

(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) of this clause.

(6) Disseminate the Contractor's equal employment policy by--

(i) Providing notice of the policy to unions and to training, recruitment, and outreach programs, and requesting their cooperation in assisting the Contractor in meeting its contract obligations;

(ii) Including the policy in any policy manual and in collective bargaining agreements;

(iii) Publicizing the policy in the company newspaper, annual report, etc.;

(iv) Reviewing the policy with all management personnel and with all minority and female employees at least once a year; and

(v) Posting the policy on bulletin boards accessible to employees at each location where construction work is performed.

(7) Review, at least annually, the Contractor's equal employment policy and affirmative action obligations with all employees having responsibility for hiring, assignment, layoff, termination, or other employment decisions. Conduct review of this policy with all on-site supervisory personnel before initiating construction work at a job site. A written record shall be made 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) of this clause. The efforts of a contractor association, joint contractor-union, contractor-community, or similar group of which the contractor is a member and participant may be asserted as fulfilling one or more of its obligations under subparagraphs (g)(1) through (16) of this clause, provided the Contractor--

(1) Actively participates in the group;

(2) Makes every effort to ensure that the group has a positive impact on the employment of minorities and women in the industry;

(3) Ensures that concrete benefits of the program are reflected in the Contractor's minority and female workforce participation;

(4) 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) of this clause, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of Executive Order 11246, as amended, the implementing regulations, or this clause, the Deputy Assistant Secretary shall take action as prescribed in 41 CFR 60-4.8.

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

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

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

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

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).

52.222-35 EQUAL OPPORTUNITY FOR SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA AND OTHER ELIGIBLE VETERANS (DEC 2001)

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

All employment openings means 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.

Executive and top management means any employee--

(1) Whose primary duty consists of the management of the enterprise in which the individual is employed or of a customarily recognized department or subdivision thereof;

(2) Who customarily and regularly directs the work of two or more other employees;

(3) Who has the authority to hire or fire other employees or whose suggestions and recommendations as to the hiring or firing and as to the advancement and promotion or any other change of status of other employees will be given particular weight;

(4) Who customarily and regularly exercises discretionary powers; and

(5) Who does not devote more than 20 percent or, in the case of an employee of a retail or service establishment, who does not devote more than 40 percent of total hours of work in the work week to activities that are not directly and closely related to the performance of the work described in paragraphs (1) through (4) of this definition. This paragraph (5) does not apply in the case of an employee who is in sole charge of an establishment or a physically separated branch establishment, or who owns at least a 20 percent interest in the enterprise in which the individual is employed.

Other eligible veteran means any other veteran who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized.

Positions that will be filled from within the Contractor's organization means employment openings for which the Contractor will give no consideration to persons outside the Contractor's organization (including any affiliates, subsidiaries, and parent companies) and includes any openings 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.

Qualified special disabled veteran means a special disabled veteran who satisfies the requisite skill, experience, education, and other job-related requirements of the employment position such veteran holds or desires, and who, with or without reasonable accommodation, can perform the essential functions of such position.

Special disabled veteran means--

(1) A veteran who is entitled to compensation (or who but for the receipt of military retired pay would be entitled to compensation) under laws administered by the Department of Veterans Affairs for a disability--

(i) Rated at 30 percent or more; or

(ii) Rated at 10 or 20 percent in the case of a veteran who has been determined under 38 U.S.C. 3106 to have a serious employment handicap (i.e., a significant impairment of the veteran's ability to prepare for, obtain, or retain employment consistent with the veteran's abilities, aptitudes, and interests); or

(2) A person who was discharged or released from active duty because of a service-connected disability.

Veteran of the Vietnam era means a person who--

(1) Served on active duty for a period of more than 180 days and was discharged or released from active duty with other than a dishonorable discharge, if any part of such active duty occurred--

(i) In the Republic of Vietnam between February 28, 1961, and May 7, 1975; or

(ii) Between August 5, 1964, and May 7, 1975, in all other cases; or

(2) Was discharged or released from active duty for a service-connected disability if any part of the active duty was performed--

(i) In the Republic of Vietnam between February 28, 1961, and May 7, 1975; or

(ii) Between August 5, 1964, and May 7, 1975, in all other cases.

(b) General. (1) The Contractor shall not discriminate against the individual because the individual is a special disabled veteran, a veteran of the Vietnam era, or other eligible veteran, regarding any position for which the employee or applicant for employment is qualified. The Contractor shall take affirmative action to employ, advance in employment, and otherwise treat qualified special disabled veterans, veterans of the Vietnam era, and other eligible veterans without discrimination based upon their disability or veterans' status 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) Rate 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 apprenticeship, and on-the-job training under 38 U.S.C. 3687, 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 shall comply with the rules, regulations, and relevant orders of the Secretary of Labor issued under the Vietnam Era Veterans' Readjustment Assistance Act of 1972 (the Act), as amended (38 U.S.C. 4211 and 4212).

(c) Listing openings. (1) The Contractor shall immediately list all employment openings that exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract, and including those occurring at an establishment of the Contractor other than the one where the contract is being performed, but excluding those of independently operated corporate affiliates, at an appropriate local public employment service office of the State wherein the opening occurs. Listing employment openings with the U.S. Department of Labor's America's Job Bank shall satisfy the requirement to list jobs with the local employment service office.

(2) The Contractor shall make the listing of employment openings with the local employment service office at least concurrently with using any other recruitment source or effort and shall involve the normal obligations of placing a bona fide job order, including accepting referrals of veterans and nonveterans. This listing of employment openings 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.

(3) Whenever the Contractor becomes contractually bound to the listing terms of this clause, it shall advise the State public employment agency 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 agency, it need not advise the State agency of subsequent contracts. The Contractor may advise the State agency 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, the Commonwealth of the Northern Mariana Islands, American Samoa, Guam, the Virgin Islands of the United States, and Wake Island.

(e) Postings. (1) The Contractor shall post employment notices in conspicuous places that are available to employees and applicants for employment.

(2) The employment notices shall--

(i) State the rights of applicants and employees as well as the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified employees and applicants who are special disabled veterans, veterans of the Vietnam era, and other eligible veterans; and

(ii) Be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance Programs, Department of Labor (Deputy Assistant Secretary of Labor), and provided by or through the Contracting Officer.

(3) The Contractor shall ensure that applicants or employees who are special disabled veterans are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled veteran, or may lower the posted notice so that it can be read by a person in a wheelchair).

(4) 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 special disabled veterans, veterans of the Vietnam era, and other eligible veterans.

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

(g) Subcontracts. The Contractor shall insert the terms of this clause in all subcontracts or purchase orders of $25,000 or more unless exempted by rules, regulations, or orders of the Secretary of Labor. The Contractor shall act as specified by the Deputy Assistant Secretary of Labor to enforce the terms, including action for noncompliance.

(End of clause)

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)

52.222-37 EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS (DEC 2001)

(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 special disabled veterans, the number of veterans of the Vietnam era, and other eligible veterans 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 the total, the number of special disabled veterans, the number of veterans of the Vietnam era, and the number of other eligible veterans; and

(3) The maximum number and the minimum number of employees of the Contractor during the period covered by the report.

(b) The Contractor shall report the above items by completing the Form VETS-100, entitled “Federal Contractor Veterans” Employment Report (VETS-100 Report)”.

(c) The Contractor shall submit VETS-100 Reports 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 between July 1 and August 31 of the year the report is due; or

(2) As of December 31, if the Contractor has prior 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 Contractor shall base the count of veterans reported according to paragraph (a) of this clause on voluntary disclosure. Each Contractor subject to the reporting requirements at 38 U.S.C. 4212 shall invite all special disabled veterans, veterans of the Vietnam era, and other eligible veterans 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--

(1) The information is voluntarily provided;

(2) The information will be kept confidential;

(3) Disclosure or refusal to provide the information will not subject the applicant or employee to any adverse treatment; and

(4) The information will be used only in accordance with the regulations promulgated under 38 U.S.C. 4212.

(f) The Contractor shall insert the terms of this clause in all subcontracts or purchase orders of $25,000 or more unless exempted by rules, regulations, or orders of the Secretary of Labor.

(End of clause)

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 identical data acquired from other sources.

(End of clause)

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 Safety Data 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.

52.223-6 DRUG-FREE WORKPLACE (MAY 2001)

(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 deter- mine 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 where 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) though (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)

52.223-14 TOXIC CHEMICAL RELEASE REPORTING (OCT 2000)

(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 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) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; 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).

52.225-5 TRADE AGREEMENTS (DEC 2001)

(a) Definitions. As used in this clause.

Caribbean Basin country means any of the following countries: Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Costa Rica, Dominica, El Salvador, Grenada, Guatemala, Guyana, Haiti, Iceland, Jamaica, Montserrat, Netherlands Antilles, Nicaragua, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago.

Caribbean Basin country end product means an article that--

(1) Is wholly the growth, product, or manufacture of a Caribbean Basin country; or

(2) In the case of an article that consists in whole or in part of materials from another country, has been substantially transformed in a Caribbean Basin country into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed. The term refers to a product offered for purchase under a supply contract, but for purposes of calculating the value of the end product includes services (except transportation services) incidental to the article, provided that the value of those incidental services does not exceed that of the article itself. The term excludes products that are excluded from duty-free treatment for Caribbean countries under 19 U.S.C. 2703(b), which presently are--

(i) Textiles and apparel articles that are subject to textile agreements;

(ii) Footwear, handbags, luggage, flat goods, work gloves, and leather wearing apparel not designated as eligible articles for the purpose of the Generalized System of Preferences under Title V of the Trade Act of 1974;

(iii) Tuna, prepared or preserved in any manner in airtight containers;

(iv) Petroleum, or any product derived from petroleum; and

(v) Watches and watch parts (including cases, bracelets, and straps) of whatever type including, but not limited to, mechanical, quartz digital, or quartz analog, if such watches or watch parts contain any material that is the product of any country to which the Harmonized Tariff Schedule of the United States (HTSUS) column 2 rates of duty apply.

Designated country means any of the following countries: Aruba, Austria, Bangladesh Belgium, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Canada, Cape Verde, Central African Republic, Chad, Comoros, Denmark, Djibouti, Equatorial Guinea.

Finland, France, Gambia, Germany, Greece, Guinea, Guinea-Bissau, Haiti, Hong Kong, Ireland, Israel, Italy, Japan.

Kiribati, Korea, Republic of Lesotho, Liechtenstein, Luxembourg, Malawi, Maldives, Mali, Mozambique, Nepal, Netherlands, Niger, Norway, Portugal, Rwanda.

Sao Tome and Principe, Sierra Leone, Singapore, Somalia, Spain, Sweden, Switzerland, Tanzania U.R., Togo, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Yemen.

Designated country end product means an article that--

(1) Is wholly the growth, product, or manufacture of a designated country; or

(2) In the case of an article that consists in whole or in part of materials from another country, has been substantially transformed in a designated country into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed. The term refers to a product offered for purchase under a supply contract, but for purposes of calculating the value of the end product includes services, (except transportation services) incidental to the article, provided that the value of those incidental services does not exceed that of the article itself.

End product means supplies delivered under a line item of a Government contract.

North American Free Trade Agreement country means Canada or Mexico.

North American Free Trade Agreement country end product means an article that--

(1) Is wholly the growth, product, or manufacture of a North American Free Trade Agreement (NAFTA) country; or

(2) In the case of an article that consists in whole or in part of materials from another country, has been substantially transformed in a NAFTA country into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed. The term refers to a product offered for purchase under a supply contract, but for purposes of calculating the value of the end product includes services, (except transportation services) incidental to the article, provided that the value of those incidental services does not exceed that of the article itself.

United States means the 50 States and the District of Columbia, U.S. territories and possessions, Puerto Rico, the Northern Mariana Islands, and any other place subject to U.S. jurisdiction, but does not include leased bases.

U.S.-made end product means an article that is mined, produced, or manufactured in the United States or that is substantially transformed in the United States into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed.,

(b) Implementation. This clause implements the Trade, Agreements Act (19 U.S.C. 2501, et seq.) and the North American Free Trade Agreement Implementation Act of 1993, (NAFTA) (19 U.S.C. 3301 note), by restricting the acquisition of end products that are not U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products.,

(c) Delivery of end products. The Contracting Officer has determined that the Trade Agreements Act and NAFTA apply to this acquisition. Unless otherwise specified, these trade agreements apply to all items in the Schedule. The Contractor shall deliver under this contract only U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products except to the extent that, in its offer, it specified delivery of other end products in the provision entitled “Trade Agreements Certificate.”

(End of clause)

52.225-11 BUY AMERICAN ACT--BALANCE OF PAYMENTS PROGRAM--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (FEB 2000)

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

Component means any article, material, or supply incorporated directly into construction materials.

Construction material means an article, material, or supply brought to the construction site by the Contractor or subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

Cost of components means--

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

Designated country means any of the following countries: Aruba, Austria, Bangladesh, Belgium, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Canada, Cape Verde, Central African Republic, Chad, Comoros, Denmark.

Djibouti, Equatorial Guinea, Finland, France, Gambia, Germany, Greece, Guinea, Guinea-Bissau, Haiti, Hong Kong, Ireland, Israel, Italy, Japan.

Kiribati, Korea, Republic of, Lesotho, Liechtenstein, Luxembourg, Malawi, Maldives, Mali, Mozambique, Nepal, Netherlands, Niger, Norway, Portugal, Rwanda.

Sao Tome and Principe, Sierra Leone, Singapore, Somalia, Spain, Sweden, Switzerland, Tanzania U.R., Togo, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Yemen.

Designated country construction material means a construction material that--

(1) Is wholly the growth, product, or manufacture of a designated country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a designated country into a new and different construction material distinct from the materials from which it was transformed.

Domestic construction material means--

(1) An unmanufactured construction material mined or produced in the United States; or

(2) A construction material manufactured in the 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 for which nonavailability determinations have been made are treated as domestic.

Foreign construction material means a construction material other than a domestic construction material.

North American Free Trade Agreement country means Canada or Mexico.

North American Free Trade Agreement country construction material means a construction material that--

(1) Is wholly the growth, product, or manufacture of a North American Free Trade Agreement (NAFTA) country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a NAFTA country into a new and different construction material distinct from the materials from which it was transformed.

United States means the 50 States and the District of Columbia, U.S. territories and possessions, Puerto Rico, the Northern Mariana Islands, and any other place subject to U.S. jurisdiction, but does not include leased bases.

(b) Construction materials. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) and the Balance of Payments Program by providing a preference for domestic construction material. In addition, the Contracting Officer has determined that the Trade Agreements Act and the North American Free Trade Agreement (NAFTA) apply to this acquisition. Therefore, the Buy American Act and Balance of Payments Program restrictions are waived for designated country and NAFTA country construction materials.

(2) The Contractor shall use only domestic, designated country, or NAFTA country construction material in performing this contract, except as provided in paragraphs (b)(3) and (b)(4) of this clause.

(3) The requirement in paragraph (b)(2) of this clause does not apply to the construction materials or components listed by the Government as follows: **None.**

(4) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(3) of this clause if the Government determines that--

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the restrictions of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent. For determination of unreasonable cost under the Balance of Payments Program, the Contracting Officer will use a factor of 50 percent;

(ii) The application of the restriction of the Buy American Act or Balance of Payments Program 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.

(c) Request for determination of inapplicability of the Buy American Act or Balance of Payments Program. (1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(4) of this clause shall include adequate information for Government evaluation of the request, including--

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request 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.

(iii) 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).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act or Balance of Payments Program applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(4)(i) of this
clause.

(3) Unless the Government determines that an exception to the Buy American Act or Balance of Payments Program applies, use of foreign construction material is noncompliant with the Buy American Act or Balance of Payments Program.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction material description	Unit of measure	Quantity	Price (dollars) \1\
Item 1:			
Foreign construction material....	.....	.....	.....
Domestic construction material...	.....	.....	.....
Item 2:			
Foreign construction material....	.....	.....	.....
Domestic construction material...	.....	.....	.....

\1\ Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).

List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.

Include other applicable supporting information.

(End of clause)

52.225-13 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (JUL 2000)

(a) The Contractor shall not acquire, for use in the performance of this contract, any supplies or services originating from sources within, or that were located in or transported from or through, countries whose products are banned from importation into the United States under regulations of the Office of Foreign Assets Control, Department of the Treasury. Those countries are Cuba, Iran, Iraq, Libya, North Korea, Sudan, the territory of Afghanistan controlled by the Taliban, and Serbia (excluding the territory of Kosovo).

(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 shall insert this clause, including this paragraph (c), in all subcontracts.

(End of clause)

52.226-1 UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES (JUN 2000)

(a) Definitions. As used in this clause:

"Indian" means any person who is a member of any Indian tribe, band, group, pueblo or community that 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 constitutea 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, that 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.

(b) The Contractor shall 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 will 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 2626-MIB, Washington, DC 20240-4000.

The BIA will determine the eligibility and notify the Contracting Officer. No incentive payment will 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 adjustment to the prime contract is 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.

(c) The Contracting Officer, subject to the terms and conditions of the contract and the availability of funds, will authorize an incentive payment of 5 percent of the amount paid to the subcontractor. The Contracting Officer will seek funding in accordance with agency procedures.

(End of clause)

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.)

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.to exceed the dollar amount set forth in 13.000 of the Federal Acquisition Regulation (FAR).

(End of clause)

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.

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.

52.228-3 WORKERS' COMPENSATION INSURANCE (DEFENSE BASE ACT) (APR 1984)

The Contractor shall (a) provide, before commencing performance under this contract, such workers' compensation insurance or security as the Defense Base Act (42 U.S.C. 1651, et seq.) requires and (b) continue to maintain it until performance is completed. The Contractor shall insert, in all subcontracts under this contract to which the Defense Base Act applies, a clause similar to this clause (including this sentence) imposing upon those subcontractors this requirement to comply with the Defense Base Act.

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)

52.228-12 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.

52.228-14 IRREVOCABLE LETTER OF CREDIT (DEC 1999)

(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 less than $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 less than $25 million in the past year.

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

_____

[Issuing Financial Institution's Letterhead or Name and Address]

Issue Date _____

IRREVOCABLE LETTER OF CREDIT NO. _____

Account party's name _____

Account party's address _____

For Solicitation No. _____(for reference only)

TO: [U.S. Government agency]

[U.S. Government agency's address]

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

2. We hereby undertake to honor your or the transferee's sight draft(s) drawn on the issuing or, if any, the

confirming financial institution, for all or any part of this credit if presented with this Letter of Credit and confirmation, if any, at the office specified in paragraph 1 of this Letter of Credit on or before the expiration date or any automatically extended expiration date.

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

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

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

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

Sincerely,

_____

[Issuing financial institution]

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

_____
[Confirming Financial Institution's Letterhead or Name and Address]

(Date) _____

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]

(Date) _____

[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. _____.

_____

[Beneficiary Agency]

By: _____

(End of clause)

52.228-15 PERFORMANCE AND PAYMENT BONDS--CONSTRUCTION (JUL 2000)-

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

Original contract price means the award price of the contract; or, for requirements contracts, the price payable for the estimated total quantity; or, for indefinite-quantity contracts, the price payable for the specified minimum quantity. Original contract price does not include the price of any options, except those options exercised at the time of contract award.

(b) Amount of required bonds. Unless the resulting contract price is $100,000 or less, the successful offeror shall furnish performance and payment bonds to the Contracting Officer as follows:

(1) Performance bonds (Standard Form 25). The penal amount of performance bonds at the time of contract award shall be 100 percent of the original contract price.

(2) Payment Bonds (Standard Form 25-A). The penal amount of payment bonds at the time of contract award shall be 100 percent of the original contract price.

(3) Additional bond protection. (i) The Government may require additional performance and payment bond protection if the contract price is increased. The increase in protection generally will equal 100 percent of the increase in contract price.

(ii) The Government may secure the additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(c) Furnishing executed bonds. 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) Surety or other security for bonds. 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.

(e) Notice of subcontractor waiver of protection (40 U.S.C. 270b(c). Any waiver of the right to sue on the payment bond is void unless it is in writing, signed by the person whose right is waived, and executed after such person has first furnished labor or material for use in the performance of the contract.

(End of clause)

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)

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.

52.232-9 LIMITATION ON WITHHOLDING OF PAYMENTS (APR 1984)

If more than one clause or Schedule term of this contract authorizes the temporary withholding of amounts otherwise payable to the Contractor for supplies delivered or services performed, the total of the amounts withheld at any one time shall not exceed the greatest amount that may be withheld under any one clause or Schedule term at that time; provided, that this limitation shall not apply to--

(a) Withholdings pursuant to any clause relating to wages or hours of employees;

(b) Withholdings not specifically provided for by this contract;

(c) The recovery of overpayments; and

(d) Any other withholding for which the Contracting Officer determines that this limitation is inappropriate.

52.232-17 INTEREST (JUNE 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. reproduce, prepare derivative works, distribute copies to the public, and (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.

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.

52.232-27 PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (MAY 2001)

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 sections 2.101 and 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 subdivisions (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 subdivision (a)(1)(i) of this clause, substantiation of the amounts requested and certification in accordance with the requirements of the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts.

(ix) Any other information or documentation required by the contract.

(x) While not required, the Contractor is strongly encouraged to assign an identification number to each invoice.

(3) Interest penalty. An interest penalty shall be paid automatically by the designated payment office, without request from the Contractor, if payment is not made by the due date and the conditions listed in subdivisions (a)(3)(i) through (a)(3)(iii) of this clause are met, if applicable. However, when the due date falls on a Saturday, Sunday, or legal holiday when Federal Government offices are closed and Government business is not expected to be conducted, payment 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 subdivision (a)(1)(ii) of this clause, Government acceptance or approval shall be deemed to have occurred constructively on the 7th day after the Contractor has completed the work or services in accordance with the terms and conditions of the contract. In the event that actual acceptance or approval occurs within the constructive acceptance or approval period, the determination of an interest penalty shall be based on the actual date of acceptance or approval. Constructive acceptance or constructive approval requirements do not apply if there is a disagreement over quantity, quality, or Contractor compliance with a contract provision. These requirements also do

not compel Government officials to accept work or services, approve Contractor estimates, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The following periods of 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) If this contract was awarded on or after October 1, 1989, a penalty amount, calculated in accordance with subdivision (a)(6)(iii) of this clause, shall be paid in addition to the interest penalty amount if the Contractor--

(A) Is owed an interest penalty of $1 or more;

(B) Is not paid the interest penalty within 10 days after the date the invoice amount is paid; and

(C) Makes a written demand to the designated payment office for additional penalty payment, in accordance with subdivision (a)(6)(ii) of this clause, postmarked not later than 40 days after the date the invoice amount is paid.

(ii)(A) Contractors shall support written demands for additional penalty payments with the following data. No additional data shall be required. Contractors shall--

(1) Specifically assert that late payment interest is due under a specific invoice, and request payment of all overdue late payment interest penalty and such additional penalty as may be required;

(2) Attach a copy of the invoice on which the unpaid late payment interest was due; and

(3) State that payment of the principal has been received, including the date of receipt.

(B) Demands 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 subdivision (e)(5)(i)) of this clause; or

(B) Seven days after the Contractor recovers such funds from the Government; or

(ii) Incur an obligation to pay a late payment interest penalty computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty;

(5) Notice to Contracting Officer. Notify the Contracting Officer upon--

(i) Reduction of the amount of any subsequent certified application for payment; or

(ii) Payment to the subcontractor of any withheld amounts of a progress payment, specifying--

(A) The amounts withheld under subparagraph (e)(1) of this clause; and

(B) The dates that such withholding began and ended; and

(6) Interest to Government. Be obligated to pay to the Government an amount equal to interest on the withheld payments (computed in the manner provided in 31 U.S.C. 3903(c)(1)), from the 8th day after receipt of the withheld amounts from the Government until--

(i) The day the identified subcontractor performance deficiency is corrected; or

(ii) The date that any subsequent payment is reduced under subdivision (e)(5)(i) of this clause.

(f) Third-party deficiency reports. (1) Withholding from subcontractor. If a Contractor, after making payment to a first-tier subcontractor, receives from a supplier or subcontractor of the first-tier subcontractor (hereafter referred to as a "second-tier subcontractor") a written notice in accordance with section 2 of the Act of August 24, 1935 (40 U.S.C. 270b, Miller Act), asserting a deficiency in such first-tier subcontractor's performance under the contract for which the Contractor may be ultimately liable, and the Contractor determines that all or a portion of future payments otherwise due such first-tier subcontractor is subject to withholding in accordance with the subcontract agreement, the Contractor may, without incurring an obligation to pay an interest penalty under subparagraph (e)(6) of this clause--

(i) Furnish to the first-tier subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon making such determination; and

(ii) Withhold from the first-tier subcontractor's next available progress payment or payments an amount not to exceed the amount specified in the notice of withholding furnished under subdivision (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 subdivision (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.

52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER—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 the payment due date until such time as the Government can make payment by EFT (but see paragraph (d) of this clause).

(b) Contractor's EFT information. The Government shall make payment to the Contractor using the EFT information contained in the Central Contractor Registration (CCR) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the CCR database.

(c) Mechanisms for EFT payment. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated 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. If the Contractor's EFT information in the CCR database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the CCR database; and any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(e) Contractor EFT arrangements. If the Contractor has identified multiple payment receiving points (i.e., more than one remittance address and/or EFT information set) in the CCR database, and the Contractor has not notified the Government of the payment receiving point applicable to this contract, the Government shall make payment to the first payment receiving point (EFT information set or remittance address as applicable) listed in the CCR database.

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

(i) Making a correct payment;

(ii) Paying any prompt payment penalty due; and

(iii) Recovering any erroneously directed funds.

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

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

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

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

(h) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall register in the CCR database 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.

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

(j) 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 contained in the CCR database.

(End of Clause)

52.233-1 DISPUTES. (DEC 1998)

(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 contractors shall provide the certification specified in subparagraph (d)(2)(iii) of this clause when submitting any claim -

(A) Exceeding $100,000; or

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

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

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

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

(iii) The certification shall state as follows: "I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Government is liable; and that I am 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 disput 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 request.

(h) The Government shall pay interest on the amount found due and unpaid from (1) the date 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)

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.

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.

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.

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.

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

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.

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.

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.

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.

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.

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.

52.236-13 ACCIDENT PREVENTION (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.

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.

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.

52.236-23 RESPONSIBILITY OF THE ARCHITECT-ENGINEER CONTRACTOR (APR 1984)

(a) The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiencies in its designs, drawings, specifications, and other services.

(b) Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contract shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract, and the Contractor shall be and remain liable to the Government in accordance with applicable law for all damages to the Government caused by the Contractor's negligent performance of any of the services furnished under this contract.

(c) The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law.

(d) If the Contractor is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.

52.236-24 WORK OVERSIGHT IN ARCHITECT-ENGINEER CONTRACTS (APR 1984)

The extent and character of the work to be done by the Contractor shall be subject to the general oversight, supervision, direction, control, and approval of the Contracting Officer.

52.236-25 REQUIREMENTS FOR REGISTRATION OF DESIGNERS (APR 1984)

The design of architectural, structural, mechanical, electrical, civil, or other engineering features of the work shall be accomplished or reviewed and approved by architects or engineers registered to practice in the particular professional field involved in a State or possession of the United States, in Puerto Rico, or in the District of Columbia.

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.

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)

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.

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.

52.244-4 SUBCONTRACTORS AND OUTSIDE ASSOCIATES AND CONSULTANTS (ARCHITECT-ENGINEER SERVICES) (AUG 1998)

Any subcontractors and outside associates or consultants required by the Contractor in connection with the services covered by the contract will be limited to individuals or firms that were specifically identified and agreed to during negotiations. The Contractor shall obtain the Contracting Officer's written consent before making any substitution for these subcontractors, associates, or consultants.

(End of clause)

52.244-6 SUBCONTRACTS FOR COMMERCIAL ITEMS (DEC 2001)

(a) Definitions. As used this clause--

"Commercial item", has the meaning contained in the clause at 52.202-1, Definitions.

"Subcontract", includes a transfer of commercial items between divisions, subsidiaries, or affiliates of the Contractor or subcontractor at any tier.

(b) To the maximum extent practicable, the Contractor shall incorporate, and require its subcontractors at all tiers to incorporate, commercial items or nondevelopmental items as components of items to be supplied under this contract.

(c)(1) The Contractor shall insert the following clauses in subcontracts for commercial items:

(i) 52.219-8, Utilization of Small Business Concerns (OCT 2000) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds $500,000 ($1,000,000 for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(ii) 52.222-26, Equal Opportunity (FEB 1999) (E.O. 11246).

(iii) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212(a)).

(iv) 52.222-36, Affirmative Action for Workers with Disabilities (JUN 1998) (29 U.S.C. 793).

(v) 52.247-64, Preference for Privately Owned U.S.-Flagged Commercial Vessels (JUN 2000) (46 U.S.C. Appx 1241) (flowdown not required for subcontracts awarded beginning May 1, 1996).

(2) While not required, the Contractor may flow down to subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(d) The Contractor shall include the terms of this clause, including this paragraph (d), in subcontracts awarded under this contract.

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) of this section.

(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.

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)

52.249-2 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 (g) or paragraph (g) of this clause, exclusive of costs shown in subparagraph (g)(3) of this clause, may not exceed the total contract price as reduced by (1) the amount of payments previously made and (2) the contract price of work not terminated. The contract shall be modified, and the Contractor paid the agreed amount. Paragraph (g) of this clause shall not limit, restrict, or affect the amount that may be agreed upon to be paid under this paragraph.

(g) If the Contractor and Contracting Officer fail to agree on the whole amount to be paid the Contractor because of the termination of work, the Contracting Officer shall pay the Contractor the amounts determined as follows, but without duplication of any amounts agreed upon under paragraph (f) of this clause:

(1) For contract work performed before the effective date of termination, the total (without duplication of any items) of--

(i) The cost of this work;

(ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the contract if not included in subdivision (g)(1)(i) of this clause; and

(iii) A sum, as profit on subdivision (g)(1)(i) of this clause, determined by the Contracting Officer under 49.202 of the Federal Acquisition Regulation, in effect on the date of this contract, to be fair and reasonable; however, if it appears that the Contractor would have sustained a loss on the entire contract had it been completed, the Contracting Officer shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.

(2) The reasonable costs of settlement of the work terminated, including--

(i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;

(ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and

(iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

(h) Except for normal spoilage, and except to the extent that the Government expressly assumed the risk of loss, the Contracting Officer shall exclude from the amounts payable to the Contractor under paragraph (g) of this clause, the fair value, as determined by the Contracting Officer, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the Government or to a buyer.

(i) The cost principles and procedures of Part 31 of the Federal Acquisition Regulation, in effect on the date of this contract, shall govern all costs claimed, agreed to, or determined under this clause.

(j) The Contractor shall have the right of appeal, under the Disputes clause, from any determination made by the Contracting Officer under paragraph (e), (g), or (l) of this clause, except that if the Contractor failed to submit the termination settlement proposal or request for equitable adjustment within the time provided in paragraph (e) or (l), respectively, and failed to request a time extension, there is no right of appeal.

(k) In arriving at the amount due the Contractor under this clause, there shall be deducted--

(1) All unliquidated advance or other payments to the Contractor under the terminated portion of this contract;

(2) Any claim which the Government has against the Contractor under this contract; and

(3) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to the Government.

(l) If the termination is partial, the Contractor may file a proposal with the Contracting Officer for an equitable adjustment of the price(s) of the continued portion of the contract. The Contracting Officer shall make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within 90 days from the effective date of termination unless extended in writing by the Contracting Officer.

(m)(1) The Government may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract, if the Contracting Officer believes the total of these payments will not exceed the amount to which the Contractor will be entitled.

(2) If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to the Government upon demand, together with interest computed at the rate established by the Secretary of the Treasury under 50 U.S.C. App. 1215(b)(2). Interest shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or other disposition of termination inventory until 10 days after the date of the retention or disposition, or a later date determined by the Contracting Officer because of the circumstances.

(n) Unless otherwise provided in this contract or by statute, the Contractor shall maintain all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make these records and documents available to the Government, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Contracting Officer, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents.

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

(a) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract including any extension, or fails to complete the work within this time, the Government may, by written notice to the Contractor, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In this event, the Government may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Government resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Government in completing the work.

(b) The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause, if--

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include

(i) acts of God or of the public enemy,

(ii) acts of the Government in either its sovereign or contractual capacity,

(iii) acts of another Contractor in the performance of a contract with the Government,

(iv) fires,

(v) floods,

(vi) epidemics,

(vii) quarantine restrictions,

(viii) strikes,

(ix) freight embargoes,

(x) unusually severe weather, or 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.

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.

252.201-7000 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)

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

(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)

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

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

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

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

(End of clause)

252.204-7003 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)

252.209-7004 SUBCONTRACTING WITH FIRMS THAT ARE OWNED OR CONTROLLED BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(a) Unless the Government determines that there is a compelling reason to do so, the Contractor shall not enter into any subcontract in excess of $25,000 with a firm, or subsidiary of a firm, that is identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country.

(b) 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 identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country. The notice must include the name of the proposed subcontractor notwithstanding its inclusion on the List of Parties Excluded From Federal Procurement and Nonprocurement Programs.

252.215-7000 PRICING ADJUSTMENTS (DEC 1991)

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

252.219-7003 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--

(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)

252.223-7004 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, and 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 employees 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 times 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 program shall not apply to the extent that are inconsistent with state or local law, or with an existing collective bargaining agreement; provided that with respect to the latter, the Contractor agrees those issues that are in conflict will be a subject of negotiation at the next collective bargaining session.

(End of clause)

252.223-7006 PROHIBITION ON STORAGE AND DISPOSAL OF TOXIC AND HAZARDOUS MATERIALS (APR 1993)

(a) "Definitions".

As used in this clause --

(1) "Storage" means a non-transitory, semi-permanent or permanent holding, placement, or leaving of material. It does not include a temporary accumulation of a limited quantity of a material used in or a waste generated or resulting from authorized activities, such as servicing, maintenance, or repair of Department of Defense (DoD) items, equipment, or facilities.

(2) "Toxic or hazardous materials" means:

(i) Materials referred to in section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 U.S.C. 9601(14)) and materials designated under section 102 of CERCLA (42 U.S.C. 9602) (40 CFR part 302);

(ii) Materials that are of an explosive, flammable, or pyrotechnic nature; or

(iii) Materials otherwise identified by the Secretary of Defense as specified in DoD regulations.

(b) In accordance with 10 U.S.C. 2692, the Contractor is prohibited from storing or disposing of non-DoD-owned toxic or hazardous materials on a DoD installation, except to the extent authorized by a statutory exception to 10 U.S.C. 2692 or as authorized by the Secretary of Defense or his designee.

(End of clause)

252.227-7023 DRAWINGS AND OTHER DATA TO BECOME PROPERTY OF GOVERNMENT. (MAR 1979)

All designs, drawings, specifications, notes and other works developed in the performance of this contract shall become the sole property of the Government and may be used on any other design or construction without additional compensation to the Contractor. The Government shall be considered the "person for whom the work was prepared" for the purpose of authorship in any copyrightable work under 17 U.S.C. 201(b). With respect thereto, the Contractor agrees not to assert or authorize others to assert any rights nor establish any claim under the design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish all retained works on the request of the Contracting Officer. Unless otherwise provided in this contract, the Contractor shall have the right to retain copies of all works beyond such period.

252.227-7033 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.

252.231-7000 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.

252.236-7000 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.

252.242-7000 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)

252.243-7001 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.

252.247-7023 TRANSPORTATION OF SUPPLIES BY SEA (MAR 2000)

(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.

(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)(1) The Contractor shall use U.S.-flag vessels when transporting any supplies by sea under this contract.

(2) A subcontractor transporting supplies by sea under this contract shall use U.S.-flag vessels if--

(i) This contract is a construction contract; or

(ii) The supplies being transported are--

(A) Noncommercial items; or

(B) Commercial items that--

(1) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it contracts for f.o.b. destination shipment);

(2) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(3) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(c) 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.

(d) 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.

(e) 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.

(f) 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		

(g) 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.

(h) The Contractor shall include this clause, including this paragraph (h), in all subcontractors under this contract that--

(1) Exceed the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation; and

(2) Are for a type of supplies described in paragraph (b)(3) of this clause.

(End of clause)

252.247-7024 NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA (MAR 2000)

(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--

(1) In all subcontracts under this contract, if this contract is a construction contract; or

(2) If this contract is not a construction contract, in all subcontracts under this contract that are for--

(i) Noncommercial items; or

(ii) Commercial items that--

(A) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it subcontracts for f.o.b. destination shipment);

(B) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(C) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(End of clause)

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SECTION 00800

SPECIAL CLAUSES

TABLE OF CONTENTS

SC-22. DELETED - EPA ENERGY STAR

SC-23. RECOVERED MATERIALS

SPECIAL CLAUSES

SC-1. COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984) (FAR 52.211-10).

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 500 calendar days after date of receipt by Contractor of notice to proceed. The time stated for completion shall include final cleanup of the premises. See Section 00860-I DESIGN DEVELOPMENT TECHNICAL CRITERIA, paragraph “Sequencing of Construction” for scheduling and sequence of work.

SC-1.1 OPTION FOR INCREASED QUANTITY

a. The Government may increase the quantity of work awarded by exercising the Optional Items 0006 through ~~0008~~ 0009 at the time of award, or not at all, but no later than 90 calendar days after receipt by Contractor of notice to proceed. Notice to proceed on work Items added by exercise of the option will be given upon execution of consent of surety.

b. The parties hereto further agree that any option herein shall be considered to have been exercised at the time the Government deposits written notification to the Contractor in the mails.

c. The time allowed for completion of any optional items awarded under this contract will be the same as that for the base items, and will be measured from the date of receipt of the notice to proceed for the base items.

SC-1.2 Exception to Completion Period(s): In case the Contracting Officer determines that completion of seeding, sodding, and planting, and establishment of same is not feasible within the completion period(s) stated above, the Contractor shall accomplish such work in the first planting period following the contract completion period and shall complete such work as specified, unless other planting periods are directed or approved by the Contracting Officer.

SC-2. LIQUIDATED DAMAGES – CONSTRUCTION (SEP 2000) (FAR 52.211-12)

(a) If the Contractor fails to complete the work within the time specified in the Special Clause SC-1, or any extension, the Contractor shall pay to the Government as liquidated damages, the sum of $1,061.00. for each day of delay.

(b) If the Government terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the Government in completing the work.

(c) If the Government does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

(d) Exception to Liquidated Damage: In case the Contracting Officer determines that completion of work stated above in paragraph Exception to Completion Period(s) is not feasible during the completion period(s) stated in SC-1, such work will be exempted from liquidated damages.

SC-3~~. AND SC-4~~ DELETED.

SC-4. VARIATIONS IN ESTIMATED QUANTITIES - SUBDIVIDED ITEMS (MAR 1995) (EFARS 52.212-5001): This variation in estimated quantities clause is applicable only to Item Nos. 0001, 0002, 0003, 0004 and 0005.

(a) Variation from the estimated quantity in the actual work performed under any second or subsequent sub-item or elimination of all work under such a second or subsequent sub-item will not be the basis for an adjustment in contract unit price.

(b) Where the actual quantity of work performed for Items Nos. 0001, 0002, 0003, 0004 and 0005 is less than 85 ? of the quantity of the first sub-item listed under such item, the Contractor will be paid at the contract unit price for that sub-item for the actual quantity of work performed and, in addition, an equitable adjustment shall be made in accordance with the clause FAR 52.211-18, Variation in Estimated Quantities.

If the actual quantity of work performed under Items Nos. 0001, 0002, 0003, 0004 and 0005 exceeds 115 percent or is less than 85 percent of the total estimated quantity of the sub-item under that item and/or if the quantity of the work performed under the second sub-item or any subsequent sub-item under Items Nos. 0001, 0002, 0003, 0004 and 0005 exceeds 115 ? or is less than 85 ? of the estimated quantity of any such sub-item, and if such variation causes an increase or a decrease in the time required for performance of this contract the contract completion time will be adjusted in accordance with the clause FAR 52.211-18, Variation in Estimated Quantities.

SC-5. INSURANCE - WORK ON A GOVERNMENT INSTALLATION (JAN 1997) (FAR 52.228-5)

(a) The Contractor shall, at its own expense, provide and maintain during the entire performance period of this Contract at least the kinds and minimum amounts of insurance required in the Insurance Liability Schedule or elsewhere in the Contract.

(b) Before commencing work under this Contract, the Contractor shall certify to the Contracting Officer in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective:

(1) for such period as the laws of the State in which this Contract is to be performed prescribe; or

(2) until 30 days after the insurer or the Contractor gives written notice to the Contracting Officer, whichever period is longer.

(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.

(d) Insurance Liability Schedule (FAR 28.307-2)

(1) Workers' compensation and employer's liability. Contractors are required to comply with applicable Federal and State workers' compensation and occupational disease statutes. If occupational diseases are not compensable under those statutes, they shall be covered under the employer's liability section of the insurance policy, except when Contract operations are so commingled with a Contractor's commercial operation that it would not be practical to require this coverage. Employer's liability coverage of at least $100,000 shall be required, except in states with exclusive or monopolistic funds that do not permit workers' compensation to be written by private carriers.

(2) General Liability.

(i) The Contracting Officer shall require bodily injury liability insurance coverage written on the comprehensive form of policy of at least $500,000 per occurrence.

(ii) Property damage liability insurance shall be required only in special circumstances as determined by the agency.

(3) Automobile liability. The Contracting Officer shall require automobile liability insurance written on the comprehensive form of policy. The policy shall provide for bodily injury and property damage liability covering the operation of all automobiles used in connection with performing the Contract. Policies covering automobiles operated in the United States shall provide coverage of at least $200,000 per person and $500,000 per occurrence for bodily injury and $20,000 per occurrence for property damage. The amount of liability coverage on other policies shall be commensurate with any legal requirements of the locality and sufficient to meet normal and customary claims.

(4) Aircraft public and passenger liability. When aircraft are used in connection with performing the Contract, the Contracting Officer shall require aircraft public and passenger liability insurance. Coverage shall be at least $200,000 per person and $500,000 per occurrence for bodily injury, other than passenger liability, and $200,000 per occurrence for property damage. Coverage for passenger liability bodily injury shall be at least $200,000 multiplied by the number of seats or passengers, whichever is greater.

(5) Environmental Liability If this contract includes the transport, treatment, storage, or disposal of hazardous material waste the following coverage is required.

The Contractor shall ensure the transporter and disposal facility have liability insurance if effect for claims arising out of the death or bodily injury and property damage from hazardous material/waste transport, treatment, storage and disposal, including vehicle liability and legal defense costs in the amount of $1,000,000.00 as evidenced by a certificate of insurance for General, Automobile, and Environmental Liability Coverage. Proof of this insurance shall be provided to the Contracting Officer.

SC-6. DELETED.

SC-7. PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984) (FAR 52.236-1): The Contractor shall perform on the site, and with its own organization, work equivalent to at least fifteen (15) percent of the total amount of work to be performed under the Contract. The 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.

SC-8. PHYSICAL DATA (APR 1984) (FAR 52.236-4): Data and information furnished or referred to below is for the Contractor's information. The Government will not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

(a) Physical Conditions: The indications of physical conditions on the drawings and in the specifications are the result of site investigations by test holes shown on the drawings.

(b) Weather Conditions: Each bidder shall be satisfied before submitting his bid as to the hazards likely to arise from weather conditions. Complete weather records and reports may be obtained from any National Weather Service Office.

(c) Transportation Facilities: Each bidder, before submitting his bid, shall make an investigation of the conditions of existing public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress at the jobsite. The unavailability of transportation facilities or limitations thereon shall not become a basis for claims for damages or extension of time for completion of the work.

SC-9. DELETED.

SC-10. LAYOUT OF WORK (APR 1984) (FAR 52.236-17): The Contractor shall lay out its work from Government-established base lines and bench marks indicated on the drawings and marked in the field by the Government, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due, or to become due, to the Contractor.

SC-11 THROUGH SC-12. DELETED.

SC-13. IDENTIFICATION OF GOVERNMENT-FURNISHED PROPERTY (APR 1984) (FAR 52.245-3): The Government will furnish to the Contractor the property identified in the schedule to be incorporated or installed into the work or used in performing the contract. The listed property will be furnished to the Contractor at the place designated by the Contracting Officer. The Contractor is required to accept delivery, pay any demurrage or detention charges, and unload and transport the property to the jobsite at its own expense. When the property is delivered, the Contractor shall verify its quantity and condition and acknowledge receipt in writing to the Contracting Officer. The Contractor shall also report in writing to the Contracting Officer within 24 hours of delivery any damage to or shortage of the property as received. All such property shall be installed or incorporated into the work at the expense of the Contractor, unless otherwise indicated in this contract

(b) For purposes of calculating the amount of Washington State Use Tax to be included in his bid; the Contractor shall use an estimated value of $250,000.00 for Government-furnished Contractor-installed (GF/CI) equipment/property. Ultimately the actual cost of equipment furnished will be used to adjust the final contract amount by modification to reflect the user tax excluding Contractor markups, actually paid by the Contractor for GF/CI equipment schedule.

SCHEDULE

QUANTITY	ITEM	DESCRIPTION	VALUE (TOTAL)
	Miscellaneous Equipment and Appliances Itemized in	See Section 00860, Para. 3.2.5.	$250,000.00

SC-14. EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE -(MAY 1999)-(EFARS 52.231-5000)

(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 of EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule, Region VIII. 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 provisions of FAR 31.105(d)(ii) and FAR 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

(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. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet.

(e) Copies of EP1110-1-8 “Construction Equipment Ownership and Operating Expense Schedule” Volumes 1 through 12 are available in Portable Document Format (PDF) and can be viewed or downloaded at http://www.usace.army.mil/inet/usace-docs/eng-pamplets/cecw.htm. A CD-ROM containing (Volumes 1-12) is available through either the Superintendent of Documents or Government bookstores. For additional information telephone 202-512-2250, or access on the Internet at http://www.access.gpo.gov/su_docs.

SC-15. PAYMENT FOR MATERIALS DELIVERED OFF-SITE (MAY 1999) -(EFARS 52.232-5000)

(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 payments 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: Any other construction material stored offsite may be considered in determining the amount of a progress payment.

SC-16. ORDER OF PRECEDENCE - DESIGN/BUILD CONTRACT

(a) The contract includes the standard contract clauses and schedules current at the time of contract award. It entails (1) the solicitation in its entirety, including all drawings, cuts, and illustrations and any amendments, and (2) the successful offeror's accepted proposal. The contract constitutes and defines the entire agreement between the Contractor and the Government. No documentation shall be omitted which in any way bears upon the terms of that agreement.

(b) In the event of conflict or inconsistency between any of the provisions of this contract, including the Request for Proposal, Contractor's proposal, or contract deliverable, precedence shall be given in the following order:

(1) Betterments: Any portions of the accepted proposal, or any subsequent design or other submittal, which both conform to and exceed the provisions of the Request for Proposal. "Betterment" is defined as any product, component, or system, which exceeds the minimum requirements stated in the Request for Proposal.

(2) The provisions of the solicitation: (See also Contract Clause: SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION)

(3) All other provisions of the accepted proposal including RFP Standard Form SF1442 and Schedule.

(4) Any design products including, but not limited to, plans, specifications, engineering studies and analyses, shop drawings, equipment installation drawings, etc. These are "deliverables" under the contract and must conform to or exceed all provisions of the contract, in order of precedence herein.

SC-17 LIMITATION OF PAYMENT FOR DESIGN: If it should be necessary to terminate this contract, for any reason, prior to completion, the Government will pay the Contractor a fair and reasonable price for the design or construction services performed and delivered to the Government. However, such payment will not exceed a sum greater than the amount allowable under 10 USC 4540 regardless of the actual costs the Contractor may be able to substantiate.

SC-18. AND SC-19 - DELETED.

SC-20. COMPLIANCE CERTIFICATION

The offeror shall certify, in the technical proposal cover letter and by note on each sheet of working drawings, that all items submitted in proposal and final design documents comply with RFP requirements. The requirements specified in the RFP are binding contract requirements. In case of any conflicts after the contract award between the requirements stated in the RFP and the offeror's proposal, the RFP requirements shall govern.

SC-21. VALUE ENGINEERING: The Corps of Engineers encourages all offeror's to utilize the Value Engineering methodology and functional analysis techniques. These techniques will most often result in a quality and cost effective product.

SC-22. DELETED.

SC-23. RECOVERED MATERIALS: The Corps of Engineers encourages all bidders to utilize recovered materials to the maximum extent practicable. The attached APPENDIX R contains procurement guidelines for products containing recovered materials.

APPENDIX R

PART 247 - COMPREHENSIVE PROCUREMENT GUIDELINE FOR PRODUCTS CONTAINING RECOVERED MATERIALS

40 CFR Ch. 1 (9-1-99 Edition)

Subpart B-Item Designations

§ 247.10 Paper and paper products.

Paper and paper products, excluding building and construction paper grades.

§ 247.11 Vehicular products.

(a) Lubricating oils containing re-refined oil, including engine lubricating oils, hydraulic fluids, and gear oils, excluding marine and aviation oils.
(b) Tires, excluding airplane tire
(e) Reclaimed engine coolants, excluding coolants used in non-vehicular applications.

247.12 Construction products.

(a) Building insulation product including the following items:
(1) Loose-fill insulation, including but not limited to cellulose fiber, mineral fibers (fiberglass and rock vermiculite, and perlite;
(2) Blanket and batt insulation, including but not limited to mineral fibers (fiberglass and rock wool).
(3) Board (sheathing, roof decking wall panel) insulation, including but not limited to structural fiberboard and laminated paperboard products perlite composite board, polyurethane, polyisocyanurate, polystyrene, phenolics, and composites; and
~~(2)~~ (4) Spray-in-place insulation, including but not limited to foam-in-place polyurethane and polyisocyanurate and spray-on cellulose.
(b) Structural fiberboard and laminated paperboard products for applications other than building insulation, including building board, sheathing shingle backer, sound deadening board, roof insulating board, insulating wallboard, acoustical and non-acoustical ceiling tile, acoustical and non-acoustical lay-in panels, floor underlayments, and roof overlay (cover board).
(c) Cement and concrete, including concrete products such as pipe and block, containing coal fly as ground granulated blast furnace (GGBF) slag.
(d) Carpet made of polyester fiber use in low- and medium-wear applications.
(e) Floor tiles and patio block containing recovered rubber or plastic.
(f) Shower and restroom dividers/partitions containing recovered plastic or steel.
(g) (1) Consolidated latex paint used for covering grafitti; and
(2) Reprocessed latex paint used for interior and exterior architectural applications such as wallboard, ceilings, and trim; gutter boards; and concrete, stucco, masonry, wood and metal surfaces.

§247.13 Transportation products.

(a) Traffic barricades and traffic cones used in controlling or restricting vehicular traffic.
(b) Parking stops made from concrete or containing recovered plastic or rubber.
(c) Channelizers containing recovered plastic or rubber.
(d) Delineators containing recovered plastic, rubber, or steel.
(e) Flexible delineators containing recovered plastic.

§ 247.14 Park and recreation products

(a) Playground surfaces and running tracks containing recovered rubber or plastic.
(b) Plastic fencing containing recovered plastic for use in controlling snow or sand drifting and as a warning/safety barrier in construction or other applications.

247.15 Landscaping products.

(a) Hydraulic mulch products containing recovered paper or recovered wood used for hydroseeding and as an over-spray for straw mulch in landscaping, erosion control, and soil reclamation.
(b) Compost made from yard trimmings, leaves, and/or grass clippings for use in landscaping, seeding of grass or other plants on roadsides and embankments, as a nutritious mulch under trees and shrubs, and in erosion control and soil reclamation.
(c) Garden and soaker hoses containing recovered plastic or rubber.
(d) Lawn and garden edging containing recovered plastic or rubber.

§ 247.16 Non-paper office product.

(a) Office recycling containers and office waste receptacles.
(b) Plastic desktop accessories.
(c) Toner cartridges.
(d) Binders.
~~(f)~~ (e) Plastic trash bags.
~~(g)~~ (f) Printer ribbons.
~~(h)~~ (g) Plastic envelopes.

§ 247.17 Miscellaneous products.

Pallets containing recovered wood, plastic, or paperboard.

END OF SECTION

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SECTION 00810

DESIGN-BUILD CONTRACT PROCEDURES

T A B L E O F C O N T E N T S

PARAGRAPH
NUMBER

SECTION 00810

DESIGN-BUILD CONTRACT PROCEDURES

1. GENERAL CONTRACT PROCEDURES: The contract will be conducted in two phases: Phase I is the preparation and review of project design documents. Phase II consists of construction of the facility designed in Phase I. In order to assist the Contractor in completing the contract within the agreed upon contract completion time, Phase I and Phase II will each consist of two parts. The first part will be the Site, Foundation and Site Utilities, and the second part will be Building and All Other Work. Construction is not to commence until the Government has reviewed and approved the applicable design documents for that part of the construction. For example, after review of Site Foundation and site Utilities Design, the Government may issue an interim Notice to Proceed for that portion of the project. The Government reviews the Contractor's design documents for compliance with the contract. The Contractor is totally and solely responsible for the design, coordination, compatibility, and completeness of each and every phase and compliance with contract requirements. Prior to start of each phase there will be a meeting to discuss Contractor's Quality Control Plan. See the Technical Specifications, Division 1, and Section 01451 - Contractor Quality Control, for details.

1.1 PREDESIGN CONFERENCE: Within five working days after notice to proceed with the contract a predesign conference will be held to acquaint the Contractor with the general plan of contract administration and requirements under which the design is to proceed.

1.2 PHASE I – REQUIREMENTS

1.2.1 Design Submittals. The Contractor shall prepare and distribute project design documents in accordance with the schedules provided herein. Each submittal shall be in accordance with the requirements of the contract documents and all other terms and conditions of the contract.

1.2.2 Design Reviews.

(1) The Government intends to use no more than 21 calendar days for review of submittals. Design submissions found to be incomplete or not in compliance with the contract will be returned to the Contractor for correction and re-submission. Under such circumstances the Government will have an additional 14 calendar day review period, to commence upon receipt of the revised submittals, and there will be no increase in the contract completion date provided. Contract completion time (see contract clause entitled "Commencement, Prosecution, and Completion of Work") includes time for Government review of Contractor prepared project design documents.

DESIGN SUBMITTAL SCHEDULE

Submittal	Suspense	Submittal Items
Site, Utilities and Foundation (developed to 95%). Building Design (developed to 65%).	See Note 1	See Specifications & Drawings Distribution See Note 4
Revised Site, Utilities and Foundation Design (developed to 100%)	See Note 2	See Specifications & Drawings Distribution See Note 4
Building Design and All Other Work (developed to 95%)	See Note 3	See Specifications & Drawings Distribution See Note 4
Revised Building Design (developed to 100%) and Site, Utilities and Foundation Design documents with this final back check submittal.	See Note 2	See Specifications & Drawings Distribution See Note 4

NOTES: The Contractor shall complete suspense in the above schedule. Suspense is to be measured as the number of Calendar Days after Notice to Proceed (NTP) with the Contract.

1. The number of calendar days for completion shall be no more than 90 calendar days after NTP with the contract.
2. The number of calendar days for completion of the revised submittal shall include Government review time as specified in paragraph Design Reviews herein and time for the Contractor to complete required corrections and shall be no later than 14 calendar days after Contractor receipt of the Government review comments.
3. The number of calendar days for completion shall be no more than 150 calendar days after NTP with the contract.
4. Specifications, drawings and design calculations to be stamped and signed (see paragraph 2.2)
5. The Building-Related Interior Design (BRID) and a Furniture-Related (FRID) Interior Design will be reviewed and approved at the 65% Building Design review

SPECIFICATIONS AND DRAWINGS DISTRIBUTION

Addressee	Site, Utilities & Foundation (95%)						Site, Utilities & Foundation (100%)					Architectural Rendering (Submit with 95% Building Design)					Building Design (100%) Submittal					Final Sealed Drawings				
	Building Design (65%) SUBMITTAL						Building Design (95%) Submittal															Site, Utilities & Foundation & Building Design				
	Specifications	½ Size Drawings	Full Size Drawings	Design Analysis	BRID/FRID	Exterior Color Board	Specifications	½ Size Drawings	Full Size Drawings	Design Analysis	Annotated Comments	Framed Orig. Rend.	Framed Color Print	35mm Color Slides	4" x 5" Color Neg.	Electronic Image (BMP)	Specifications	½ Size Drawings	Full Size Drawings	Design Analysis	Annotated Comments	Specifications	½ Size Drawings	Full Size Drawings	Electronic Spec's	Electronic Drawings
Anil Nisargand[1]	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
John Zabukovec[2]	10	10	0	10		1	10	10	0	10	10	0	0	0	0	1	5	5	0	5	5	2	2	0	1	1
Karen Peterson[3]	1	1	0	1		0	1	1	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0	1	1
Christine Een[4]	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	1	1	1	1		1	1	1
Doug Ramsey[5]	2	2	0	2		0	2	2	0	2	1	0	0	0	0	0	2	2	0	2	1	2	2	0	0	0
Joe Carroll[6]	10	10	1	10	1	1	10	10	1	10	1	0	1	0	0	1	3	3	1	3	1	3	3	1	1	1
Tommy Kyzar[7]	2	2	0	2		0	2	2	0	2	2	2	0	2	2	2	2	2	0	2	2	2	2	0	1	1
Fort Detrick Engineering Officer [8]	1	1	0	1		0	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	0	1	1
Totals	27	27	2	27	2	3	27	27	2	27	17	3	3	4	4	7	15	14	2	15	12	13	12	2	8	8

1	U.S. Army Corps of Engineers, Seattle District ATTN: CENWS-EC-DB-SP (Nisargand) P.O. Box 3755 Seattle, WA 98124 - 3755
2	U.S. Army Corps of Engineers, Seattle District ATTN: CENWS-EC-CO-TR (Zabukovec) P.O. Box 3755 Seattle, WA 98124-3755
3	U.S. Army Corps of Engineers, Seattle District ATTN: CEWNS-PM-MB (Peterson~~Saepoff~~) P.O. Box 3755 Seattle, WA 98124-3755
4	U.S. Army Corps of Engineers Northwest Area Office (CENWS-EC-CO-CA) P.O. Box 92146 Tillicum, WA 98492-0146 ATTN: Christine Een
5	U.S. Army Corps of Engineers Northwest Area Office (CENWS-EC-CO-TR) P.O. Box 92146 Tillicum, WA 98492-0146 ATTN: Doug Ramsey
6	HQ, I-Corps and Fort Lewis ATTN: AFZH-DPW-P (Joe Carroll) Bldg 4301, Main Street, North Fort Lewis Fort Lewis WA 98433-5000
7	HQ, U.S. Army Forces Command ATTN: AFEN-PR/Kyzar~~Kleinman~~ 1777 Hardee Ave, SW Fort McPherson, GA 30330-1062
8	Mr. Harold Herman Dir, USAISEC-FDEO ATTN: AMSEL-IL-DE-IN-CO 1435 Porter Street, Suite 200 Fort Detrick, MD 21702-5047

(2) Government review does not constitute approval or acceptance of any variations from the RFP or from the Contractor's proposal unless such variations have been specifically pointed out by the Contractor in writing and authorized in writing by the Government. The responsibility for a total design in accordance with the contract will remain with the Contractor and any interim NOTICE TO PROCEED with construction will in no way mitigate against that responsibility.

(3) The Contractor is required to respond to all review comments and submit the annotated comments in the subsequent revised design submittal. All comments must both be accepted and incorporated into the design or rebutted to the Government’s written satisfaction.

(4) The Contractor shall utilize Corps of Engineers DrChecks software for annotating and managing review comments. DrChecks is a Web-based system accessible via the Internet through Corps of Engineers Seattle District home page. Go to http://www.nws.usace.army.mil/ and click the "Dr. Checks" button. Software platform for using DrChecks is a Pentium PC with Windows 95 (or above), Microsoft Internet Explorer 4.0 (or above) or Netscape Navigator (or above), and the capability to send Internet email. The Contractor shall provide this software platform for its staff requiring access to annotate or manage comments.

1.2.3 Design Review Conferences. Approximately 2 weeks after submission of design material for Government review a design review conference may be convened by the Government and held between the Government and the Contractor to discuss the submission and the Government's review comments.

1.2.4 Project Design Documents. After the Contractor's revised final submittal of the design documents have been back checked and accepted by the Government, corrected signed and sealed contract drawings in electronic file format, along with complete sets of ½ size prints taken from the disk, corrected specifications in electronic file format shall be submitted to the personnel listed on Specification and Drawing Distribution List. The documents shall be submitted on ISO 9660 format CD-ROM. The Contractor shall also provide the following to the Government:

(1) Full size drawings

(2) 1/2 size drawings

(3) Specifications.

(4) Electronic set of contract drawings in CALS format, along with the index.txt file and .svd file, on ISO 9660 CD-ROM.

Quantity and distribution of these documents shall be as shown on the "Specification and Drawing Distribution List", or as directed by the Government at the design review conference.

1.3 PHASE II - REQUIREMENTS:

After the Contractor has completed the applicable project design documents (see Phase 1 - Requirements above) the Government will issue to the Contractor a notice to proceed with construction.

1.3.1 Pre-construction Conference. Prior to commencement of construction, a Pre-construction Conference will be held to acquaint the Contractor with the general plan of contract administration and requirements under which the construction operation is to proceed. This conference will also inform the Contractor of the obligations concerning equal opportunity and Federal wage rates reporting system.

1.3.2 Contract Closeout. Completion, acceptance, and contract settlement are accomplished when final punch list items (see Section 00700 - Contract Clause Inspection of Construction) have been completed and approved, "as-built" drawings are complete, and warranty provisions and dates are established.

2. PREPARATION OF PHASE I - PROJECT DESIGN DOCUMENTS

2.1 GENERAL. The Phase I project design documents shall include construction drawings, specifications, and design analysis for categories such as, but not limited to, demolition, architectural, fire protection/life safety, civil, structural, mechanical, electrical, grading, drainage, paving, telecommunications, and utility service. Provide specifications in sufficient detail to fully describe and demonstrate the quality of materials, the installation, and performance of equipment, and the quality of workmanship. Detailing and installation of all equipment and materials shall comply with the manufacturer's recommendations and base standards. Provide a design analysis for each discipline of work with sufficient backup data including the necessary calculations, tables, methods, and sources used in determining equipment and material sizes and capacities. Design development shall conform to the criteria and requirements of Section 00860 - Statement of Work.

2.2 ARCHITECT OF RECORD. All construction drawings and design calculations of the Contractor and any changes to these documents shall be affixed with the registration stamp (seal) of the Architect of Record (see Section 01451 Contractor Quality Control, paragraph 3.4 Quality Control Organization) and that of all consultants, as appropriate, (i.e. structural, civil, mechanical, electrical, and fire protection engineers) before submittal for review. All design professionals shall have current registration to practice in the United States. Approval shall be indicated on all documents by having the professional stamp/seal of architect or engineer with personal signature over same appearing on all sheets as applicable to their specialties.

2.3 CONSTRUCTION DRAWINGS: the Contractor in preparing construction drawings shall utilize AutoCAD. The drawing format, border, etc. shall comply with COE Seattle District CADD standards, which are available at http://www.nws.usace.army.mil/. The AutoCAD version, electronic file format and layering shall be as specified in Section 01702, As Built Record Drawings. The project title is FY02 Vehicle Maintenance Facility, Fort Lewis, Washington, and Project Number is PN 54068 & 54113. The project drawing file number is 22s/214-10-39, and individual drawing plates are to be identified as follows:

Title/Location/Index:	G-1		
Demolition:	D-1 and Following	Structural:	S-1 and Following
Civil:	C-1 and Following	Mechanical:	M-1 and Following
Architectural:	A-1 and Following	Plumbing:	P-1 and Following
Fire Protection:	FS-1 and Following	Electrical:	E-1 and Following
Landscape	L-1 and Following		

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NOTE: This is a metric project and all project design documents are to be prepared in metric units. The following publications are recommended as guides to aid the Contractor in the preparation of the project design documents:

METRIC GUIDE FOR FEDERAL CONSTRUCTION

Published by - National Institute of Building Sciences
1201 L Street NW
Washington, D.C. 20005 (202) 289-7800

MASTERMETRIC - A Guide for Using the International System of Units (SI) in Construction Documents

Published by - AIA Master Systems - MASTERSPEC Specifications
332 East 500 South Street
Salt Lake City, Utah 84111-3309 (800) 424-5080

****

Construction drawings shall include all details necessary to portray the design requirements. All construction drawings shall be signed by the responsible registered professional engineer or architect. The following minimum drawings shall be submitted:

(1) Site plan(s) which accurately show existing and finish grade contours and drainage, location of pavements, layout of major utility lines, features to be retained or removed, location of all buildings, and project boundaries.

(2) Typical site paving including pavement and soil cross sections and site utilities including locations of valves, hydrants, etc.

(3) Architectural floor plans, which show overall dimensions, room dimensions and areas, equipment and fixtures and door swings. (1:50 scale shall be used for plans of toilets and elevations and sections as necessary for clarity).

(4) Foundation plans showing sections and details, including Vaults.

(5) Structural plans including framing plans, sections and details. Include all Vault plans, sections, and details.

(6) Exterior elevations which show all elevations and identify exterior materials.

(7) Typical sections (1:50 scale or larger) for each type of foundation, floor, wall, and roof construction, including Vault areas. Include exterior walls, interior bearing walls/floors, partitions, and all other typical conditions.

(8) Interior elevations, which show floor, ceiling, wall materials and type of fixtures for rest rooms.

(9) Interior finish schedule, which shows materials and colors for wall, ceiling, and floor finishes for each room. Indicate ceiling heights.

(10) Door schedule which shows type, size, material, fire rating, hardware group, and frame information.

(11) Fixture and Equipment Plans (1:50 scale) show compatibility of equipment and fixture placement.

(12) Mechanical drawings shall include HVAC layout, Plumbing layout, and Fire protection layout drawings. Administrative area, mechanical room, fuel storage tanks shall be a minimum of 1:50 scale minimum and at least one level two if required for clarity. Single line diagrams of each type of piping system, HVAC system, and control logic diagrams. Type and capacity of all mechanical equipment shall be clearly indicated including necessary schedules listing operating data. The equipment capacities shall reflect actual performance of selected equipment. The schedules shall contain all pertinent information. The designer shall provide all calculations backing up equipment performance. For example: coils shall be de-rated for the glycol and altitude required by the project.

(13) Electrical, Interior: The drawings shall include all power and lighting circuits. Panels and circuits for the various pieces of equipment and lighting systems shall be properly identified and separate plans provided for power, lighting and auxiliaries. Include riser (one line) diagrams for power for auxiliaries and schedules for panels, lighting, etc. Auxiliaries to include telephone, fire alarm, public address system etc.

(14) Electrical, Exterior: The drawings shall include all exterior distribution transformers, primary electrical service, underground electrical ducts, manholes and details of all new construction.

(15) Equipment schedules and installation details (1:20 scale or larger) for each special detail.

2.4 SPECIFICATIONS. For the preparation of construction specifications the Contractor shall utilize the guidance provided in Section 00860 - Statement of Work and the outline Specifications Division 2 through 16 provided in Section 00890. These specifications were prepared in accordance with the RFP requirements and reflect guidance for materials, equipment, and workmanship required for this project. In case of discrepancy between specifications and the RFP requirements, the RFP governs. The Contractor shall create full specifications to incorporate the most current applicable publications (codes, ASTM's, etc.).

NOTE: In preparing the specifications the Contractor shall use Unified Facility Guide Specifications (UFGS), which are a joint effort of the US Army Corps of Engineers, the Naval Facilities Engineering Command, and the Air Force Civil Engineering Support Agency.

The Contractor is to provide specifications covering all work for Divisions 2 through 16. All specifications shall be prepared and submitted in CSI three-part format per UFGS standards. The specifications shall require furnishing additional information such as shop or working drawings, manufacturer's literature, certificates of compliance, material samples, and guarantees necessary to assure that the work can be completed and conforms with the criteria contained in the contract and that supervision and inspection of the project can be maintained. Several specification sections have been included in this RFP and will be required to become part of the final design. The Division 1 Specifications included in the RFP have been prepared by the Government and shall not be revised by the Contractor except for the following input:

(1) Section 01330 Submittal Procedures. Complete the submittal register ENG Form 4288. See specification Section 01330 for guidance and sample blank form. The submittal register shall be prepared in Microsoft Excel, and both hard copy and electronic file shall be furnished with the contract documents.

(2) Section 01451 Contractor Quality Control. Review and edit, if necessary, Table 1 - Minimum Sampling and Testing Frequency to assure that the materials and minimum sampling and testing frequency shown are applicable for the work being done.

(3) Section 01452 - Special Inspection for Seismic Resistant Systems. The Contractor shall edit the guide specification 01452 as applicable to the design.

(4) Section 01704 Form 1354 Checklist. An initial Form 1354 Checklist shall be prepared and submitted with the Project Design Documents identified in paragraph 1.2.4 above. The Form 1354 Checklist and the instructions for completion are provided in Specification Section 01704. This initial submittal will be considered a draft Form 1354 Checklist. The Contractor shall update and submit the form during construction in accordance with the instructions provided in Section 01704.

2.5 DESIGN ANALYSIS. Design analysis includes complete design narrative and backup calculations to support each discipline of work. The Contractor shall utilize the guidance provided in Section 00860 - Statement of Work, and the following requirements. These analyses should include, but not be limited to, civil, structural, electrical and mechanical systems. Include computations for sizing equipment, air duct design, hydronic system design, ventilation design, and thermal resistance factors for ceilings, roofs, and exterior walls and floors. Provide zonal cavity lighting calculations for all interior lighting and point lighting calculations for all exterior lightning. Provide short circuit, load flow, and any necessary coordination studies. Provide vendor cut sheets of major items, or items which are not commonly available. Design analyses shall be presented in a clear and legible form incorporating a title page, and a table of contents. Sources of information, formula, and references shall be explained. Assumptions and conclusions shall be explained and cross-referencing is to be clear. Design analyses shall be accomplished by Registered Professional Engineers or Architects qualified in the respective design field (see paragraph 2.2 Architect of Record).

(1) When a computer program is used, the program shall be named and described. This description must be sufficient to verify the validity of methods, assumptions, theories, and formulas.

(2) Spreadsheet style programs are acceptable for structural analysis and design. Under a repetitive condition, at least one manual computation must be performed for each unique condition. All data, formulas and any referenced items should be clearly shown before initiation of the program. Any computer models generated for use with modeling programs should be accompanied by drawings indicating coordinate system, joint numbering and element/member numbering scheme. Maximum stresses used to design a member that are printed out in summaries of computer programs shall be circled, checked, or highlighted to accelerate reviews.

2.6 ADDITIONAL REQUIREMENTS

(1) Equipment and Fixtures. The Contractor shall furnish equipment and fixture schedules, catalog data, applicable Government or Commercial Specification numbers, and indicate sizes, capacities, manufacturer, model numbers, and manufacturer's warranties for all equipment and fixtures. Originals of catalog data (six copies only) shall be submitted in lieu of reproducible or copies to ensure legible data.

(2) Additional topographic surveys and soils information other than provided in this RFP obtained by the Contractor shall be submitted for review with the other design data. Topographic survey shall include contour lines of sufficient frequency for development of construction plans. Horizontal and vertical control shall be shown. Soil investigations shall include any boring logs, testing results, or design analysis performed.

(3) Field Trip Report: The electrical engineer and mechanical engineer responsible for the design are required to visit the site and furnish a trip report with the 65% design submittal. During the site visit the responsible electrical engineer and mechanical engineer shall coordinate with the Contracting Officer to obtain the following data from the appropriate base personnel: power system characteristics, communications support items, fire alarm system requirements, EMCS requirements, cathodic protection, and any other items

necessary for the design of supporting services to the facility. The report shall include names and titles of persons contacted and a brief description of all guidance information or instructions received.

(4) Finishes

(a) Exterior Color Board. Two exterior color boards shall be submitted (see color board requirements in specification Section 01001) as part of the 65% Bldg. Design submittal (see paragraph Design Submittals).

(b) BRID/FRID: Contractor is required to provide a Building-Related Interior Design (BRID) and a Furniture-Related Interior Design (FRID). Requirements for BRID/ FRID are specified in Engineering Regulation ER 1110-345-122 and Design Guide DG 1110-3-122. Selection of materials must be coordinated with the user prior to the final submission. Heavy or bulky samples and materials may be presented by clear color photographs, which indicate actual colors and textures. Where special finishes such as metal roof panels are required, small samples shall be attached to the board, and additional samples not less than 12 inches square shall be submitted with the board.

(5) Architectural Rendering: The Contractor shall prepare color renderings illustrating an exterior view of the project building and site development. The rendering shall be made at eye level and illustrate in an accurate manner, significant architectural features of the proposed project. The name of the project, design firm, and Army project manager are to be engraved or otherwise professionally applied to a small, black metal or plastic plate adhered to the exterior or the glazing near the bottom center. The following formats are to be provided as part of this work:

(a) Framed Original Rendering. The original 18"x22-1/2" color rendering having an overall matted dimension of 20"x30". The rendering shall be mounted under non-glare acrylic glazing in sturdy (3/4" minimum) flattop black metal or wood frame, 1 inch deep (wall to face) and with a ¼ inch to 3/16 inch face depending upon the rendering size. The frame material can be obtained from Nielson Frames, but other manufacturers of the same profile and color are acceptable. The rendering shall be matted with #789; Granite mat board by Bainbridge or a matching colors by another manufacturer. If there is double mats, then the interior mat shall be black, 3/16 to ¼ inch wide. Install adjustable devices and picture wire for hanging.

(b) Unframed Color Print. 16"x20" ektachrome prints of the rendering.

(c) Framed Color Print. 16"x20" ektachrome prints of the rendering, matted and mounted under non-glare acrylic glazing in sturdy (3/4" minimum) flattop black metal or wood frame. The framed dimension is to be 20"x25".

(d) 35mm color slides of the rendering (2 each).

(e) 4"x5" color negatives of the rendering (one each).

(f) Electronic images on 3.5” floppy disk in Microsoft Windows BMP format.

(g) Distribution: The Contractor shall provide reproduction and direct mailing of the rendering along with the 95% design submittal as specified in the table SPECIFICATIONS AND DRAWINGS DISTRIBUTION in paragraph 1.2.2.

3. PHASE I DESIGN SUBMITTAL MATERIAL REQUIREMENTS

3.1 GENERAL. Design reviews will be conducted by the Government for:

(1) 95% Site, Foundation, and Utilities Design, and 65% Building Design and All Other Work.

(2) 95% Building Design and All Other Work.

For specific requirements for each percentage stage of design see Seattle District AE Design Guide.

Design submittal schedule and distribution requirements are given in paragraph 1.3 PHASE I - REQUIREMENTS. Requirements for preparation of submittal materials are found in paragraph 2. PREPARATION OF PHASE I PROJECT DESIGN DOCUMENTS. Submittal materials required for the design reviews are as indicated herein.

3.2 SITE, FOUNDATION, AND UTILITIES DESIGN (95%),BUILDING DESIGN and ALL OTHER WORK (65%) SUBMITTALS

(1) Construction Drawings:

(a) Submittal shall include all drawings necessary to fully depict Site, Foundation, and Utilities Design construction requirements developed to 95%.

(b) Submittal shall include all drawings necessary to fully depict Building Design and All Other Work developed to 65% completion.

(2) Specifications:

(a) Submittal shall include completed specifications for site, foundation, and utility design developed to 95%.

(b) Outline specifications for building design and all other work, including an index, general conditions and all technical sections.

(3) Design Analysis and Supporting Data:

(a) Design analysis with supporting calculation and other data as appropriate to support the 95% site, foundation, and utility design.

(b) Design analysis developed to the extent required supporting the other design work included in this submittal.

(c) Equipment and Fixture Schedules to support the design work included in this submittal.

(4) Exterior Color Board and BRID/FRID package, showing colors, materials, textures, finishes, etc. (in accordance with paragraph 2.6 (4)).

3.3 (95%) BUILDING DESIGN AND ALL OTHER WORK SUBMITTALS

(1) Construction Drawings: All drawings upgraded to 95 % completion. Incorporate site, foundation, and utility drawings into drawing package for this submittal.

(2) Specifications: All completed specifications upgraded to 95% to support the completed work.

(3) Design Analysis and Supporting Data:

(a) Design analysis with supporting calculations and other data as appropriate to support the completed work.

(b) Equipment and Fixture Schedules catalog data and manufacturer's warranties for all equipment and fixtures.

(c) Rendering – direct mailing as specified

3.4 REVISED SUBMITTALS: Submit annotated Government review comments from previous submittal. All comments shall be incorporated into the design or rebutted to the satisfaction of the CO.

END OF SECTION

SECTION 00860

STATEMENT OF WORK

TABLE OF CONTENTS

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SECTION 00860

STATEMENT OF WORK

PART I

1. PROJECT SCOPE OF WORK

1.1 GENERAL

1.1.1 This project includes all design and construction necessary to provide a complete and usable Vehicle Maintenance Facility of approximately 6,922 square meters at Fort Lewis, Washington, as described herein. Site development includes utility services, paved access roads and parking areas, landscaping and all other site improvements as described herein. The facility includes four Tactical Equipment Maintenance Buildings (TEMB), designated CSSC, MARC, RSTA and IB. The CSSC and the MARC are vehicle maintenance shops, each with six service bays (three scheduled maintenance and three repair), administrative area, overhead cranes, small items repair area, and parts storage area. The RSTA and IB are single bay maintenance shops. Also included in the project are seven Deployment Equipment Storage Buildings (DESB) of varying sizes. The design of the TEMBs shall follow the Army Standard Design with modifications as shown herein, consistent with the Ft. Lewis Installation Design Guide. All buildings shall employ a pre-engineered structural steel frame. The structures shall utilize two exterior material systems: an integrally colored, split-faced concrete masonry unit (CMU) veneer wall system in the lower portion, and insulated metal wall panels in the upper portion. The roof shall be a standing seam metal roof over rigid polyisocyanurate insulation supported by metal deck. The DESB designs shall be based on generic metal building types. All materials shall be non-combustible, low maintenance, and all structures shall match in color, texture, and pattern. The work includes all utility systems, HVAC and domestic hot water systems, a complete fire protection system, fire detection and reporting system. In addition the work includes the installation of Government furnished equipment as itemized in paragraph 3.2.5 -Government Furnished Items. Sitework includes asphaltic concrete paving, portland cement concrete sidewalks, concrete curbs and gutters, landscaping and irrigation systems, and connection of building utilities to the base utilities systems. The project also includes demolition of antenna foundation and grounding rods, ~~utility poles,~~ building foundation, and sidewalk. Determination of existing site conditions, site surveys, Geotechnical investigations, and all other information prerequisite for design and construction of a complete and usable facility and not contained in this Request for Proposal (RFP) are the express responsibility of the Contractor.

NOTE: Wherever the term "Proposer" is used it shall be read as "Contractor" following contract award.

1.2 PROJECT LOCATION AND SITE PLAN

1.2.1 Fort Lewis Army Post is located approximately 5 miles south of the city of Tacoma, Washington. Fort Lewis Area Map and the project location are shown on drawing Plate G-1. Plates C-4 and C-5 show the Vehicle Maintenance Facility site concept layout and adjacent buildings, and Plates C-6 and C-7 show site utility improvements in relationship to the existing site features.

2. CODES AND STANDARDS

2.1 GENERAL

2.1.1. The project shall be designed and constructed in accordance with the applicable codes, standards, design parameters and regulations as noted in this section or other sections of this RFP. In case of conflict between these requirements the most stringent requirement shall apply.

2.1.2 Reference to standard specifications of any technical society, organization, or association, or to codes, manuals, or regulations of Federal, State, or local authorities, shall mean the latest standard, code,

manual, regulation, specification, or tentative specification adopted and published at least 90 days prior to submittal of proposals, unless specifically stated otherwise.

2.1.3 When any code or standard listed below references the authority having "jurisdiction" or "governmental authority" this reference shall be interpreted as referring to the Contracting Officer (CO).

2.1.4 Throughout this RFP reference is made to the “Fort Lewis Installation Design Guide”. This manual presents the Post’s design philosophy and provides the framework within which this RFP was prepared. It is available at http://pwcad.lewis.army.mil/standards/refman.cfm. This web site is only accessible through the Seattle District web site

http://www.nws.usace.army.mil/

then “Design Criteria”, “Fort Lewis”, “Facility Design Policy/Base Design Standards”, and “Reference Manual.”

In addition, the design and construction of the Vehicle Maintenance Facility has to comply with the following design guides and construction standards, available as noted below:

Military Handbook 1013/1A Design Guidelines for Physical Security of Facilities.

http://www.efdlant.navfac.navy.mil/criteria/publications_15.htm

DOD 5200.1-R, Appendix G Physical Security Standards

http://www.fas.org/irp/doddir/dod/5200-1r/appendix_g.htm

TM 5-853 – Security Engineering, Vol. I, II, and III.

http://www.usace.army.mil/inet/usace-docs/armytm/

DOD Antiterrorism/Force Protection Interim Construction Standards, 16 Dec 99

http://www.mil.acc.af.mil/ce/cepc

Sustainable Project Rating Tool (SPiRiT) – COE publication

http://www.usace.army.mil/inet/usace-docs/eng-tech-ltrs/etl1110-3-491/toc.htm

2.2 BASIC REQUIREMENTS

2.2.1 General: Design and construction shall be in accordance with the following codes, standards, and regulations. The most stringent shall govern when discrepancies occur. Except as noted otherwise, most of the referenced publications are available on the Internet through the Corps’ Seattle District website at http://www.nws.usace.army.mil/ under “Construction” and “Design Criteria”. Another source is Construction Criteria Base (CCB) library at http://www.ccb.org. Those not available through a website, or explicitly from the Corps of Engineers, are available in hardcopy format from the publishing agency. It is the Contractor’s responsibility to procure these documents.

(1) Building Code: International Building Code (IBC), (2000).

(2) Mechanical Code: Uniform Mechanical Code (UMC), latest edition.

(3) Plumbing Code: National Standard Plumbing Code (NSPC),latest edition.

(4) Electrical Codes: National Electrical Code, (1999). National Electrical Safety Code, latest edition.

(5) National Fire Protection Association Fire Codes (NFPA), latest editions as specified.

(6) Life Safety Code: National Fire Protection Association, NFPA 101 (2000).

(7) MIL-HDBK-1008C, Fire Protection for Facilities. Requirements of this handbook shall govern over other standards for fire protection and life safety and 3.6 FIRE DETECTION REQUIREMENTS

(8) MIL-HDBK-1190 - Facility Planning and Design Guide.

(9) Uniform Federal Accessibility Standards (UFAS - 49FR 31528).

(10) Americans With Disabilities Act Accessibility Guidelines (ADAAG).

(11) Technical Instruction TI 800-01 - Design Criteria (1998).

(12) Technical Instruction TI 800-03 - Technical Requirements for Design-Build (1998)

(13) Seattle District AE Design Guide (1990)

(14) Fort Lewis Design Standards (draft) (under "Facility Design Policy/Base Design Standards").

(15) Engineer Technical Letter ETL 1110-3-491 - Sustainable Design for Military Facilities (2001). Design to achieve SPiRiT “Bronze” level.

2.2.2 Civil:

AWWA Manual C-65.

Stormwater Manual, Fort Lewis Public Works (1996) (at Facility Design Policy/Base Design Standards under "Reference Manual")

Design criteria for pavement design shall be in accordance with the criteria specified in the attached Geotechnical Report and paragraph 3.1 CIVIL DESIGN REQUIREMENTS, (6) Parking.

2.2.3 Landscape:

TM 5-803-13 - Landscape Design and Planting - Criteria

TM 5-803–5 - Installation Design

Fort Lewis Landscape Development Plan, Volume II (available at “Facility Design Policy/Base design Standards”, under “Reference Manual”)

2.2.4 Structural:

Structural design shall comply with the requirements of the latest editions of the codes, standards, and specifications listed in Chapter 8 of Technical Instructions (TI 800-01 dated 20 July “98). Structural Design shall also comply with the following:

(1) Metal Building Manufacturers Association (MBMA), "Low Rise Building System Manual."

(2) MIL-HDBK 1013 1A Design Guidelines for Physical Security of Facilities

(3) CMMA #70 and #74 (1994)

(4) UFC 3-310-01 Load Assumptions for Buildings (replacing TI 809-01), available at www.hmd.usace.army.mil/techinfo/engpubs.htm

(5) See paragraph 3.3, STRUCTURAL REQUIREMENTS for specific structural design requirements including seismic regulations.

2.2.5 Architectural:

(1) Architectural design shall conform to the guidance furnished in this RFP (3.2 ARCHITECTURAL REQUIREMENTS and ARCHITECTURAL DESIGN), shall be in accordance with the above-mentioned criteria, and compliant with the Fort Lewis Installation Design Guide.

(2) The choice of exterior colors, finishes and materials for this facility shall be in agreement with the guidance furnished herein.

(3) Interior Design: A Building-Related Interior Design (BRID) and a Furniture-Related Interior Design (FRID) shall be prepared in accordance with the requirements of Engineering Regulation ER 1110-345-122 and Design Guide DG1110-3-122. Both documents are available through http://www.usace.army.mil/inet/usace-docs/. Submittal shall be made as part of the 65% and 95%

design submittal. Selection of the materials shall be coordinated and approved with the users prior to the final submission. Submittal documents are to be formatted for an 8½ " X 11 " three-ring binder. Binders to be hard cover with slip jacket for cover and spine identification.

(4) Life Safety design shall be in accordance with NFPA 101 Code for Safety to Life from Fire in Buildings and Structures, MIL-HDBK-1008C and the guidance furnished herein.

2.2.6 Mechanical:

All mechanical equipment provided and furnished shall be installed so that it is easily accessible for maintenance and repair or replacement. It shall be in compliance with local codes and ordinances, the Uniform Mechanical Code (UMC), the applicable codes and standards of the National Fire Protection Association (NFPA) and Underwriters Laboratories (UL), and the criteria and requirements specified in this RFP. Access to mechanical rooms shall be from exterior of the buildings. Refer to paragraph 3.4 MECHANICAL REQUIREMENTS.

2.2.7 Electrical:

Electrical wiring shall comply with the current regulations of the National Electrical Safety Code, National Electrical Code, National Fire Protection Association Life Safety Code, and the criteria and requirements specified in this RFP. Equipment shall conform to the requirements of the Institute of Electrical and Electronics Engineers, American Standards Association, National Electrical Manufacturers Association and Underwriters Laboratories, Inc. Refer to requirements of paragraph 3.5 ELECTRICAL DESIGN REQUIREMENTS.

2.2.8 Fire Protection/Detection:

Fire protection shall be provided by an approved automatic sprinkler system incorporating a complete wet pipe system to protect all areas of the facility. Fire detection and additional fire protection requirements are specified in paragraphs 3.4.16 Fire Protection/Detection, and 3.6 FIRE DETECTION REQUIREMENTS.

SECTION 00860

STATEMENT OF WORK

PART II

3. DESIGN DEVELOPMENT TECHNICAL REQUIREMENTS

3.1 CIVIL DESIGN REQUIREMENTS

3.1.1 Civil design and construction shall be in accordance with the applicable requirements of paragraph 2. CODES AND STANDARDS and other requirements as stated herein.

3.1.2 Site Planning:

(1) General. Contractor's operations shall at all times take into consideration that other facilities adjacent to the project must remain operational and be minimally impacted during the performance of the work. For additional information concerning coordination of work and access to the site see Section 01005 Site Specific Supplementary Requirements.

(2) Site Plan. Plates C-4 and C-5 show the site plans, which is a preconcept design solution. Proposers are to develop the site design while meeting the criteria stated herein. Innovative, creative, and/or cost saving proposals, which fulfill these criteria, are encouraged and will be evaluated accordingly.

3.1.3 Site Design:

(1) General Site Requirements. Overall site design shall conform to the guidance provided herein.

(a) The design shall present a consistent and unifying theme, tying together the various elements of the entire complex.

(b) The Contractor shall confine all proposed demolition and replacement operations to be within the project boundaries indicated on the attached drawings. Under no circumstances shall the Contractor perform any work off the site, except as authorized in the RFP or in writing by the Contracting Officer (CO). Required utility connections are an exception to this requirement.

(c) All survey control shall be based on the nearest Corps of Engineer's benchmarks. All existing survey monuments that are disturbed, lost or destroyed during demolition or construction shall be the responsibility of the Contractor and replaced in kind by a land surveyor registered in the State of Washington.

(d) Site design shall consider vehicular and pedestrian circulation, service vehicle, and vehicular parking as shown.

(e) All utility lines installed shall have a plastic marker tape (minimum 150 mm wide by .01 mm thick) installed as needed. The plastic marker tape shall include a metallic wire for detection purposes and shall bear a continuous printed inscription describing the type of utility line buried below. Utility line monument markers (concrete with brass identification plugs) shall be installed every 60 meters along straight runs and at each change of direction.

(f) Protect existing utility lines when new pavements are constructed over them. Existing cover over utilities shall be maintained. If existing cover is not maintained over pipes, the pipe and/or cover shall be redesigned and constructed for HS-20 loading.

(g) Site design (including landscaping) shall meet the Department of Defense Antiterrorism/ Force Protection Standards.

(2) Storm Drainage/ Grading

(a) Minimum grades for surface drainage shall conform to the guidance provided in the Geotechnical Report (see Appendix B). Provide adequate slope away from buildings to avoid ponding. Areas that cannot be adequately sloped shall have catch basins installed to drain water to a storm sewer system. Design and install storm sewer inlets and lines, as needed, to connect to the existing Ft. Lewis storm sewer system.

(b) Surface runoff generated from construction of this facility and future work shall be retained on the project site, or removed by use of existing storm sewer line as indicated.

(c) Catch basin grates shall be bicycle proof design.

(d) Cut and fill material shall be balanced within the site as much as possible to minimize import and export of material.

(e) Locate catch basins and grates so that no collection swales allow water to flow across a street or sidewalk to reach a storm sewer.

(f) The downspouts shall be connected by new lines to the storm drain system.

(3) Water Distribution

(a) Contractor shall provide looped water system for present construction. Existing water lines are shown on the drawings. It is the Contractor's responsibility to determine that water distribution lines are of adequate size to satisfy normal water demands for the facility, plus fire protection flow requirements. Water demand shall be in accordance with Mil Handbook 1008C, NFPA 13 (1999 Edition) and local standards and codes.

(b) Water pressure and flow taken at the street hydrant at the intersection of Easrt Drive and D Street is shown in the table below. The Contractor shall verify flow tests to determine that adequate pressures and flows are available. The Contractor shall design and construct water supply lines to meet project requirements.

Flow test taken by Ft Lewis Fire Dept 3/27/00			
		Pressure	
Hydrant Location	Pipe Size (inches)	Static (psi)	Residual (psi) @ Flow (gpm)
East Drive & D Street	8	78	60 @ 1,300

(c) The Contractor's worst-case test results shall be used to design the fire protection system. The design should include additional consideration for concurrent demands

on main line water resources for adjacent property irrigation during the summer months.

(d) Curb stops shall be provided for all water service lines. Service boxes shall be provided for all curb stops and shall extend to finished grade. The facility shall be provided with an interior service main cutoff-valve. Service lines shall be protected from freezing.

(4) Sanitary Sewer

(a) Sanitary sewer design, construction and leakage testing shall conform to the National Standard Plumbing Code published by NAPHCC. Pipe materials and joints shall conform to the applicable ASTM, ANSI or other Standard as appropriate.

(b) The Contractor shall design and construct new pipes and required appurtenances to connect to the existing system.

(c) Manholes shall be placed at all angles and intersections. All sanitary sewers shall have straight alignment between manholes.

(d) The Contractor shall coordinate all work on existing sanitary sewer lines with the CO.

(e) Design new lines for a minimum of 0.6 meter per second for average flow.

(f) Manhole covers located in pavements shall be designed for HS-20 design loading.

(g) A duplex pump lift station shall be provided to pump effluent from the infantry battalion buildings (new and future) to discharge into the existing sanitary sewer in East Drive.

(5) Natural Gas Distribution

The buildings shall use natural gas-fired equipment for space heating. Contact person for the gas company (Puget Sound Energy) is Cheryl Papas at (253) 476-6315. The Contractor shall contract Puget Sound Energy Services to design, install and own meter set assemblies and underground natural gas piping to the buildings. The Contractor shall provide the gas piping system from the point of delivery, defined as the outlet of the meter set assembly as provided by Puget Sound Energy Services. For bidding purposes, the Contractor shall assume a value of $100,000 for services supplied by Puget Sound Energy Services. The Government shall reimburse the Contractor for Puget Sound Energy Services in excess of the specified amount. The Contractor shall reimburse the Government if Puget Sound Energy Services are less than the specified amount.

(6) Propane Distribution

The Contractor shall provide piping (separate from the natural gas piping to be installed by PSE) as indicated on the drawings (see civil drawings). Isolation valves shall be provided to permit manual connection of the propane system to the building natural gas system. The propane piping shall tee into the natural gas piping between the natural gas meter and prior to entering the building.

(7) Parking

Reference TI 804-11 “POV Site Circulation and Parking” and the following:

(a) Plate C-4 and Plate C-5 are representative of the general requirements for parking lot access and the proposer is responsible to develop the plan and incorporate the requirements stated herein.

(b) Pavements for parking areas and access roads shall be asphaltic concrete and are to be in accordance with the requirements specified in the Geotechnical Report.

(c) Roads and parking areas shall have gradients of a maximum 5 percent and a minimum of 1 percent. Grade to avoid ponding.

(d) Curbs of portland cement concrete shall be provided at all pavements and shall comply with the curb design details provided in Ft. Lewis Engineering Standards.

(e) Pavement markings shall conform to outline specification 02763 and the following: All passenger vehicle parking areas shall be marked with single 100 mm parking stripes. Handicapped painted symbols and signage will be required at all barrier-free parking spaces.

(f) Design Vehicle: The light armored vehicle was selected for parking lot design. The vehicle is 6.93 meters long, 2.66 meters wide, and weighs 16,300 kilograms.

(g) Pavement Design: Design of pavements shall be based on evaluation of existing conditions, anticipated loadings over the service life, and other relevant requirements. Minimum requirements for perimeter road is H-20 loading.

(h) Handicapped stalls and access to buildings shall be as per Americans with Disabilities Act (ADA) guidance. Handicapped parking and access illumination shall be 50 lux average.

(i) Landscape in parking areas. Landscaping shall be provided in the parking areas as indicated on the site plan. Existing trees shall be preserved where possible, as indicated on the site plan. For additional landscape requirements, see Para. 3.1.4.

(8) Soil Compaction.

Soil compaction shall be achieved with equipment suited to the particular soil being compacted. Material shall be moistened or aerated as necessary to provide the moisture content that will readily facilitate obtaining the compaction specified with the equipment used. Each layer of material shall be compacted to not less than the percentage of maximum density specified in the Geotechnical Report.

3.1.4 Landscape Design and installation

(1) General.

A complete, integrated landscape planting plan shall be developed by a registered landscape architect, familiar with local conditions and plant species, and experienced in site planning and planting design. The designer shall insure that sound design principles for selecting and locating plant materials are employed to enhance the character of the site by enhancing the streetscape, lessening the visual impacts of parking and other less desirable areas, and blending with the landscape theme presented in the North Fort area. Landscape design and installation shall follow the guidance provided in Section 00860 Part 1, Para. 2.2.3.

(2) Landscape Design Objectives

(a) Enhancing the streetscape along East Drive.

(b) Provide native planting along North Gate Road.

(c) Providing erosion control and site stabilization. No landscaping shall be provided inside of the perimeter or security fences, except for around the retention pond area. All areas disturbed due to Contractor activities, such as staging and storage areas, shall be restored to existing conditions at Contractor's expense. Grass areas shall be restored and seeded in accordance with specification section 02921.

(3) Planting

Streetscape planting along major roads and POV parking shall be provided as generally indicated on the concept site plans. Landscaping, including topsoil, grass seeding, and native planting shall be provided outside of the perimeter or security fences to provide erosion control/restoration of disturbed areas, roadside ditches, and swales and to blend to surrounding natural areas. Native planting other than grasses shall be provided where seeding is not determined to be sufficient for soil stabilization. Planting at the intersection of East Drive and Northgate Road shall be designed for safe sight distances by vehicles.

(a) Existing trees and significant vegetation shall be preserved and protected where feasible. Existing vegetation to be preserved shall be as indicated on the conceptual site plan.

(b) New landscaping shall meet all anti-terrorism and force-protection criteria. New landscaping shall also integrate sustainable principles into the design and construction of the project. Plant material selection shall include primarily natives and ornamentals that are drought-tolerant once established and require no chemical treatment on a regular basis.

(c) New trees shall not be installed within 6M of any new or existing underground utility lines.

(4) Topsoil and Grass Seeding.

All disturbed areas within the clearing and grubbing limits and outside paved, rock-mulched, or developed areas of the project shall receive topsoil and be seeded to low-maintenance field/native grass mixes as recommended in the Fort Lewis design standards. Topsoil shall be stripped from existing landscaped areas prior to construction activities, then screened and amended, as required, for reuse in new landscaped areas. If stripped material is not sufficient, the CONTRACTOR shall obtain additional topsoil from off-site. Excess topsoil shall be disposed of on-site as directed by the Contracting Officer Representative. Topsoil shall be spread over prepared sub-grades to a minimum compacted depth of 100mm. Finished grades shall be hydroseeded and mulched. A 3-month minimum maintenance period will be required to ensure a satisfactory stand of turf. Heavily compacted soils or sterile gravels found within the areas to receive new landscaping shall be removed to a minimum depth of 300 mm and replaced with satisfactory fill to match adjacent elevations and avoid depressions prior to placing topsoil and seeding. Areas seeded to field/native grasses shall not require a permanent irrigation system.

(5) Streetscape and POV Parking Area.

Street trees shall be planted between East Drive and the Vehicle Maintenance Facility and in the proposed POV parking area. Existing trees located along East Drive shall be

preserved , where possible. An automatic underground irrigation system shall be provided for all parking lot, street tree, and streetscape plantings, including turf areas between East Drive and the POV parking area. An exterior irrigation controller shall be provided in the location as indicated approximately on the drawings.

(6) Native Planting along North Gate Road.

Native planting consisting primarily of shrubs and groundcovers shall be provided along North Gate Road as indicated on the drawings. Minimal trees shall be provided within the native planting area for scale and visual variety. Trees, shrubs, and groundcovers shall be native or indigenous and shall be selected for drought-tolerance and low-maintenance, as well as aesthetics. Irrigation for the native plantings shall consist of a drip system to aid in the establishment of the plantings during the first two to three seasons.

(7) Landscape Irrigation Systems.

An automatic underground irrigation system shall be provided for all new plantings (trees, shrubs, and groundcovers) provided within the project site, excluding turf areas. Irrigation systems shall be designed by a landscape architect, certified irrigation designer, or engineer with a minimum of two years experience in similar irrigation design projects. The irrigation systems shall utilize potable water and be well coordinated with other utilities. All irrigation systems shall have proper backflow prevention devices at the point of connection to the domestic water system and be in compliance with local codes. Irrigation systems shall be designed for water conservation and ease of maintenance by operation and maintenance personnel.

3.2 ARCHITECTURAL REQUIREMENTS

3.2.1 Design Criteria

The architectural design of the Tactical Equipment Maintenance Buildings (TEMB) (designated CSSC, MARC, RSTA and IB) shall be modified versions of the Department of the Army Standard Design for Tactical Equipment Maintenance Facilities with varying degrees of customization. The RFP schematic designs show the following composite types:

(a) CSSC: “Building 3” Repair and Scheduled Maintenance Bays with “Building 2” Administrative Core (with increased size in “Communications” and “Break, Training and Conference” rooms).

(b) MARC: “Building 3” Repair and Scheduled Maintenance Bays with “Building 1” Administrative Core (with “General Item Repair” and combination “Weapons and Comsec Vault” rooms deleted, space absorbed by “Break, Training and Conference” room.)

(c) RSTA and IB: “Building 1” (with one Bay deleted and the Administrative Core redesigned to accommodate four (4) combination “Weapons and Comsec Vaults” at the IB building and five (5) combination vaults at the RSTA building.

Proposals shall adhere to the requirements of the Standard Design, except as revised or expanded by the criteria identified in this RFP.

Associated with the TEMB’s are various sizes of Deployment Equipment Storage Buildings (DESB). The RFP schematic designs for these structures are based on generic, pre-engineered metal building typologies. Army Standard Designs do not exist for these structures.

In addition to the criteria listed in the Standard Design and this RFP, proposed designs shall comply with the International Building Code (IBC) 2000 edition, the National Fire Protection

Association (NFPA) Life Safety Code, 2000 edition, and the Military Handbook "Fire Protection for Facilities Engineering, Design and Construction", MIL-HDBK-1008C. Where conflicts exist, the most conservative requirements shall govern.

3.2.2 Functional Description

Intended to serve the organizational maintenance needs of the Interim Brigade Combat Team (IBCT), these facilities will be used to service and repair tactical wheeled vehicles. Military personnel will work in the CSSC, RSTA, and IB buildings. Civilian personnel employed by a civilian contractor will staff the MARC. A standard design Administrative Core module shall occupy one end of each facility, with combinations of Scheduled Maintenance and Repair Bays extending away from the core. All service bays are single story spaces with sufficient height to accommodate an overhead bridge crane, building service mechanical equipment and bay lighting.

(1) Typical functions

(a) CSSC functions include vehicle inspection, preventative maintenance, limited diagnostic analysis, some welding and spot painting, light body work, repair of direct exchange modules, replacement or repair of direct exchange systems, major component repair, and transfer of end items to direct support maintenance. Facility functional spaces include open bays served by a 10 metric ton capacity bridge crane (repair bays) and a 5 metric ton capacity bridge crane (maintenance bays), bay support, administration, shop control, storage, tool room, parts room, weapons vault, comsec vault, latrines with shower and locker areas, a break/training/conference room, janitor closet, and building support mechanical, electrical, and communications spaces.

(b) The MARC will be used for scheduled maintenance activities such as fluid changes, lubrication and limited parts replacement. Facility functional spaces include open bays served by a 10 metric ton bridge crane (repair bays) and a 5 metric ton capacity bridge crane (maintenance bays), administration, storage, tool room, parts room, latrines with shower and locker areas, a break/training/conference room, janitor closet, and building support mechanical, electrical, and communications spaces.

(c) RSTA and IB facilities will be used only for daily vehicle inspections and fluid top off. Facility functional spaces include a single open bay (without bridge cranes), administration, storage, multiple combined weapons and comsec vaults, latrines, janitor closet, and building support mechanical, electrical, and communications spaces.

(d) DESB buildings provide weather protection for basic storage of materials. These facilities are unheated and not insulated. Access is by personnel only; there are no operational requirements for forklift or vehicle access into these structures. DESB structures are subdivided with partitions of chain link fencing to provide segregated, secured storage for each unit. DESB facilities also feature a raised curb at the perimeter of the floor slab to reduce the intrusion of surface water.

(2) Gross floor areas

CSSC, MARC, RSTA, and IB gross floor areas vary because of the different occupancies and operations in each building. The RFP schematic designs indicate approximate gross areas of 1 948 square meters for the CSSC, 1 723 square meters in the MARC, 642 square meters in the RSTA and 597 square meters in the IB. The design shall provide a distribution of space and equipment as described in this RFP (see Space Requirements tabulation at paragraph 3.2.3) and delineated in the Standard Design. A significant change

to the Standard design at CSSC and MARC is the elimination of the Warehouse modules. A fluid storage room has also been added to the CSSC and MARC to accommodate fluid dispensing and recycling requirements.

The RSTA and IB buildings are significantly altered from the standard design due to the deletion of a repair bay and reconfiguration of the administrative area to accommodate multiple combined weapon and comsec vaults (5 at RSTA, 4 at IB).

Gross floor areas of the DESB structures range from 162 square meters to 488 square meters with a total floor area required at this facility of approximately 2 012 square meters.

3.2.3 Space Requirements

(1) Definitions

Net Areas: the clear area measured to the inside face of the room walls available for freestanding furniture, tables, and equipment.

Gross Building Area: the entire plan area of each floor measured from the outside edges of exterior walls. Include all walls, shafts and open areas (such as stairs). Also include any covered, but not enclosed exterior areas, such as covered entrances with floor area counted at 50% of actual area. Cantilevered roof overhangs are not included.

(2) Tables

Design standards for the TEMB include requirements for both net and gross areas. Tables 1 through 5 identify the specific area requirements for this project. See tables on following pages.

Table 1: CSSC Space Requirements		
Functional Area	RFP Schematic Net Area (sf)	RFP Schematic Net Area (m^2)
Repair Bays (total of 3)	6,196.55 sf	575.62 m^2
Scheduled Maintenance Bays (total of 3)	6,196.55 sf	575.62 m^2
Circulation Bays (total of 2)	968.42 sf	89.96 m^2
Fluid Storage	1,088.99 sf	101.16 m^2
General Item Repair	394.32 sf	36.63 m^2
Compact Item	251.15 sf	23.33 m^2
Prescribed Load List (PLL) Storage	147.27 sf	13.68 m^2
Repairable Exchange and Technical Supply (RX/TS) Storage	228.65 sf	21.24 m^2
Tool Room	118.63 sf	11.02 m^2
Tool Box Storage	43.71 sf	4.06 m^2
Comsec Vault	253.62 sf	23.56 m^2
Weapons Vault	253.62 sf	23.56 m^2
Men's Latrine & Locker Room	608.98 sf	56.57 m^2
Women's Latrine & Locker Room	198.08 sf	18.40 m^2
Mechanical Room	475.81 sf	44.20 m^2
Electrical Room	111.96 sf	10.40 m^2
Communications Room	116.26 sf	10.80 m^2
Janitor Closet	33.59 sf	3.12 m^2
Corridor	874.44 sf	81.23 m^2
Break/Training/Conference Room	422.42 sf	39.24 m^2
Storage	73.63 sf	6.84m^2
Administration	503.80 sf	46.80 m^2
Total Net Floor Area	19,560.33 sf	1,817.03 m^2
Gross Building Area	20,964.84 sf	1,947.50 m^2

Table 2: MARC Space Requirements		
Functional Area	RFP Schematic Net Area (sf)	RFP Schematic Net Area (m^2)
Repair Bays (total of 3)	6,196.55 sf	575.62 m^2
Scheduled Maintenance Bays (total of 3)	6,196.55 sf	575.62 m^2
Circulation Bays (total of 2)	968.42 sf	89.96 m^2
Fluid Storage	1,088.99 sf	101.16 m^2
Prescribed Load List (PLL) and Repairable Exchange and Technical Supply (RX/TS) Storage	296.47 sf	27.54 m^2
Tool Room	69.76 sf	6.48 m^2
Tool Box Storage	69.76 sf	6.48 m^2
Men's Latrine & Locker Room	248.78 sf	23.11 m^2
Women's Latrine & Locker Room	224.34 sf	20.84 m^2
Mechanical Room	265.25 sf	24.64 m^2
Electrical Room	92.36 sf	8.58 m^2
Communications Room	58.78 sf	5.46 m^2
Janitor Closet	20.67 sf	1.92 m^2
Corridor	667.32 sf	61.99 m^2
Break/Training/Conference Room	682.07 sf	63.36 m^2
Administration	287.21 sf	26.68 m^2
Total Net Floor Area	17,433.27 sf	1,619.44 m^2
Gross Building Area	18,548.53 sf	1,723.20m^2

Table 3: RSTA and IB Space Requirements (areas are indicated for one building - two are required)		
Functional Area	RFP Schematic Net Area (sf)	RFP Schematic Net Area (m^2)
Scheduled Maintenance Bay	2,064.19 sf	191.75 m^2
Circulation Bay	462.90 sf	43.00 m^2
Storage	299.70 sf	27.84 m^2
Weapons and Comsec Vaults (total of 4)	1,119.56 sf	104.00 m^2
Men's Latrine & Locker Room	179.78 sf	16.70 m^2
Women's Latrine & Locker Room	148.34 sf	13.78 m^2
Mechanical Room	226.82 sf	21.07 m^2
Electrical Room	74.28 sf	6.90 m^2
Communications Room	58.78 sf	5.46 m^2
Janitor Closet	20.67 sf	1.92 m^2
Corridor	792.09 sf	73.58 m^2
Administration	287.21 sf	26.68 m^2
Total Net Floor Area (IB)	5,734.30 sf	532.68 m^2
Gross Building Area (IB)	6,426.70 sf	597.00 m^2
Weapons and Comsec Vaults (1 add'l at RSTA)	279.89 sf	26.00 m^2
Corridor (additional area at RSTA)	159.21 sf	14.79 m^2
Total Net Floor Area (RSTA)	6173.40 sf	573.47 m^2
Gross Building Area (RSTA)	6,911.13 sf	642.00 m^2

Table 4: DESB Space Requirements (Total of 7 buildings required)		
Facility Supported	RFP Schematic Net Area (sf)	RFP Schematic Net Area (m^2)
CSSC, Engineer, Signal and Military Intelligence Companies (1 building each unit)	(each) 1743.93 sf	(each) 162.0 m^2
Brigade HHC	4521.30 sf	420.0 m^2
Infantry Battalion	4908.84 sf	456.0 m^2
RSTA	5253.32 sf	488.0 m^2
Gross Area (all buildings)	21,659.18 sf	2,012.0 m^2
RSTA optional fifth bay	1313.33 sf	122.00 m^2
Gross Area (all buildings + option)	22,972.51 sf	2,134.00 m^2

3.2.4 Specific Functional Area Requirements

Basic descriptions of the various functional areas contained in the TEMB's are outlined below. Due to the variety of operational requirements, some of the listed areas are not included in every building. Room sizes and configurations also vary between buildings. Refer to the space tabulations in this section and the various drawings included with this RFP for specific definition of building/room adjustments.

(1) Repair Bays

Repair bays will be used for the repair and servicing of wheeled vehicles, construction equipment and large power generation equipment. All bays are configured to provide for drive through accessibility, with overhead coiling doors at both ends of the bay. Bays are sized to permit simultaneous occupancy by up to four vehicles. A continuous, grated, trench drain shall be installed inside all overhead doors. All repair bays in the CSSC and MARC shall be served by a single, trolley type, underslung bridge crane with 10 metric tons capacity. This is an increase from the standard design crane capacity of 5 metric tons. No crane is required in the RSTA and IB buildings. To eliminate the build up of vehicle exhaust, a dedicated exhaust removal system shall be provided with a coiling exhaust pipe connection on each side of every bay (see drawing A-8). Floor slopes in repair bays shall be consistent with the use of mobile, independent hydraulic lifts.

(2) Scheduled Maintenance Bays

All components required of the Repair Bays (except for crane size) shall also be provided for the Scheduled Maintenance Bays. The Maintenance Bays shall be served by a 5 metric ton bridge crane. This crane shall be separate and independent of the Repair Bays crane. The 10 and 5 ton cranes shall access and service only their respective areas of the building. At the end wall Scheduled Maintenance Bay, provide sloped floors with floor drains to collect wastewater from limited engine or vehicle cleaning operations. General

vehicle washing will not be performed at this location. A combined emergency shower and eyewash station shall also be included in the end bay immediately adjacent to end wall of the building. Floor slopes in maintenance bays shall be consistent with the use of mobile, independent hydraulic lifts.

(3) Circulation Bays

Circulation Bays shall be included to provide code required defined paths of egress from the maintenance, service and repair functional areas. No required path of egress from the administrative core portion of any facility shall be routed through a Circulation Bay. The exit and circulation bay locations indicated on the RFP drawings shall be maintained. Primary function of these spaces is to create a pathway clear of vehicles, tools and equipment. A combined emergency shower and eyewash station shall be included in the circulation bay immediately adjacent to the administrative core.

(4) Administration

This space shall provide an open office work area for foremen, production control, and clerical personnel. Each occupant is allotted approximately 8 square meters for personal workstation, with an additional 4 square meters for circulation. The number of modular workstations varies with the function and occupancy of each building. The Administration area shall have a viewing window to the service bays. This space shall be fully enclosed and capable of being secured from the rest of the building.

(5) Compact Item Repair

The area for compact item repair provides for the organizational maintenance of radios, telephones, small switchboards and personal computers. The area shall accommodate three GFCI work benches with associated storage equipment. A full height wire mesh partition shall subdivide the room shared with General Item Repair.

(6) General Repair

Space is provided for repair of fabric, small generators, fuel and electrical systems, quartermaster and chemical equipment such as mess kits, gas masks, heaters, laundry machines, bakeries, smoke generators, liquid dispensing equipment and decontamination equipment. The area shall accommodate three GFCI work benches with associated storage equipment. General Repair shall be co-located with Compact Item Repair, yet separately accessed and secured.

(7) Tool Room

The tool room shall be designed for issue and secure storage of common tool kits shared by shop personnel. This area is co-located with Tool Box Storage described below, but is separated by wire mesh partitions so that it can be secured separately. One person, a “tool keeper,” will occupy the room.

(8) Tool Box Storage

Tool Box Storage provides for issue and secure storage of tool kits used by personnel working inside and outside (contact teams) the shop. Access to the Tool Box is by a personnel door separate from the Tool Room.

(9) Repairable Exchange and Technical Supply (RX/TS)

This area is utilized for the temporary storage of items and components that do not function, but are repairable and will be exchanged for new items. Another function is the storage of parts ordered on an as-needed basis from the supporting DS activity. The

RX/TS area includes a GFCI component exchange (RX) counter with racks, shelves, and floor area for the turn-in and issue of repairable items through the repairable exchange process. Shelving or cabinetry (also GFCI) will support other storage requirements of technical supply (TS). In the CSSC, the RX/TS is co-located with the PLL, yet separated by a wire mesh partition to maintain distinct access and security. In the MARC, RSTA and IB buildings the RX/TS and PLL share a common location.

(10) Prescribed Load List (PLL) Storage

Space is provided for storage of prescribed load list (PLL) items, which are parts kept in stock at all times because of demand supporting their inventory or management decisions by maintenance personnel. The PLL area is primarily for storage of shop stock for organizational maintenance. In the RSTA and IB buildings the area functions as a miscellaneous storage room.

(11) Latrines, Showers, and Lockers

Latrine facilities in the CSSC and MARC shall be designed consistent with the modified standard design layouts as indicated in the drawings. The latrines in the RSTA and IB buildings have been modified to delete the shower and locker areas that are unnecessary in these buildings. For design purposes the ratio of male to female occupants is established as 9 to 1.

(12) Janitor Closet

Janitor closets shall provide space for janitorial equipment and supplies as well as general building storage. Mop sink, mop holders, and shelving units shall be supplied for maintenance and general cleaning of the facility.

(13) Break/Training/Conference Area (BTC)

This multi-purpose area is utilized for work breaks, training and conferences. The primary purpose is for meal and break preparation and seating. To support that function the room shall include a unit kitchen or built in cabinetry and appliances. Appliances shall include a refrigerator (GFCI), a microwave oven (GFCI), and a sink. If sufficient wall space is available a range shall also be incorporated. Dedicated space for one (soft drink) vending machine (NIC) is preferred, but not required. Configuration of this room must also provide sufficient flexibility for easy conversion to a training or meeting area.

(14) Weapons and Comsec Vaults

These areas provide for the secure storage of weapons and/or communications equipment. The vaults may also be used for storage of other types of equipment requiring special security measures, such as cryptographic gear. Special storage racks (GFGI) and intrusion systems are required for this area. Storage racks are secured to cast-in-place wall anchors integrated into the initial construction. A dual door system is utilized with a vault door swinging into the corridor and a security “day gate” door swinging into the vault. Vault doors shall open against corridor walls (180 degree arc) to avoid blocking the egress path.

Vault construction shall be consistent with DOD 5200.1-R and Mil Handbook 1013 1A requirements for a Class “A” Vault. All walls, the floor and ceiling shall be constructed of 200-mm thick reinforced concrete. The vault door shall meet Federal Specification AA-D-00600C for “Class 5” construction. In-swinging, “day gate” door shall be fabricated with a steel frame and wire mesh panel construction. Provide cast-in-place anchor points as indicated on the drawings and coordinated with users. The contractor shall construct all vaults to pass the DOD certification inspection and obtain certification.

(15) Building Utility and Circulation Spaces

This non-assignable area accounts for space taken up by such elements as structural columns, walls, chases and common corridors. Utility space shall be provided for mechanical, electrical, and communications equipment, and other miscellaneous equipment and functions. The mechanical room shall support all equipment required for building heating, ventilation and domestic hot water, except air handling units, infrared heaters, and unit heaters. An electrical room shall be included for entrance and distribution panels. All telephone and local area network equipment shall be located in a communications room. The mechanical and electrical rooms shall be accessed only from the exterior of the building. Facility designs shall be configured to minimize corridors.

(16) Fluid Storage

Space dedicated to storage tanks for various fluids required to maintain vehicles, including motor oil, gear oil, hydraulic fluid, transmission fluid and anti-freeze. Tank storage of fluids shall be segregated between supply and waste/recycle. Supply fluids are pumped from tanks through fixed piping to hose reels mounted on the exterior walls of maintenance and repair bays. Waste fluids are extracted from vehicles and manually transferred to holding tanks. Space shall also be provided for the location of two air compressors serving the facility. All tanks and compressors shall be mounted on concrete housekeeping pads. Provide passive and active ventilation as required by NFPA and IBC codes for storage areas with the volume of flammable liquids indicated.

3.2.5 Government Furnished Items

The Government will furnish the items of equipment and furnishings as itemized below. All items listed below will be delivered to the Contractor for assembly and installation. The Contractor is responsible for protection and installation of all items as specified into the completed facility. Installation shall be after the pre-final inspection discrepancies have been corrected and prior to the final inspection. For Contractor's planning, the items will be available at a location within one half mile from the construction site no later than 30 days prior to the pre-final inspection. The final inspection will not occur until all items are installed in place. Minor changes to this list may be made by the Government to accommodate availability of items. When the Government furnished items are delivered, the Contractor shall verify the quantity and condition and acknowledge receipt in writing to the CO. The Contractor shall also report in writing to the CO within 24 hours of delivery any damage to or shortage of the property as received.

The following items shall be Government Furnished and Contractor Installed (GFCI):

Item	Quantity
tire changing machines and cages	2
portable steam cleaner	2
workbenches	11
office workstations	11
refrigerators	2
microwave ovens	2

3.2.6 Architectural Design

(1) Floor Plan.

All plan drawings provide conceptual representations of buildings consistent with army standard designs and as established through coordination meetings with Fort Lewis Interim Brigade and Department of Public Works representatives, and the Seattle District Corps of Engineers. The floor plans have been designed to serve the programmatic requirements established during a Design Charrette and subsequent programming meetings held at Fort Lewis. It is the Contractor's responsibility to ensure that the final design is in compliance with all regulatory agencies. Variations from the floor plans and areas indicated will not be allowed without prior approval by the COE PM. The mechanical, electrical and communication rooms have been preliminarily sized and shall be coordinated with actual equipment components and the selected structural system. Louvers indicated on the drawings are an approximation only and shall be sized and located to meet the specific requirements of the mechanical systems and natural ventilation designed for these buildings. A roof overhang shall be constructed at the main entry to protect facility users entering and exiting the building. A CMU screen wall compatible with the Fort Lewis Installation Design Guide and AT/FP Construction Standards shall be provided around garbage dumpsters, mechanical equipment, electrical transformers and similar equipment and accessory items located outside of buildings.

(2) Exterior Design.

The TEMB, and DESB structures shall be constructed with non-combustible, low-maintenance materials that are compatible with the guidance provided herein. All materials used in common on the three structures shall match in color, texture and pattern. The entire facility shall present a coordinated, monochromatic, military campus appearance.

(a) TEMB: The exterior design of the TEMB's shall feature walls constructed of two materials/structural systems. The lower portion of walls shall be a concrete masonry unit (CMU) veneer wall system with 200 x 100 x 400 mm integral colored split-faced and ground surface accent units on the exterior, and 200 x 200 x 400 mm structural units on the interior. English unit equivalent CMU may be substituted for metric sizing. Contractor is responsible for all coordination required between measurement systems. Provide silane or siloxane based clear sealers, with solids content of 20% minimum, for all exterior CMU surfaces.

The upper portion of all walls shall be constructed of insulated metal siding panels. Panels shall be a manufactured "sandwich" type panel system with factory finished exterior and interior metal surfaces. All fasteners shall be concealed. Exterior surface shall have a ribbed panel profile. Insulating value of the panel shall be a minimum of 3.34 m^2 Kw (R-19). Complete paneling with standard corner, base, cap, sill, head, jamb and similar pre-finished flashing and edge trim.

Foundation wall shall be insulated on the exterior face with 1.76 m^2 Kw (R-10) minimum rigid insulation. Top of insulation shall be located at the bottom of exterior pavements.

The roof shall be a standing seam metal roof applied directly over staggered layers of rigid insulation. All fasteners shall be concealed. The insulation shall in turn be laid on a sealed vapor retarder, which is on a metal deck substrate. The assembly shall have sufficient rigid insulation to provide a 5.28 m^2 Kw (R-30) value. For the safety of maintenance personnel, fall protection anchor points shall be provided at all roofs.

Anchor points shall be located at the ridge with location and load capacity meeting OSHA requirements for fall protection systems. Sheets A-2 through A-4 provide a conceptual representation of the facility elevations. Roof penetrations shall be avoided. All roof-mounted ventilators shall be low profile, "mushroom" type. Gooseneck style ventilators are prohibited. Prefinished continuous gutter and downspout systems shall be provided.

Where possible, locate all vents and other projections through exterior wall and roof away from high-visibility areas. Plumbing and mechanical vent stacks shall exit the building through the side walls rather than the roof.

Exterior personnel doors and frames shall be hollow metal type, painted and thermally insulated, with full perimeter weather-stripping. All frames shall be solid grouted. Vehicle doors shall be motor operated, coiling steel type with insulated slats. Provide full jamb, sill and hood weather gasketing.

Window frames shall be thermally broken, light bronze anodized aluminum. Glazing to be Low-E insulated laminated glass, clear or light grey tinted. Louvers and frames shall be prefinished galvanized steel.

(b) DESB: All DESB shall be sided with factory finished metal siding. Complete paneling with standard corner, base, cap, sill, head, jamb and similar pre-finished flashing and edge trim. The roof shall be a structural standing seam metal roof applied directly on the beam/purlin system. Wall, roof and perimeter insulation is not required at the DESB buildings. Doors and louvers shall match the requirements of the TEMB. Exterior walls shall have a continuous 200-mm high concrete curb to provide containment of fluid spills. Entrance doors shall be manually operated, coiling steel type with uninsulated, prefinished steel slats. Vision lights are not required. Door threshold shall be flush with floor slab.

(3) Exterior Finishes:

Structural standing seam metal roofing, metal siding, metal doors, metal trim for siding, roof and openings and miscellaneous roof accessories shall be factory finished in a monochromatic light tan. Window frames shall have a light bronze anodized finish. Integrally colored CMU shall complement roof and wall panel color. Gutters and downspouts shall have factory finish to match roofing and siding. Miscellaneous exterior exposed items such as: gas meters, louvers, and backdraft dampers shall have an approved powder coat factory finish or two-part modified polyurethane finish to match metal siding color. All vents and roof penetrations shall be painted to match the adjacent roof or wall surface. Paint finishes shall be either an approved powder coat, or two part modified polyurethane.

(4) Interior Design:

The facility interior design shall be appropriate for the designed function of the space, utilizing materials with low maintenance qualities for the anticipated use, as well as consideration for health, fire and life safety requirements. Interior partition walls shall be painted CMU except for vault enclosures that are reinforced concrete, or steel stud/gypsum wallboard partitions separating administrative area rooms as indicated on drawings. All exposed corners of CMU shall be constructed with "bullnose" block. Latrine, shower and locker room walls may use glazed block in lieu of painted surfaces. High quality, aesthetically pleasing materials are desirable whenever possible, while keeping the cost of the project within budget. All permanent finishes (vinyl flooring, ceramic tile, plastic laminates, etc.) shall be neutral tones and patterns. These neutral shades can range from

very light (such as off-white relating to the particular color tone) to a mid-range neutral of this same shade. Non-permanent finishes (paint, vinyl wall coverings and similar materials) may be any coloration appropriate to the facility. Use color to add interest and vitality, but do not allow color to dominate the environment. Paint ceilings off-white and do not use spray applied acoustical textured treatment.

(a) Interior doors and frames, except for vault doors, shall be hollow metal. Doors in rated or secured walls shall be rated and insulated accordingly. Solid grout all frames.

(b) Interior glazing shall be clear, laminated glass or fire rated glazing in rated walls. Vision glass in doors in rated or secured walls shall be wire glass.

(c) Hardware shall conform to Building Hardware Manufacturers Association (BHMA) standards. Finish shall also conform to BHMA, with satin finish stainless steel (US32D) used for interior and exterior doors. Non-removable pin hinges shall be used in secured areas. Building entry doors and noted interior doors shall have standard key locking system compatible with Best Lock Corporation “BEST” interchangeable 7-pin cores. System shall be expandable.

(d) Ceilings shall be 3 meters in height unless other wise noted. Ceiling material shall be acoustical tile, painted gypsum wallboard, painted concrete, or painted steel structure depending on the location. Vaults shall have acoustical tile ceiling adhered to the bottom of the concrete lid.

(e) Interior walls shall extend from slab to roof structure, underside of Class A Vault lid, or ceiling grid as indicated on drawings. Walls between the repair bays and administrative area and at the Break/Training/Conference room shall have an STC rating of 45. Noted walls to have one-hour fire rating.

(f) All interior floors shall be reinforced concrete. Standard finish is a steel troweled, clear sealed surface. Selected rooms shall have additional finishes as listed in the interior finish schedule on the drawings.

(g) Separate bridge cranes shall be provided to service the Repair and Scheduled Maintenance Bays. Height to the bottom of the hook shall be approximately 6,000 mm. Provide adequate clearance above the hook for crane mechanism, bridge beam, mechanical and electrical systems, and roof/ceiling structure.

(h) Locate all vents and other projections through exterior wall and roof away from high-visibility areas. All vents and roof penetrations shall be painted to match the roof. Paint finish shall be either an approved powder coat (PVF2), or two part modified polyurethane.

(i) All furniture (GFCI) for individual offices shall be freestanding office workstations as opposed to open area workstations.

(5) Exterior/Interior Signage:

Interior signage shall be compatible with Fort Lewis Installation Design Guides and the Americans with Disabilities Act Accessibility Guidelines. Signs shall provide room names and numbers, with two changeable message strips per sign. Exterior signage with building number shall also be provided. Submit sign samples and number/labeling plan for all rooms in the facility to the CO for approval prior to fabrication.

3.3 STRUCTURAL REQUIREMENTS

3.3.1 Structural Design and construction shall be in accordance with the requirements stated herein, the Geotechnical Report and with the applicable requirements of paragraph " 2. CODES AND STANDARDS." It shall conform to the Army Standard Design for Tactical Equipment Maintenance Facilities with modifications as indicated in paragraph 3.2, ARCHITECTURAL REQUIREMENTS.

3.3.2 Structural Design Submittal: Structural design drawings and computations, signed and sealed by a professional structural engineer registered in the State of Washington, shall be submitted in accordance with Section 00810 Design-Build Contract Procedures, paragraph 2. Preparation of Phase I Project Design Documents.

(1) Structural Design Criteria: Structural design shall be in accordance with the following criteria as applied to this facility:

Chapter 8 of Technical Instructions, TI 800-01 dated 20 July 1998.

(2) NOTE: HQUSACE publications are available from the USACE TECHINFO web site at http://www.hnd.usace.army.mil - select TECHINFO; Engineer Publications; Instructions; then Technical Instructions.

(3) Seismic Design Requirements: Seismic design of the subject facility shall be performed in accordance with the requirements of TI 809-04 dated 31 December 1998, using the following design criteria:

(a) Seismic Use Group:	I
(b) Short Period Spectral Acceleration, Ss (%G):	125
(c) One Second Period Spectral Acceleration, S1 (%G):	40
(d) Site Class:	C

(4) Wind Loads: Design of the subject facility for wind loads shall be performed in accordance with the requirements of ASCE 7-98, using the following design criteria:

(a) Wind Velocity, 3-sec gust	40 m/s (90 mph)
(b) Exposure Category	C
(c) Building Category	IV
(d) Maximum Deflection of building under design wind load	h/400

(5) Snow Loads: Design of the subject facility for snow loads shall be performed in accordance with the requirements of ASCE 7-98, using the following design criteria:

(a) Roof Snow Load	1.5 KN/m^2 (30 psf) + drift
(b) Minimum Roof Live Load	1.5 KN/m^2 (30 psf)
(c) Building Category	IV

(6) Floor Loads: Dead Load and Live Loads per UFC 3-310-01, except the vault floors shall have a minimum live load of 29 kPa (600psf). Steel reinforced structural concrete slab-on-grade floors shall be of strength and thickness required for the various functional areas of the installation. The floor design for the CSSC, MARC and RSTA/IB shall accommodate radiant in-floor heating requirements. These facilities shall utilize mobile lifts (e.g., ARI-Hetra Heavy Duty Mobile Lift or equal) capable of lifting the heaviest intended vehicle. The floor shall be designed to support the maximum lifting capacity of the mobile lifts in

footprint configurations consistent with the minimum and maximum sized intended vehicles. Signage shall be provided indicating vehicle size and weight restrictions relative to the mobile jacks. Floors shall be functionally and aesthetically suitable for safe operation of the facility, including finish and flatness tolerance.

(7) Crane Loads: The design for the subject facility shall incorporate dead and live loads induced by a 5 metric ton bridge crane over the maintenance bays and a 10 metric ton bridge crane over the repair bays.

(8) Foundation Design for frost protection, soil properties, bearing capacity and floor slabs shall be in accordance with the guidance provided in the attached Geotechnical Report (see Appendix B).

(9) Material Strengths:

(a) Concrete: f'c=27.6 MPa (4000 psi) minimum at 28 days, except Vehicle Maintenance/Repair Slab on Grade shall be f'c=34.5 MPa (5000 psi) minimum at 28 days.

(b) CMU: f'm=10 MPa (1500 PSI) minimum.

(c) Reinforcing Steel: ASTM A615, Grade 60.

(d) Welded Wire Fabric: ASTM A185, F_y = 448 MPa

(e) Structural Steel:

1) Rolled wide flange shapes- ASTM A992, Fy=345Mpa (50KSI)

2) Other rolled shapes and plates - ASTM A36, Fy=250 MPa (36 ksi), or ASTM A 572 , Fy = 345 MPa (50 ksi)

3) Structural tubing - ASTM A500, Fy=320 MPa (46 ksi),

4) Cold formed steel - Fy=380 MPa (55 ksi).

5) Open Web Steel Joist: Fy=350Mpa (50ksi)

(10) Fabrication and Erection of Structural Steel shall be in accordance with the applicable provisions of AISC Code of Standard Practice Sections 6 and 7. The steel fabricator has to be certified under Category I in accordance with AISC Quality Certification Program. Structural framing shall be shop primed in accordance with the fabricators standard system.

(11) Erection of the structural steel for the facility shall be coordinated with the installation requirements of the lightning protection system. Adequate coordination shall be made to ensure ease of installation of all associated material for the lighting protection system, including the ability to make all necessary connections to structural members.

(12) Roof Design: Framing members supporting the SSSMR system and their connections shall be designed in accordance with AISC Specifications (LRFD), AISI Manual, or SJI Specifications and Tables, as applicable. The Contractor shall submit the design for review and approval.

(13) HVAC Maintenance Access: Access shall be provided to overhead Air Handling Units by means of ladders and catwalks. Catwalks shall consist of floor grating and steel framing members supported by the roof rafter beams. Lateral bracing shall be designed to resist seismic loads. The catwalk and its connections shall be designed in accordance with AISC Specifications (LRFD), AISI Manual. Ladders shall be anchored to the wall with safety cage enclosures. The catwalk perimeter shall be designed such that it may be safely

accessed by the ladder. Catwalks, Ladders and Handrails shall conform with the requirements of EM 385-1-1.

3.4 MECHANICAL REQUIREMENTS

3.4.1 Mechanical design and construction shall be in accordance with the applicable requirements of paragraph 2, Codes and Standards, and the following:

(1) Uniform Building Code (UBC), Latest Edition 1997.

International Building Code (IBC-2000)

(2) National Fire Protection Association (NFPA) Latest Edition of the following:

(3) NFPA 10 Portable Fire Extinguishers 1998

(4) NFPA 13 Installation of Sprinkler Systems 1999

(5) NFPA 17A Wet Chemical Extinguishing Systems 1998

(6) NFPA 70 National Electrical Code 1999

(7) NFPA 72 National Fire Alarm Code 1999

(8) NFPA 90A Installation of Air Conditioning and Ventilation Systems 1999

(9) NFPA 90B Installation of Warm Air Heating and AC Systems 1999

(10) NFPA 101 Life Safety Code 2000

(11) NFPA 170 Symbols for Architectural and Engineering Drawings 1999

(12) MIL HDBK 1008C Fire Protection

(13) Underwriters Laboratories (UL)

(14) Factory Mutual Approval Guide

(15) National Electrical Manufacturer's Association

(16) Institute of Electrical and Electronic Engineers

(17) ASHRAE (latest edition) Heating, Refrigeration, Air Conditioning Handbooks of Fundamentals, Applications and Equipment

(18) Chapter 51-13 Washington State Ventilation and Indoor Air Quality Code (1997)

3.4.2 Design Conditions. The outside design temperatures used are based on AFM-88-29 (Engineering Weather Data), dated 1 July 1978. The inside design temperatures are based on MIL-HDBK-1190 (Facility Planning and Design Guide). All design shall comply with federal energy code 10 CFR 425.

(1) Outside Winter

(a) Dry Bulb: -4.4 degrees C. (97 1/2 %) (24 degrees F.)

(b) Dry Bulb: -7.2 degrees C. (99%) (19 degrees F.)

(2) Inside Winter

(a) Administration Areas, Dry Bulb: 20 degrees C. (68 degrees F.), no humidity requirements.

(b) Weapons Vault, Dry Bulb: 20 degrees C. (68 degrees F.), 30% humidity maximum.

(c) Mechanical Room, Dry Bulb: 10 degrees C. (50 degrees F), no humidity requirements.

(d) Vehicle Bay Area: 10 degrees C (50 degrees F), no humidity requirements.

(3) Outside Summer

(a) Dry Bulb: 27.8degrees C. (2 1/2%) (82 degrees F.)

(b) Mean Coincident Wet Bulb: 17.7degrees C. (64degrees F.)

(c) Daily Range: 16 degrees C. (30 degrees F.)

(4) Inside Summer

(a) Administration Areas, Dry Bulb: 23.9 degrees C. (75 degrees F.) (through economizer, air conditioning is not authorized).

(b) Vehicle Bay Area: No upper limit on humidity or temperature requirements.

(c) Communications Rooms: 40.0 degrees C maximum (104 degrees F).

(5) Degree Days

(a) Heating: 5339 per year

(6) Elevation: 92 meters (301 feet)

(7) "R" Values (approximate):

(a) Walls 3.34 m^2Kw (R=19)

(b) Roof 5.25 m^2Kw (R =30)

(8) Sound Requirements are as described by ASHRAE Handbook,1999 HVAC Applications, chapter 46:

(a) Administration Areas, RC 25 maximum

(b) Mechanical Room, no requirement

(c) Vehicle Bay Areas, no requirement

3.4.3 Provide detailed heat gain/loss calculations for the administrative potions of MARC, CSSC, RSTA and IB buildings using an hourly analysis and real numbers obtained from these documents and user interviews. A computer simulation shall be performed using a program that is capable of performing an hourly analysis. Results from the program shall be used to size and place equipment in the administrative areas (example: final diffuser locations). Heat gain/loss calculations are not required for the vehicle bays.

3.4.4 The Contractor shall contract Puget Sound Energy Services to design, install and own meter set assemblies and underground natural gas piping to the buildings. The Contractor shall provide the gas piping system from the point of delivery, defined as the outlet of the meter set assembly as provided by Puget Sound Energy Services. For bidding purposes, the Contractor shall assume a price of $100,000 for services supplied by Puget Sound Energy Services. Any difference in cost of Puget Sound Energy Services will be adjusted in the contract price.

3.4.5 The Contractor shall provide piping (separate from the natural gas piping to be installed by PSE) as indicated on the drawings (see civil drawings). Isolation valves shall be provided to permit manual connection of the propane system to the building natural gas system. The propane piping shall tee into the natural gas piping between the natural gas meter and corresponding building.

3.4.6 All mechanical equipment shall be sited as indicated (no rooftop installations). Mechanical room shall allow for maintenance access. Floor slab shall be sloped toward area floor drains. Pumps and other large floor-mounted equipment shall be mounted on housekeeping pads - 100 mm (4-inch) minimum height. Gauges shall be mounted to be easily readable. A single pressure gauge shall be manifold across each pump inlet, outlet, and inlet to the suction diffuser; ball valves shall be used for isolation on the threaded black A53 steel gauge manifold. Thermometers shall be industrial dial type, not liquid filled "mercury" scale type, and shall be mounted in thermowells with conducting grease. Each closed loop system shall have a replaceable bladder type expansion tank, with the exception of the hot domestic water system, which may use a diaphragm type. Off each air separator shall be an industrial type air vent (iron body stainless steel moving parts, such as B&G 107a). At a minimum, coils and pumps shall be provided with isolation valves. Manual air vents shall be located on the high points of closed loop systems and hose connection drain cocks shall be located at all low points. Heating systems shall have a chemical pot feeder for closed system treatment. Heating water loops shall be provided with temperature reset based on outside air. All coils shall be controlled with valves as indicated in the mechanical schedule. All control valves shall be protected with strainers. Temperature and pressure test plugs shall be installed on the inlet and outlet of all coils, strainers at pumps and boilers.

3.4.7 Pump motors shall be sized to provide non-overloading operation over the entire pump curve.

3.4.8 Ventilation: Ventilation shall be provided in accordance with ASHRAE Ventilation Standard 62 -- not less than 9.4 L/s (20 cfm) per person for general occupancy areas for acceptable indoor air quality. All ductwork shall be galvanized steel, constructed in accordance with SMACNA Low Pressure Duct Standards. It is desirable that any grates, louvers, or supply/return vents in occupied areas shall be either an approved powder coat finish or two-part polyurethane finish to match surrounding color.

3.4.9 Building Cooling System: Air conditioning is not authorized. Administrative area air handling units shall be provided with economizer cycles.

3.4.10 Administrative Area Heating System: The heating system shall consist of gas fired boilers. The MARC and CSSC buildings shall contain two hot water boilers. The RSTA and IB buildings shall each contain a single hot water boiler. The MARC building administrative area contains two constant volume air handling units. The smaller air handling unit serves the conference room that is occupied intermittently. Occupied mode of the conference room is determined through status of the light switch instead of schedule. The larger air handling unit serves the remaining administrative portions of the building. The CSSC building administrative area also contains two air handling units. Each unit serves a separate zone. The RSTA and IB building administrative areas each contain a single constant volume air handling unit. A preliminary layout of these systems has been provided. The Contractor shall complete the design. All air handling units in the administrative areas shall be provided with economizer cycles. The air handling units shall consist of combination mixing box/filter, medium size access, hot water coil, backward inclined or air-foil design fan (as indicated) and a discharge module. All equipment and components shall be direct digital control.

3.4.11 Weapons Vaults: Vaults shall be provided with forced air hot water unit heaters. A local thermostat shall be provided for each unit heater. The vaults shall be provided with adsorption dehumidifiers to maintain a maximum relative humidity level of 30 percent. Exhaust fans located within the vaults shall be interlocked to operate when the vault lights are energized.

3.4.12 Mechanical Rooms and Fluid Storage Rooms Heating Requirements: Forced Air hot water unit heaters shall be installed to prevent freezing.

3.4.13 Communications Rooms Cooling: Maximum heat output of equipment is 1.8 kW; therefore, a 275 liters/second fan shall be provided to limit the maximum temperature to 6 degrees C above ambient.

3.4.14 Vehicle Bay Area:

(1) The primary heating system for the MARC, CSSC, RSTA AND IB vehicle bay areas is an in-floor radiant heat system. The in-floor radiant heat system consists of 20 mm diameter tubes (beneath the concrete in a layer of sand) with a spacing of 250 mm. Tubing circuits are arranged in a counterflow spiral pattern (i.e. supply and return lines are routed next to each other) to minimize temperature variations across the concrete slab. A detailed description of the system is shown on the Vehicle Bay HVAC Plan drawing and Sequence of Operation. A secondary hydronic loop, with a separate reset schedule, supplies hot water to the in-floor radiant tubing system.

(2) A vehicle exhaust system shall be provided for each bay. Each vehicle exhaust connection and associated 127 mm diameter flexible hose shall be provided with a separate exhaust fan that is manually energized. The flexible hose shall either be overhead hanging or on a drum roller.

(3) In the event carbon monoxide levels exceed 35 ppm or carbon dioxide levels exceed 5,000 ppm, an air handling unit shall provide 100 percent outside air to dilute the concentration of contaminants. Furthermore, a roof mounted exhaust fan shall energize to exhaust at a rate equivalent to outside air being provided. A detailed description of the system is shown on the Vehicle Bay HVAC Plan drawing and Sequence of Operation. Both, the MARC and CSSC buildings, contain two ventilating air handling units each. Both, the RSTA and IB buildings, contain a single ventilating air handling unit each.

3.4.15 HVAC Controls: Direct digital controls (DDC) shall be provided for the heating, ventilating and air conditioning systems. Unit heaters, convectors, fin tube, and utility room ventilation may be controlled through local thermostats. The heating water loop shall be reset in response to outdoor air temperature. Direct digital controllers shall be provided with all required hardware to permit future connections with fiber optic cable. A future base energy monitoring control system (EMCS) shall monitor all points indicated below and any values calculated by the building DDC systems. Sequences of control shall be provided in the O&M manual. Testing, adjusting, and balancing of the systems shall be coordinated with the control system installation. All HVAC control components shall be verified to be properly installed and operating as specified before proceeding with testing, adjusting, and balancing. HVAC commissioning procedures shall be used to verify the proper installation and functioning of the equipment. Contractor shall have the Mechanical Design Engineer of Record present on-site for all commissioning. At a minimum, the following points shall be monitored in addition to all other points required for control:

(1) building loop heating water supply and return temperatures

(2) boiler supply and return temperatures

(3) in-floor radiant heat supply and return temperatures

(4) all boiler controls

(5) air handling unit return and supply air temperatures

(6) filter status via differential pressure switch

(7) zone temperature setpoints

(8) sensor readings including but not limited to temperature, CO concentration, CO_2 concentration and pressures

(9) control valve positions (excluding unit heater control valves)

(10) pump status via differential pressure switch

(11) fan status via current switch

(12) dampers and position

3.4.16 Fluid Supply and Waste/Recycle

The MARC and CSSC shall be provided with bulk fluid supply and waste/recycle. Each building shall be supplied with an 1,850 L supply motor oil tank, 1,850 L supply gear oil tank, 1,850 L supply anti-freeze tank, 1,850 L supply Dextron transmission tank and 1,850 L supply hydraulic oil tank. Supply tanks shall be provided with air-operated diaphragm pumps, piping and controls to supply the fluid to hose reels located between vehicle bays (i.e. 10 hose reels per building per fluid). Hoses shall be supplied with pre-set control handles (nozzles) that have a range of 1.0 to 15 quarts (English units). Each building shall also be provided with (2) 1,850 L waste oil tanks (used for motor oil and gear oil), a 925 L waste anti-freeze tank, a 925 L waste Dextron transmission fluid tank and a 925 L hydraulic waste tank. Tanks shall be provided with overfill protection, fill connection (coordinate with fluid supplier), waste removal connections (coordinate with waste/recycle supplier), waste oil funnel (waste tanks only), float gauge, vents, interstitial tank monitoring and nay other appurtenances required by applicable federal, state and local laws and regulations. Anti-freeze tanks shall be manufactured of polyurethane. All tanks shall be UL listed and of double wall construction.

3.4.17 Plumbing:

(1) Water piping and fittings shall be as specified in 00890-15400. Water supply piping shall not be buried under concrete floors, except for water service piping routed from the underground water distribution pipe to a point 300mm above the Mechanical Room floor.

(2) Soil, waste and vent piping shall be as specified in 00890-15400. Hubless cast-iron soil pipe shall not be installed under concrete floor slabs. Floor drains shall feature trap primers. Provide water meter.

(3) Plumbing materials, installation, backflow prevention, and drainage shall meet the latest National Standard Plumbing Code requirements.

(4) Domestic hot water shall be provided by natural gas-fired hot water heaters located in the mechanical rooms. Hot water shall not exceed 120 degrees F. A hot water circulating pump shall be installed on the system that circulates under all operating conditions.

(5) National Standard Plumbing Code (1996): Fixtures for use by the physically handicapped shall be in accordance with Council of American Building Officials CABO A117.1,

Accessible and Usable Buildings and Facilities (1992). All fixtures shall be as specified in 00890-15400 and white.

(6) The common area of each building shall contain one refrigerated drinking fountain.

(7) Men's washroom in the MARC building shall have one accessible water closet, one urinal, one lavatory, one shower stall and one floor drain. The woman's washroom in the MARC building shall have one accessible water closet, one lavatory, one shower stall and one floor drain.

(8) Men's washroom in the CSSC building shall have two water closets (one accessible), two urinals, two lavatories, two shower stalls and one floor drain. The woman's washroom in the CSSC building shall have one accessible water closet, one lavatory, one shower stall and one floor drain.

(9) Men's washroom in the RSTA and IB buildings shall each have one accessible water closet, one urinal, one lavatory and one floor drain. The woman's washroom in the RSTA and IB buildings shall each have one accessible water closet, one lavatory and one floor drain.

(10) The Janitor closet in each building shall have all mounted fixtures with hose bib, vacuum breaker, floor mounted type service sink and a floor drain. The break room in each building shall contain one kitchen sink, and one refrigerator with built-in ice maker.

(11) Mechanical rooms shall have floor drains ample enough to eliminate indirect drain piping routed across the floor.

(12) Weapons storage vaults and one maintenance bay per building shall have floor drains.

(13) Hose bibs shall be provided between each set of roll-up doors in the vehicle bays.

Symbol	Fixture
WC-1	Water Closet
WC-2	Water Closet (Accessible)
UR-1	Urinal
LV-1	Lavatory
SK-1	Kitchen Sink
WC-1	Electric Water Cooler (Handicapped)
SK-2	Service Sink
HB-1	Hose Bibb
WH-1	Wall Hydrant
FS-1	Floor Sink With Trap Primer
FD-1	Floor Drain With Trap Primer

3.4.18 Fire Protection/Detection:

(1) Fire protection system shall be based on ETL 93-5, NFPA, and Military handbook 1008C. A wet system is required for the MARC, CSSC, RSTA and IB buildings.

(2) Services and Qualifications of Fire Protection Engineers are as follows: The services and review of a qualified fire protection engineer are required. A qualified fire protection

engineer shall be an integral part of the design team, and shall be involved in every aspect of the design as it relates to fire protection. This includes, but is not limited to, building code analysis, life safety code analysis, design of automatic detection and suppression systems, water supply analysis, and a multi-discipline review of the entire project. For the purpose of meeting this requirement, a qualified fire protection engineer is defined as an individual meeting one of the following conditions:

(a) A registered professional engineer (PE) who has passed the National Council of Examiners for Engineering and Surveys (NCEE) fire protection engineering written examination.

(b) A registered PE in related engineering discipline with a minimum of 5 years' experience dedicated to fire protection engineering and has attained state certification for fire protection engineering.

(c) Installation Requirements: Installation of fire alarm detection systems, fire protection suppression systems, and any of the components, the technician installing this equipment must be licensed in the State of Washington and hold the proper endorsement for such installation. The license and endorsements are as follows:

SAF = Fire Alarms

SEF = Extinguishing Systems

SAFS = Special Agent Fire Suppression System

(d) A licensed journeyman electrician can install fire alarm systems and its components if the above endorsements are stamped on their license and factory trained, or NICET II certified and factory trained in the installation of the fire alarm devices being installed. The installer must be NICET II certified and licensed with the State of Washington licensing program to inspect test and certify the operational condition of the system. All licensees, endorsements and NICET certifications must be presented to the Contracting Officers and the fire prevention officers, the company name and personnel name(s) installing the system before work is to begin.

(e) All fire alarms, fire suppression, and special agent systems must be installed IAW the appropriate NFPA Code 13 13A, 17, 17A, 24, 25, 72, 101 and any other code reference mentioned in contract specifications, manufacturer's recommendations and construction drawings. Current licensees, endorsements, and NICET certification must be on file.

3.4.19 Testing and Balancing:

(1) General: The facility shall be essentially complete prior to testing. Doors and windows surrounding each area to be balanced shall be closed during testing and balancing operations. Air systems shall be complete and operable. Exhaust fans shall be operational. Hydronic systems shall be complete and operable with balancing valves, coils, pumps, piping and control components in place. If a system cannot be adjusted to meet the design requirements, the Contractor shall promptly notify the Contractor and copy the Contracting Officer in writing. The Contractor shall correct the system and have the TAB Contractor test again and report in writing to the Contractor and the Contracting Officer. Each system shall be adjusted until all flow quantities are within plus 10 percent and minus zero percent. Air balancers shall be nationally certified. Representatives from the design firm(s) shall be present for commissioning.

(2) General Balancing Methods: Throttling losses shall be limited. Following final acceptance of certified reports by the Contracting Officer, the setting of all HVAC adjusting devices

including valves, splitters, and dampers shall be permanently marked by the testing and balancing engineer so that adjustment can be restored if disturbed at any time. Provide auxiliary (simulated) loads if required for fill testing.

(3) Acoustics: After the systems are properly tested, adjusted and balanced, sound levels shall be checked in accordance with the applicable provisions of AABC MN-1. Octave-band analysis and noise-criteria curve data shall be recorded on forms shown in AABC MN-1. All occupied areas shall be verified to be within sound levels acceptable within comparable commercial facilities and stated STC levels. Any areas not meeting the requirements shall be clearly indicated on the form and an explanation of all discrepancies shall be provided in test report.

3.4.20 Commissioning Team and Checklists

(1) General: The Contractor shall designate team members to participate in the pre-commissioning checks and the functional performance testing specified herein. In addition, the Government will be representative of the Contracting Officer, and the Using Agency. The team members shall be as follows:

Designation	Function
Q	Contractor's Chief Quality Control Representative
M	Contractor's Mechanical Representative
E	Contractor's Electrical Representative
T	Contractor's Testing, Adjusting, and Balancing Representative
C	Contractor's Controls Representative
D	Contractor's Mechanical Designer
O	Contractor's Officer's Representative
U	Using Agency's Representative

(2) The commissioning team shall complete each checklist shown in Specification 15995. Acceptance by each commissioning team member of each pre-commissioning checklist item shall be indicated by initials and date unless an "X" is shown indicating that participation by the individual is not required. Acceptance by each commissioning team member of each functional performance test checklist shall be indicated by signature and date.

(a) Pre-Commissioning Checks: Pre-commissioning checks shall be performed for the items indicated on the checklists in Specification 15995. Deficiencies discovered during these checks shall be corrected and retest in accordance with the applicable contract requirements

(b) Functional Performance Tests: Functional performance tests shall be performed for the items on the checklists in Specification 15995. Functional performance tests shall begin only after all pre-commissioning checks have been successfully completed. Tests shall prove all modes of the sequences of operation, and shall verify all other relevant contract requirements. Tests shall begin with equipment or components and shall progress through subsystems to complete systems. Upon failure of any functional performance test checklist item, the Contractor shall correct all deficiencies in accordance with the applicable contract requirements. The checklist shall then be repeated until it has been completed with no errors.

3.5. ELECTRICAL DESIGN REQUIREMENTS

3.5.1 Design criteria

The design shall be based on, but not limited to the following design criteria:

ANSI C2-1997	National Electrical Safety Code
IES	Lighting Handbook
MIL HDBK 1008C	Fire Protection for Facilities
NFPA 70	1999 National Electric Code
NFPA 72	1999 National Fire Alarm Code
NFPA 101	2000 Life Safety Code
NFPA 780	Lightning Protection Code
TM 5-811-1	Electric Power Supply and Distribution
TM 5-811-2	Electrical Design, Interior Electrical System
TM 5-811-3	Electrical Design Lightning and Static Electricity Protection
Standard Drawing No. 40-06-04 Lighting Fixtures, U. S. Army Corps of Engineers	

3.5.2 Equipment shall conform to the requirements of the National Electrical Manufacturers Association , Underwriters Laboratories, Inc., Institute of Electrical and Electronic Engineers, and the American National Standards Institute.

3.5.3 Underground lines/duct shall be installed in accordance with the guidance provided herein and in outline specification 02316 "Excavation, Filling and Backfilling for Utility Systems" of Section 00890 Outline Specifications.

3.5.4 Electrical Service

(1) General. Power distribution on the base is 13,800 volts, 3 phase, 3 wire. Primary electrical service shall be provided by tapping the existing O/H lines per the Electrical Site Plan. The new high voltage conductors shall be routed down the pole and continue underground to new pad mounted, tamper-proof compartmental transformers as shown on the Electrical Site Plan. The Electrical Site Plans are conceptual and therefore the Contractor is encouraged to propose a different layout as long as it meets the requirements of this Request for Proposal.

(2) The following criteria pertains to the general exterior service design requirements:

(a) Secondary feeders from transformer to facility shall be copper, 600V type USE for service entrance cable, and installed in underground concrete encased duct when in paved areas. Direct buried Schedule 40 PVC ductbank is acceptable for non-paved areas. Rigid galvanized steel encased in concrete shall be used under building footings.

(b) All underground High Voltage duct banks shall be concrete encased and shall include one spare conduit. The duct banks for the service lateral and each type of communications shall include one spare conduit. Provide conduit separation per ANSI C2.

(c) Provide all spare conduits and inner-ducts with pull cord.

(d) For all 60 Hz power circuits (13.8 kV and 120/208 V), provide 1 spare conduit of equal size for each conduit installed.

(e) All high voltage (13.8kV) taps/connections are to be made on above ground sectionalizers, or loop-fed pad-mount transformers with appropriate bushings. No high voltage taps shall be made in handholes or manholes.

(f) Electrical system grounding and lightning protection for the new facilities shall be provided in accordance with the requirements of NEC article 250, ETL 90-6, and NFPA 780. Grounding shall consist of a counterpoise grid system composed of copper clad steel ground rods interconnected by stranded bare 1/0 copper wire. Lightning protection shall include equipotential structural bonds, with the metal roof grounded and bonded.

(g) The high voltage cable shall be 15 kV cable, ethylene propylene rubber type insulation (133% level), in accordance with NEMA WC-8.

(h) Neutral conductors, cable shields, and all other noncurrent-carrying metallic parts of equipment shall be grounded. Ground resistance of not greater than 25 ohms shall be provided.

(i) Label all cables, where they come from and where they go, with embossed tags.

(j) All Primary and HV connections shall be loadbreak type rated 200A.

(k) Pad mounted transformers shall be 3 phase, delta to wye with grounded neutral, dead front, loop feed with “T-blade” configuration, oil immersed type, loadbreak group operated switch, surge arresters, and dry-well-mounted current limiting fuses. Service transformer shall have two 2 ½ percent taps above and below rated voltage. Provide low impedance transformers where short circuit currents permit. Transformers shall be equipped with a kill switch on the primary side of the transformers. Provide bollards around each transformer for protection from vehicles. Transformers shall be sized to serve the loads indicated and allow for 20% growth.

(l) All cabinets shall be provided with padlock hasps.

(m) Aluminum shall not be used in contact with earth or concrete.

(n) Duct lines shall be concrete encased under all pavement. A brightly colored plastic tape, not less than 75 mm in width and suitably inscribed with a continuous metallic backing and corrosion resistant metallic foil core to permit easy location of the duct line, shall be placed approximately 300 mm below finished grade.

(o) Control wiring and communications wiring shall not share the same conduits, raceways, or enclosures as electrical power wires (120 Volts nominal or larger).

(3) Motors. All motors shall be high efficiency types and use derated values for supply voltages, i.e., for a 480V service use a 460V rated motor; for 208V service provide a 200V motor. In addition, all motors shall have a safety disconnect switch mounted in a clearly labeled and accessible location. Motors over 7.46 KW shall have under-voltage, phase loss, and phase reversal protection. For induction motors 7.46 KW and larger provide power factor correction capacitors to correct power factor to .90.

3.5.5 Lighting

(1) General. Lighting levels shall be designed in accordance with Illumination Engineering Society (IES) standards except as noted herein. All lamp fixtures shall be energy efficient as per Energy Star requirements, but lamp life shall be specified.

(a) Interior Lighting. Areas with suspended acoustical ceiling tiles have lay-in fluorescent fixtures compatible with the ceiling. Open ceiling rooms use suspended, open industrial fluorescent fixtures. Luminaries shall be standard commercial type and conform to the Underwriters Laboratories, Incorporated, Standard for Electric Lighting Fixtures. Energy saving cool-white fluorescent lamps rated 32 watts, 2850 lumens and electronic ballasts are specified. Compact fluorescent lamps shall be used in place of incandescent lamps in small rooms. Switching schemes shall allow fixtures to be turned off when not in use.

(b) Luminaries for the scheduled maintenance and repair bays shall be installed 8M above finished floor which is the same height as the radiant heaters. The lamps in these bays shall be metal halide.

(2) Lighting systems shall be designed to meet the following illumination levels:

GENERAL ILLUMINATION LEVELS TABLE

Area	**Lux (foot-candles)**
Interior	
Maintenance Repair Bays	807 (75.0)
Electrical/Mechanical Rooms	323 (30.0)
Toilets	215 (20.0)
Entry	323 (30.0)
Corridors	323 (30.0)
Administration Offices	538 (50.0)
General Item Repair Room	538 (50.0)
Janitor	161 (15.0)
Tool Room	323 (30.0)
Weapons Storage	323 (30.0)
Deployment Storage	215 (20.0)
Exterior	
POV Parking	6 (0.5)
Military Parking	6 (0.5)

(3) Wiring shall consist of insulated copper conductors installed in rigid metallic conduit or metallic (EMT) tubing systems. Exposed conduit is permitted only in unfinished areas. Provide a green jacketed ground wire in all conduits. Conduit above the floor up to 3 meters height and exposed shall be intermediate metal or rigid steel if subject to damage. Conductor insulation shall be type TW (60 degrees C) for conductors smaller than No. 1/0

AWG and THW (75 degrees C) for conductors No. 1/0 AWG and larger; except other acceptable NFPA 70 types of insulated conductors of equivalent ampacity may be substituted.

(4) Exit and Emergency Lighting. Exit lights (LED battery type with red letters) and emergency lights shall be provided as required by NFPA 101, Life Safety Code and ADA/UFAS 4.28.3. Allow for continued functioning for a minimum period of 90 minutes. Wall mounted battery back-up type fixtures are not acceptable. Exits shall be marked by readily visible signs in all cases where the exit or way to reach it is not readily apparent to the occupants. Signs shall be located not more than 3.5 meters from exits, internally illuminated, and the LED type consuming less than 7 watts per side. Self luminous type exit signs shall not be installed. Egress lighting to be provided at 11 lux in accordance with NFPA 101. Egress lighting shall be accomplished by selective illumination of normal lighting fixtures. Power for egress and exit lighting shall be provided by single source inverters, installed in electrical rooms. Egress and exit lights shall be circuit breaker switched from electrical rooms

(5) Exterior Lighting. Exterior lighting system shall consist of pole mounted high pressure sodium fixtures and shall be provided for Military Vehicle Parking and Privately Owned Vehicle Parking lots. Wall pack HPS area lighting shall be used for exterior building illumination and for outside utility area. Recessed HPS down lights shall be used at building covered entrances. Power for the parking area lighting shall be from within each building. An individual photocell per parking area, that is accessible with an 2.4 M step ladder, and a lighting contactor located inside buildings shall control parking area lighting.

3.5.6 Building Power

(1) All branch circuit panelboards that are not in the same room as the MDP shall have main breakers. Branch circuit panelboards shall be bolt-on circuit breaker type and shall have copper bus bars. Minimum size overcurrent devices for branch circuits shall be 20 amps. Ensure proper coordination and withstand ratings for all overcurrent protection devices. Phase loading shall be balanced to within 10% at all panelboards. All panelboards shall be provided with factory-mounted TVSS's. TVSS's shall comply with UL 1449 2nd Edition. In addition to these panelboards, a common branch circuit panelboard supplying critical loads, coordinated by the base, shall also be located in the electrical room.

(2) All distribution equipment within the buildings shall be sized to allow 20% growth.

(3) In the administrative portion of the vehicle maintenance buildings one duplex 110 volt/20 amp receptacle shall be provided every 3000 mm (12') along walls, within 1800 mm (6') of each door and for any wall space 600 mm (2') or more in width. Receptacles shall be coordinated with the furniture locations. Receptacles shall be mounted 450 mm (18") above finished floor, and switches shall be mounted 1050 mm (42") above finished floor. Ground fault protection shall be provided where required by codes. Provide receptacles for water coolers.

(4) The DESB buildings shall be provided with two 120V duplex receptacles per segregated section. They should be installed on the same wall as the roll-up door.

(5) In the Administrative portions of each vehicle maintenance building each systems furniture workstation shall be pre-wired to a dedicated outlet. The pre-wired workstation requires a dedicated 15-amp circuit. Specific location needs to be coordinated between the designer, workstation manufacturer and end user during design.

(6) Wiring, conduits, switches, disconnects and controllers shall be provided for all equipment requiring electrical power.

(7) Bathrooms. Provide a duplex GFI convenience outlet at each vanity.

(8) A separate electrical room shall be provided in the buildings as shown on the Architectural plans. The electrical rooms shall be accessed from the exterior of the building. Adequate ventilation shall be provided.

(9) Hazardous Areas - Hazardous areas are defined in accordance with Articles 500 and 511 of NFPA 70. Electrical equipment and installation methods in hazardous locations shall be in accordance with Article 501 of NFPA 70. The pit areas of the Maintenance Bays shall be Class I, Division I, and the rest of the Maintenance Bay areas shall be Class I, Division II up to .45 meter (18") AFF. The office complex is positive pressurized with respect to the maintenance bays and is not classified as hazardous.

3.5.7 Telecommunications Systems

(1) A communications room is required for the 4 vehicle maintenance facilities (CSSC, MARC, RSTA AND IB). This room serves as the entrance facility for all incoming communications ducts and as the main location for communications equipment. Provide minimum two 20 amp dedicated circuits. Provide plywood backboard, minimum size 1200 mm by 2400 mm, on all walls. The room shall also have normal receptacles on all walls in accordance with the NEC and/or local codes. Provide a single point ground for all communications equipment. Provide a 150mm x 600mm copper ground plate installed 300 mm above finished floor. Ground plate with #1 cu wire or larger. The resistance to ground must not exceed 25 ohms.

(2) Contractor shall provide communications raceway from each communications room to every communications outlet. Raceway may be conduit or a combination of cable tray and conduit. A voice/data outlet shall be provided for every 7.43 square meters (80 SF) in administration and office space. Locations shall be coordinated for communications outlets to be placed near power receptacles. Outlets for wall phones shall be provided in electrical and mechanical rooms, tool room, tool issue, etc. A data outlet shall be provided in the mechanical room. One voice/data outlet shall be provided in the Break Training Center (BTC) room. See the Standard Fort Lewis Installation Details, D1 through D4 attached at the end of section 00860 for details of components and configuration.

(3) Exterior Communications. Contractor shall provide the exterior communications duct system all the telephone cable and fiber optic cables, including splices and terminations.

(4) Security. A two level Intrusion Detection System shall be provided for the weapon and ComSec Vaults. The first level consists of balanced magnetic switches at doors; the second level consists of volumetric passive infrared motion detectors. Key pad and control panels for the system are located within each secure area. Interior wiring from the system's equipment is routed and connected to the telephone backboard for connection to the Military Police via the telephone system. The IDS shall be an integrated commercial Detection System (ICIDS) and fully compatible with the existing base ICIDS system. The control unit shall be a Remote Control Unit (RTU) 190, manufactured by Monitor Dynamics Incorporated (MDI), a subsidiary of Ultrak. Ask for ICIDS RTU 190 for use with existing OS2 SafeNet system. The RTUs talk to a PPU which can handle up to 64 RTUs over fiber – 2 strands per RTU. Or, the RTUs can be daisy-chained over 2-pair copper RS 485. The Contractor shall coordinate with Chief of Physical Security, Tim Bradon, 253-967-9283, and Lysander Bone, Lockheed Martin, 256-880-5537, for design, estimates, and activation. Note: AR 190-11, 3-6, *h,* (3), Intrusion Detection Systems, says "Civilian

employees whose duties involve the design, operation or maintenance of IDS require completion of a favorable National Agency Check with written inquiries (NCAI) prior to appointment to such non-critical-sensitive positions. Civilian contractor employees must possess a minimum security clearance of CONFIDENTIAL, granted in accordance with AR 380-67, paragraph 3-400.

(5) Public Address System. A public address system with zoning capabilities and direct access microphones shall be provided for the scheduled maintenance and repair bays.

3.6 FIRE DETECTION REQUIREMENTS

3.6.1 Design Reference Documents:

International Building Code (IBC-2000).

National Fire Protection Association (NFPA) Latest Edition of the following:

NFPA 70	National Electrical Code 1999
NFPA 72	National Fire Alarm Code 1999
NFPA 90A	Installation of Air Conditioning and Ventilation Systems 1999
NFPA 90B	Installation of Warm Air Heating and AC Systems 1999
NFPA 101	Life Safety Code 2000
NFPA 170	Symbols for Architectural and Engineering Drawings 1999
MIL HDBK 1008C	Fire Protection

Laboratory Publications:

Underwriters Laboratories (UL)

Factory Mutual Approval Guide

National Electrical Manufacturer's Association

Institute of Electrical and Electronic Engineers

American National Standards Institute

3.6.2 Design Requirements

Design requirements shall be Class A fire protection system. A Fire Protection Engineer licensed in the United States of America shall design the fire sprinkling and fire alarm system. The hydraulic calculations and complete fire protection design shall be submitted for review prior to installation.

(1) A fire detection and alarm system shall be provided in compliance with NFPA 72. The system shall be the addressable device type. Detection shall be provided for all areas, including above suspended ceilings. Detection and alarm shall be designed with the requirement that the buildings will be sprinkled in accordance with MIL-HDBK-1008C.

(2) Detection in the facility is by photoelectric smoke detectors , combination fixed temperature/rate-of-rise heat detectors and manual pull stations. A radio transmitter for alarm/trouble transmission shall be provided for each facility. The transmitter shall be fully compatible with the existing King Fischer receiver-processor used on Fort Lewis. (King-Fischer Co., 2350 Foster Ave., Wheeling IL, 60090, phone (847) 398-7100

(www.kfco.com) or G.H. Harlow Co., Inc, 15757 SW 74th Ave., Suite 550, Tigard, OR 97224, phone (503) 620-9547).

(3) The transmitter system shall include the transmitter, associated interface, antenna, antenna discharge unit, antenna mast, all interconnections, wiring, conduit, grounds and weatherproof building penetrations. All equipment shall be installed in accordance with manufacturer's instructions.

(4) The transmitter shall transmit troubles and alarms at the frequency of 138.925mHz. Transmitter shall be solid state and contain an integral power supply, charger and sealed batteries. The batteries shall be capable of sustaining operation in all modes for not less than 24 hours.

(5) The transmitter shall transmit a trouble signal in lieu of a test signal whenever the transmitter is in a trouble condition.

(6) The interface shall consist of all equipment necessary to connect the transmitter to the fire alarm control panel so fire alarms and one common trouble signal will be appropriately transmitted.

(7) The transmitter shall have its own antenna. Antenna shall be of suitable strength to withstand ice and 201 km/hr wind load. Antenna shall be stainless steel, 5/8 wavelength, omni-directional, vertically polarized and with radial ground plane elements. The ground plane elements shall be no less than 600 mm from grounded metal surfaces. The antenna mast, mounting brackets, and bracing shall be of a configuration appropriate to the structure on which the antenna is mounted. The antenna lead shall be provided in galvanized rigid steel conduit.

(8) Pull stations shall be mounted in dry locations where temperatures do not fall below 4.5 degrees Celsius. Use plastic main bodies, and install a rubber gasket between the mounting metal plate and the box.

(9) Fire alarm panels, transmitters, IDS & UPS units, and other sensitive electrical or electronic equipment shall be installed in dedicated electrical equipment rooms, readily accessible to maintenance personnel, independent of building occupants. These rooms shall be accessible from exterior of facility, separated from mechanical spaces or other areas subject to excessive temperature and moisture.

END OF SECTION

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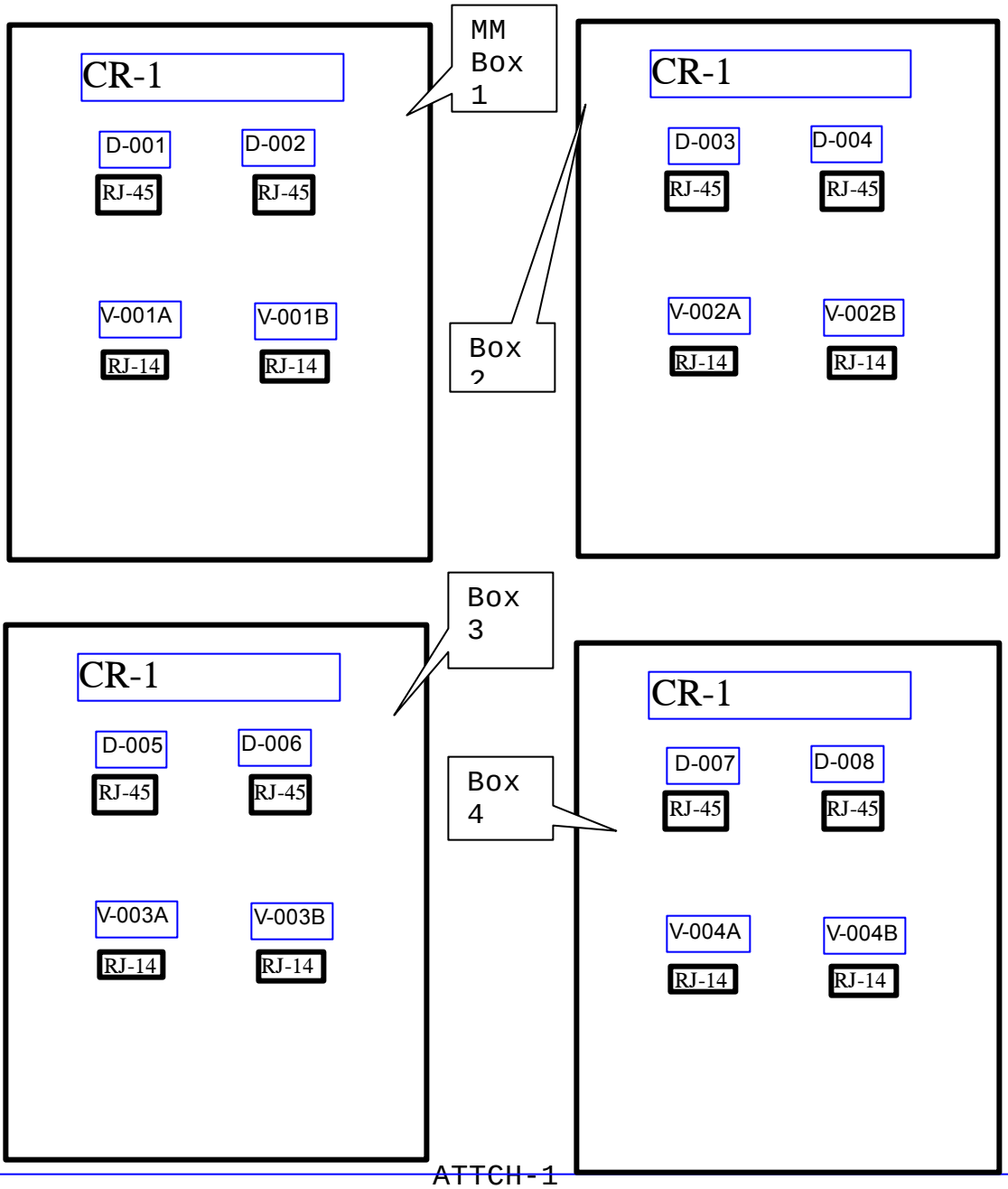
Standard Fort Lewis Multi-Media Communication outlet Labeling

DETAIL D-1

CR= Communication room #. Label each multimedia box with CR# if more than one communication room is used on each floor.
All Data port numbering shall be sequential from jack to jack.
Both Voice jacks in each Multi Media box will use same number with A or B designation in each multimedia box when a single 4 pair cable is used.
Use pair 1 for A (White Blue pair) use pair 2 for B (white Orange pair) pair 3 & 4 to remain un-terminated.
Room numbers change and are not to be a part of the numbering system.
D = Data
V = Voice



Floor Designation is not required unless outlet is wired to a communication room located on a different floor.
Communication room designation required if more than one-communication rooms exist on each floor.

Standard Fort Lewis Multi-Media Communication outlet

DETAIL D-2

Two Category 5e, 4 pair cables, wired to 110 type RJ-45 category 5e patch panels located in 19 equipment cabinet in the communication room.

Category 5e, 4 pair communication cables, wired to 66M1-50 punch blocks located on backboard in communication room.

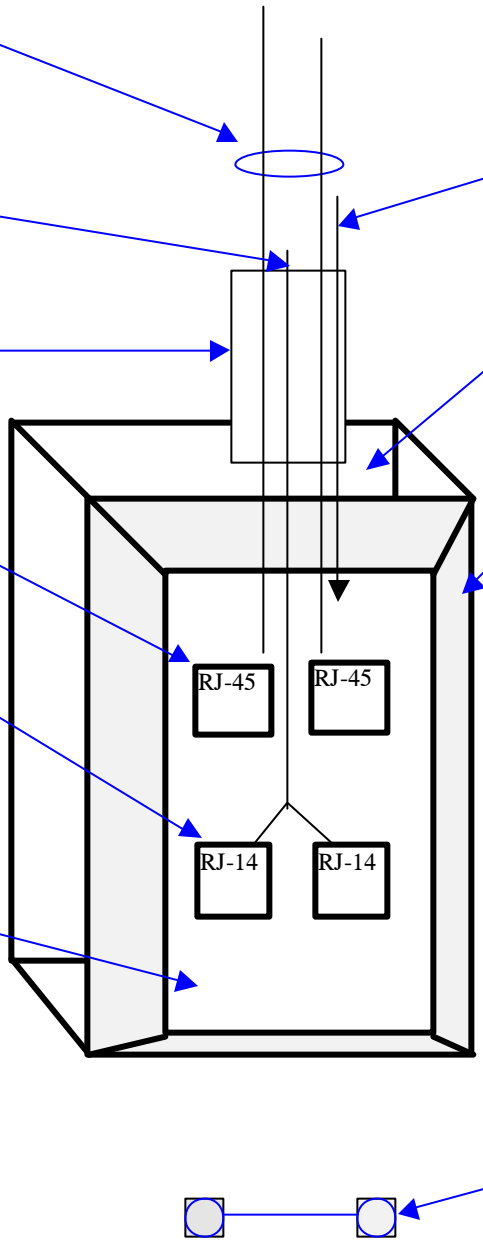
1 EMT conduit with pull string to nearest Wire-way or communication room.

Top two Jacks: modular eight pin RJ-45, Category 5e rated Data jacks, Wired in compliance with EIA/TIA 568A.

Bottom two Jacks: Six pin RJ-14 voice grade jack wired to 66M1-50 blocks mounted on 3/4 Plywood Backboard in communication room.
Not EIA/TIA 568 or 569 compliant.
Pair 1&2 to left and Pair 3&4 to right jack.

Modular communications single gang face plate installed on double gang electrical box. Plastic is preferred if allowed by building code.

Fort Lewis standard design requires two strands of single mode fiber optic installed to each outlet WHEN SPECIFIED.
If specified a six-position face plat will be required.
In the alternative providing large enough conduit complete with pull string where no current fiber optic requirement has been identified and funding is unavailable.



Additional pull string required from each Multimedia box to wire-way or communication room if wire-ways are not used.

Single or Double Gang electrical wall box may be specified. Plastic is preferred if allowed by building code.

Reducing ring to be used to reduce from double gang box to single gang faceplate when double gang box is required.

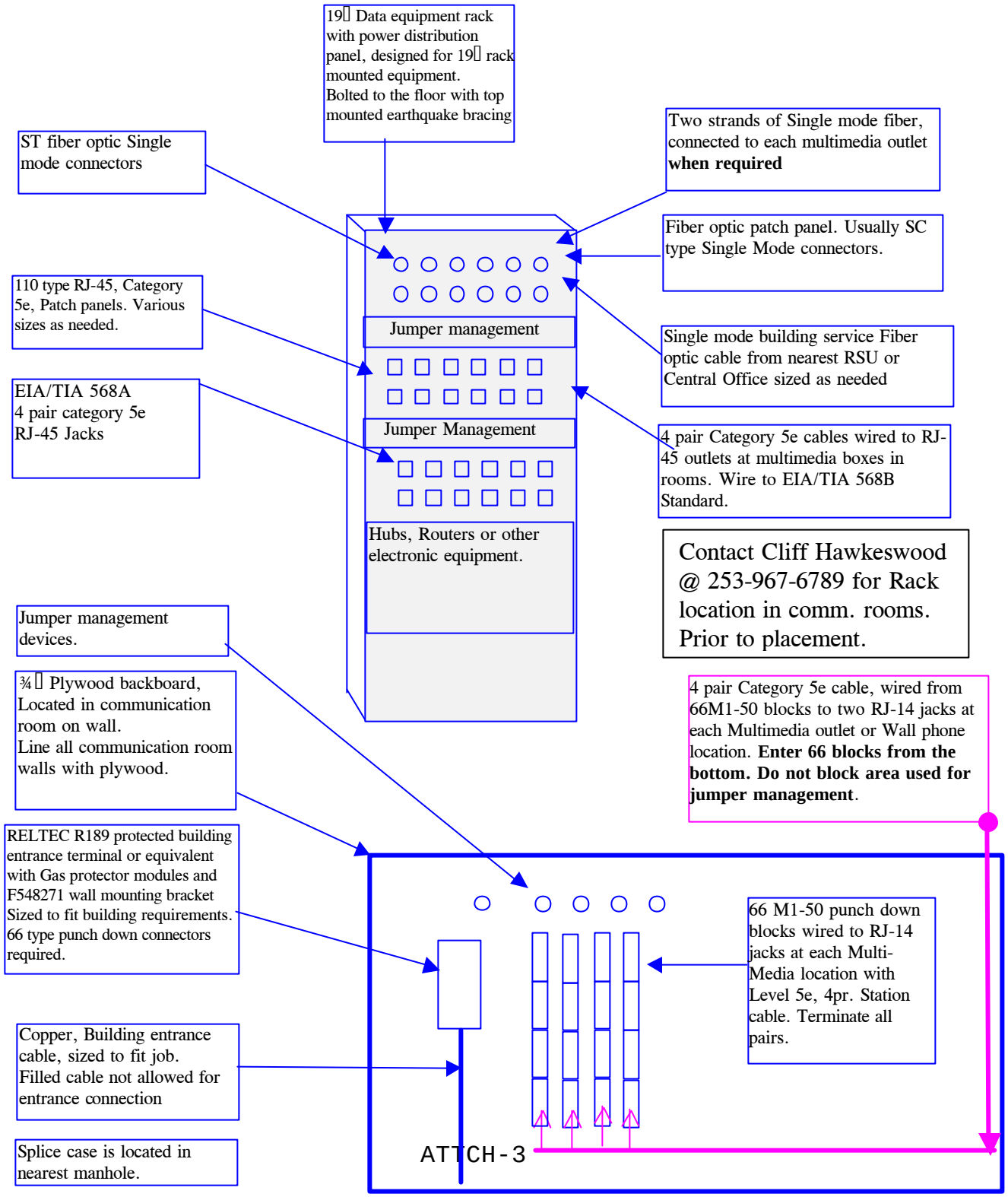
Must match faceplate in color and texture or is hidden in wall.

Individual modular jacks capable of being removed individually from the faceplate must be used for ease of servicing and individual replacement of damaged jacks.

Pre-wired faceplate or duel modules will not be accepted.

Fiber optic ST connectors. Would be placed in faceplate when specified.

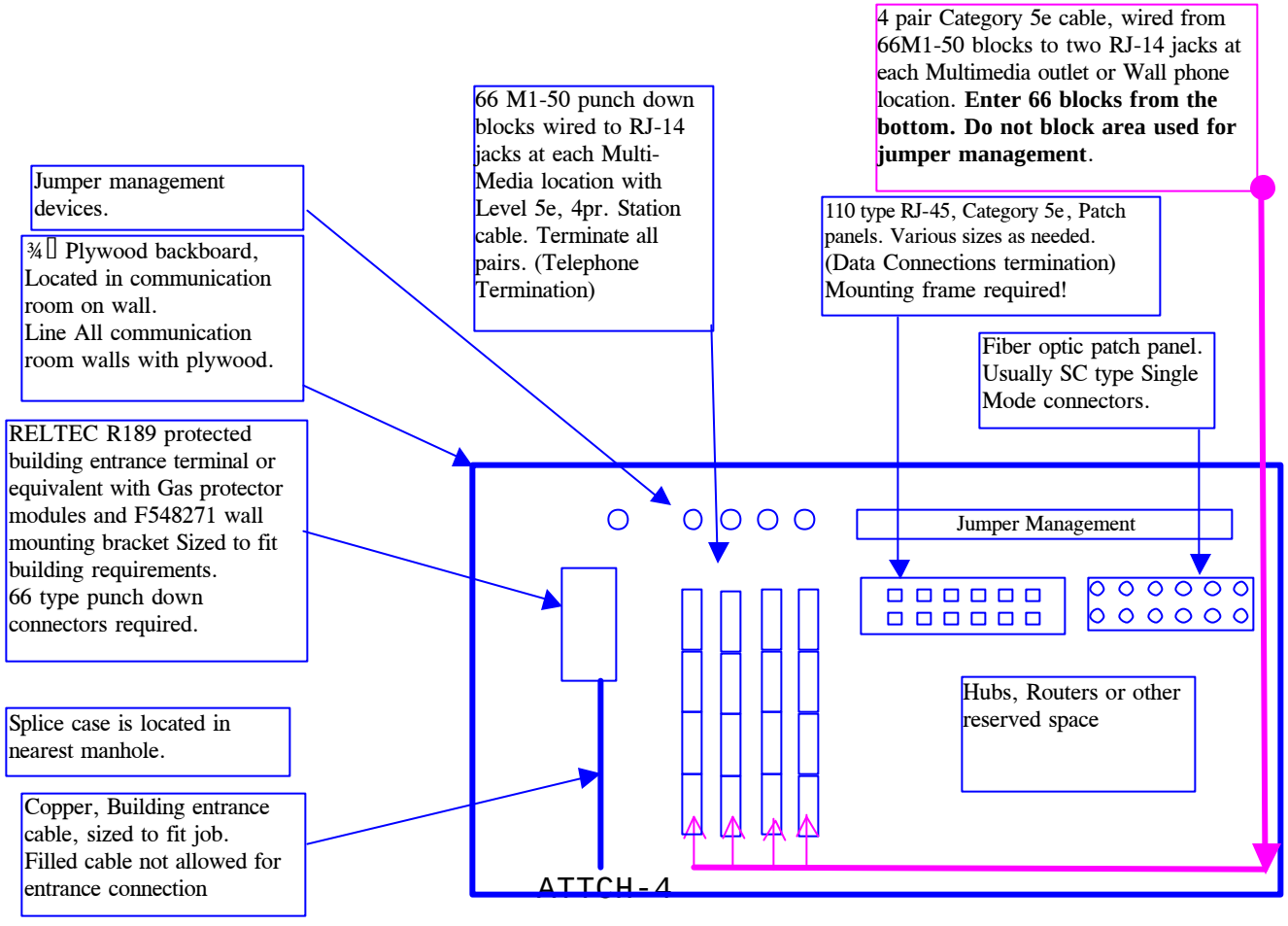
Typical Fort Lewis communication room layout
DETAIL D-3



Typical Fort Lewis communication room layout

Small Wall Mount installations if approved

DETAIL D-4



SECTION 00890

OUTLINE SPECIFICATIONS

1. General. These outline specifications cover the range of products/work to be included in the project. The goals are a) to indicate the areas of work in this project; b) to broadly indicate the work within each section, and c) to indicate minimum acceptable requirements and to further detail the minimum requirements. These outline specifications do not attempt to address product approval, shop drawings, actual installation or other items covered in the referenced specifications.

Included in this RFP there are also some specifications fully developed. These complete specifications shall be incorporated in the design by the Contractor without any further editing.

This project shall be 100% asbestos free. No asbestos, asbestos containing materials, lead in paint, or PCB in light ballasts in any amounts shall be allowed.

The exterior wall sections, including the framing, waterproofing, and exterior and interior finishing, shall satisfy the design requirements for fire protection, heat loss, seismic and wind loads, security, force protection, and durability.

Manufacturers' names are provided to indicate the properties and quality of the product. It is not intended to restrict the Contractor's selection of other manufacturers that provide an approved and equal product.

2. Specifications. Guide Specifications listed below are Unified Facilities Guide Specifications (UFGS) and are to be used for all military construction

The Proposer/Contractor is to be aware that these specifications represent the latest versions available at the time of issue of this RFP and shall be used in preparing specifications for this project. Specifications are available in electronic format from the Construction Criteria Base (CCB) Internet homepage: (http://www.ccb.org/ufgs/ufgs.htm).

COE Seattle District prepared guide specifications (designated NPS) are located at the Seattle District Corps of Engineers Internet web site (http://www.nws.usace.army.mil/ specs/specmain.htm). Use of these specifications shall be limited to obtaining specific information for editing the UFGS.

Fort Lewis specifications are available at the Internet in "Base Design Standards", accessible through Seattle District home page http://www.nws.usace.army.mil/, "Design Criteria", Ft. Lewis "Facility Design Policy/Base Design Standards". Requirements of these Base Design Standards shall be incorporated into the project specifications.

For work not covered by the listed or included specifications, the Proposer/Contractor is to use other recognized industry sources of specifications unless noted otherwise.

Note: 1. Specification sections listed are UFGS unless otherwise indicated.
2. Throughout this RFP any reference to CEGS shall be read as reference to UFGS.

DIVISION 1: GENERAL REQUIREMENTS

01452 Special Inspection for Seismic-Resisting Systems

Provide special inspection in accordance with UFGS 01452A.

DIVISION 2: SITEWORK

02220 Demolition

Provide equipment and systems in accordance with UFGS 02220a and as follows:

All demolition work shall conform to EM 385-1-1 (1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual. Work includes demolition, removal, and salvage of identified items and materials. Salvage shall be pursued to the maximum extent possible and shall be disposed of as directed. Burning and explosives will not be permitted. Provide equipment and labor necessary to safely demolish and remove identified utility services and flexible pavement.

02230 Clearing and Grubbing

Provide equipment and systems in accordance with UFGS 02230a and as follows:

Site Preparation recommendations shall be as provided in the Geotechnical Report (see Appendix B). Any recovered soil suitable for topsoil, after clearing and grubbing operation, shall be stockpiled on site and shall be used for final grading of planting areas as described in Specification 02921 and Section 00800, Part 2, paragraph 3.1.4 (4). The Contractor shall dispose of all organic material, resulting from clearing and grubbing operations, at a legal location outside Government-controlled land. The Contractor shall obtain approval of haul route and disposal site.

02300 Earthwork

Provide equipment and systems in accordance with UFGS 02300a and as follows:

Perform detailed site civil design required to establish elevations necessary for site preparation, excavation, borrow, filling, backfilling, compacting, and finished grading to construct the pavements and other site work. All fill material shall be free of contamination. The Contractor shall submit a proof of verification of the source of fill material or results of analytical testing. All work shall be in compliance with the Geotechnical Report.

02315 Excavation, Filling, and Backfilling for Buildings

Provide equipment and systems in accordance with UFGS 02315a and as follows:

Provide excavation, filling, backfilling, compacting, and finished grading necessary to construct the finish grades indicated for structures. All work shall be in compliance with the Geotechnical Report. Provisions for dewatering the building excavation, if required, shall be included.

02316 Excavation, Trenching and Backfilling for Utilities Systems

Provide equipment and systems in accordance with UFGS 02316a and as follows:

Perform excavating, preparation of pipe-laying surface, pipe bedding, backfilling and compaction. Requirements for underground mechanical and electrical work. Installation of marking tape for identification and detectability. All work shall be in compliance with the Geotechnical Report. No open trench cuts

crossing roads are permitted, except as shown on electrical drawings. Provisions for dewatering the utility excavation, if required, shall be included.

02510 Water Distribution System

Provide equipment and systems in accordance with UFGS 02510a and as follows:

Provide materials for and installation of water system to provide for domestic use and required fire protection. Provide water service lines of ductile-iron pipe or polyvinyl chloride (PVC) plastic water main pipe, as required by Ft Lewis design standards. Provide water service appurtenances as required.

02531 Sanitary Sewers

Provide equipment and systems in accordance with UFGS 02531a and as follows:

Provide sanitary sewer system including pipelines, manholes, and clean outs connect to the existing sanitary sewer system. Provide mains or laterals of cast iron, concrete, or polyvinyl chloride (PVC) plastic pipe. Manhole inverts shall be channeled with a 2 percent cross slope. Provide surface clean outs surrounded by 600 mm square cement concrete pad in landscape areas and steel collars in vehicular pavement areas.

02556 Gas Distribution System

Provide equipment and systems in accordance with UFGS 02556a and as follows:

Gas piping system shall be from the point of delivery, defined as the outlet of the meter set assembly as provided by Puget Sound Energy Services. The contractor shall contract Puget Sound Energy Services to install and own meter set assemblies and underground piping to the buildings. See Section 00860 - II, paragraph 3.4.4 for pricing details.

The Contractor shall provide polyethylene piping (separate from the natural gas piping to be installed by PSE) from the point of connection (see civil drawings) to each building. Piping shall be sized for a supply pressure of 275 kPa (40 psig). This connection shall be tied into the building piping system, downstream of the gas utility meter and shall be provided with a lockable manual valve.

02630 Storm-Drainage System

Provide equipment and systems in accordance with UFGS 02630a, with Stormwater Manual, Fort Lewis Public Works, Fort Lewis, WA, dated January 27, 1996, and as follows:

Provide materials for and the installation of required site storm drainage system and connection to existing storm drainage system. The system shall include storm drain lines, branches, catch basins and manholes. Storm drain lines and branches shall be polyvinyl chloride (PVC) plastic, ductile-iron, or concrete pipe, as required by Ft Lewis design standards. Subsurface drainage, foundation drainage and/or under drainage system shall be perforated polyvinyl chloride (PVC) plastic piping. All underground perforated drainage systems shall include one layer of filter fabric wrapped around the pipe with a 150 mm overlap. Filter fabric shall be a pervious material manufactured into a non-raveling fabric with uniform thickness and strength meeting the requirements of the UFGS specifications. Catch basins and manholes shall be constructed according to Washington State standards and UFGS specifications. Storm drainage lines shall not be corrugated and must be smooth on the inside surface. All joints shall be watertight.

Fort Lewis standard details shall be utilized.

02722 Aggregate and/or Graded-Crushed-Aggregate Base Course

Provide equipment and systems in accordance with UFGS 02722a and as follows:

Provide materials and labor necessary for construction of base course for flexible pavement. Perform placement, compaction, and finished grading required to obtain the finished grade elevations for top of base course. Crushed aggregate materials shall be in compliance with the Geotechnical Report. All work shall conform to the Geotechnical Report.

02741 Hot – Mix Asphalt (HMA) for Roads.

Provide equipment and systems in accordance with UFGS 02741a and as follows:

Provide a binder and wearing course of plant mixed asphalt concrete (AC) placed on a prepared base in accordance with the Geotechnical Report. AC shall conform to the requirements stated in the Geotechnical Report. Provide tack coat for connection to existing flexible pavement and other applicable areas.

02763 Pavement Markings

Provide equipment and systems in accordance with UFGS 02763a and as follows:

Furnish and install pavement markings along the roadway surface as required for parking delineation. Parking delineation, arrows, stop bars, crosswalks and barrier strips shall be painted. Blue 100 mm x 100-mm thermoplastic street markers shall be provided for ease in finding fire hydrants, offset to side of hydrant.

02770 Concrete Sidewalks and Curbs and Gutters

Provide equipment and systems in accordance with UFGS 02770a and as follows:

Provide materials and labor necessary for construction of cement concrete sidewalks, and rolled curb and gutter. Provide aggregate base course for rigid pavement. Finish surface for concrete sidewalks shall be a broomed finish to achieve a non-slip surface. Sidewalks shall be a minimum of 100 mm thick. Rolled curb shall be cast in place cement concrete. Rolled curb shall be according to design detail and typical rolled curb described in the Fort Lewis Design Standards. Provide expansion joints between curbs and sidewalks and between buildings or walls and sidewalks. Provide expansion joints in all concrete sidewalks, curbs, and gutters at 9 meters maximum spacing and extended joints continuous through sidewalks, curbs, and gutters. Provide steel dowel reinforcing connecting sidewalk slabs at all expansion joints. Provide scored control joints at 2 meters maximum spacing.

02811 Irrigation Sprinkler System

General: Final designs shall include verification of the size of existing water service, flow and static pressure.

The system shall be underground, fully automatic and consistent with all local codes, including backflow prevention, and standard practices. All sprinkler heads shall be pop-up type, bubblers, microsprays, or drip irrigation emitters. Above ground heads on risers will not be approved.

Materials: New irrigation system components shall include, but are not necessarily limited to: water meters and pressure regulators (if required), backflow prevention devices, gate valves and ball valves, remote control valves, manual drain valves, quick couplers, piping, sleeves, fittings, sprinkler heads, microsprays, drip emitters, automatic controllers and controller enclosures, and wiring. Materials shall conform to applicable standards of the American Society for Testing Material and Underwriter's Laboratory.

All mainline and lateral line piping shall be PVC, Schedule 40. Sprinklers shall have plastic bodies and a pop-up stem of 150mm in low groundcover and shrub areas, and 300mm in tall groundcover areas. Remote control valves shall be commercial grade plastic and shall be located below grade in standard valve boxes.

Backflow devices shall conform to local plumbing codes. Controllers shall provide at least two unused stations for future expansion of the system.

Installation: Irrigation work shall include excavation, trenching and backfilling, installation of all components, testing and inspection, clean up and maintenance of each system until final acceptance of the project. Place all piping deep enough to prevent freeze damage and provide adequate means for winter drainage of the systems. Bedding material for irrigation pipe shall be clean sand or pea gravel conforming to the following:

Sand:

Sieve Size	Percent Passing
13mm square	90-100
6mm square	65-100
U.S. No. 10	40-100
U.S. No. 50	3-30
U.S. No. 100	0-4
U.S. No. 200	0-3

Pea Gravel:

Sieve Size	Percent Passing
13mm square	90-100
10mm square	40-90
U.S. No. 4	5-30
U.S. No. 200	0-0.5

All percentages by weight.

Backfill in trenches above irrigation piping shall be free of rock or cobbles over 25mm in diameter.

Trenching within the drip line of existing trees to be preserved shall be done by hand. All irrigation mainlines and laterals passing under roadways or paving shall be placed in PVC, Schedule 40, sleeves. Size of sleeves shall be twice the diameter of the pipe passing through it. Existing roadways shall not be cut to accommodate new irrigation piping. Paving which is damaged shall be restored to match existing when disturbed due to trenching or irrigation system installation.

Provide head-to-head coverage of all landscape areas and separate zones for shrub and grass areas. Include at least one quick coupler per irrigation zone.

Maintenance: The maintenance period of the irrigation system shall coincide with the maintenance period for landscape planting. The Contractor shall make repairs, replacements and adjustments to the systems in order to keep it fully functional and operating as designed, sustaining the health and vigor of the plant materials.

Guarantees and Replacements: The Contractor shall warrant materials against defects and guarantee workmanship for one full year following the final acceptance of all work by the Contracting Officer. Damage beyond the reasonable control of the Contractor shall not be repaired at the Contractor's expense.

02821a Fencing

Security fence shall be 2,130 mm galvanized steel chainlink with top rail and three-strand barbed wire on galvanized supports.

02921 Turf/Grass Areas

Turf (grass) areas shall be seeded as per base approved seed mix. Hydroseeding is an acceptable method for seeding. Topsoil shall be applied at a minimum depth 100mm and topsoil shall be thoroughly bonded to the sub soils. Topsoil stripped from the site, stockpiled and re-spread shall be free of stones greater than 13mm in any dimension. Once stockpiled topsoil has been screened, remaining topsoil material shall be amended by mixing in composted, fine-particle organic matter as recommended by soil testing to achieve 20% by volume or 7% by weight. Acceptable sources of organic matter shall be as described in the CEGS. PH adjuster shall be provided as recommended by soil testing results to register between 5.5 and 7.5. Additional topsoil shall be provided if quantities of stripped topsoil prove to be insufficient.

Delivered topsoil shall meet the following requirements: Topsoil shall be sandy loam as described by USDA textural class. Topsoil shall have a maximum particle size of 19mm inch with a maximum of 3 percent retained on a 6mm screen and a minimum of 5 percent passing through a 120 mesh screen. Topsoil shall contain 5-20 percent by volume and 2%-7% by weight of mixed, composted, fine-particle organic matter. Topsoil shall be obtained from well drained areas and shall not contain more than 5 percent water by volume. The topsoil shall be free from debris, noxious weeds, rhizomes, roots, toxic substances, or any other material that may be harmful to plant growth. Decomposed wood derivatives (ground bark, sawdust, or other wood waste) used in the topsoil shall be free of weeds, weed seeds, and sticks and fully decomposed a minimum of 6 months or stabilized with nitrogen. The pH shall be between 5.5 and 7.5. Soluble salts shall not exceed 500 ppm. Each delivery shall be accompanied by a guaranteed statement of analysis listing the percent of organic matter and the pH.

An acceptable stand of turf shall be defined as a thick, healthy and strong stand of turf and ground cover with uniform cover and deep root development throughout all designated areas with a minimum of 150 plants per square foot and no bare spots greater than 100mm. Grass seed mix shall be Creeping Red or Chewings Fescue (48% min.), and Turf-type Perennial Ryegrass (48% min.).

The seed mix shall not contain annual ryegrass or bluegrass species. Weed seed shall not exceed 1 percent by weight of the total mixture and shall be free of restricted and prohibited noxious weed seed. The seed shall also be free of crop seed, and inert matter shall not exceed 3% by weight of the total mixture. The Contractor shall provide temporary winter grass cover in areas where permanent seeding is delayed because of the season or construction staging. Temporary seed shall consist of Perennial Ryegrass (100%).

02930 Trees, Shrubs, Ground Covers, and Vines

Grading and Soil Prep: For all landscaped areas finish grades shall be free of undulations, irregularities or low spots that will collect standing water. Provide positive drainage, with not less than two- percent surface slope away from walls and structures and toward roadways and catch basins. The Contractor shall supply additional topsoil that is clean, friable and free of debris, rock, and sticks as needed to achieve finish grades in all landscape areas.

Plant Materials: All plants supplied by the Contractor shall be healthy, fully foliated when in leaf, well-branched and typical in form for its species.
Groundcover shall be installed as 1-gallon containers (minimum size) at a spacing on center that will provide 90% coverage within two full growing seasons (March to October is one growing season) after planting. The minimum plant sizes shall be #5 (5 gallon) for shrubs, 63mm caliper for deciduous trees, and 3M height for conifers.

Maintenance: The Contractor shall maintain all newly installed plantings within the site limits from the time of installation of all plant materials until initial acceptance of all landscape work by the Contracting Officer. Maintenance shall include adequate watering of all planted areas, straightening, weed control, mulching, fertilizing of plant materials, and pruning of dead, damaged or crossed branches. All planting shall be guaranteed to remain healthy throughout the maintenance period. Dead or dying plants shall be removed immediately and replaced in kind as soon as seasonal conditions permit.

After initial acceptance of planted areas, a minimum 120-calendar day establishment period is required. The establishment period shall include the following:

1. Continuous eradication of weed growth (including all areas identified by the Government), prevention of weed seeding and plant disease.

2. Watering to maintain the equivalent of one inch absorbed moisture delivered each week.

3. Providing at least one application of fertilizer during the establishment period.

The Contractor shall provide complete maintenance for all planted areas for a minimum of 120 days after provisional final acceptance of the project or area/site. Within seven (7) days prior to the end of this maintenance period, the Contractor shall remove weeds from all planted areas and fertilize all new plantings.

Warranties: All trees and plants shall be guaranteed for a period of 365 days after initial acceptance of the project or area.

At end of warranty period, remove and replace trees, shrubs, and groundcovers found to be missing, dead or in an unhealthy condition. Replacements shall be made as soon as seasonal conditions allow following end of warranty period. Plants shall be required to be replaced no more than one time under this warranty.

Damage determined beyond the reasonable control of the Contractor shall be repaired at the Owner's expense.

DIVISION 3: CONCRETE

03100 Structural Concrete Formwork

Provide equipment and systems in accordance with UFGS 03100a and as follows:

See Section 03300. Provide form materials including forms, ties, releasing agents, and void materials.

03150 Expansion Joints, Contraction Joints, and Waterstops

Provide equipment and systems in accordance with UFGS 03150a and as follows:

See Section 03300. Provide expansion joint filler, accessories and waterstops.
Proposed joint fillers to be submitted for approval.

03200 Concrete Reinforcement

Provide equipment and systems in accordance with UFGS 03200a and as follows:

See Section 03300. Provide reinforcing bars, dowels, welded wire fabric; wire ties, and supports.

03300 Cast-In-Place Structural Concrete

Provide equipment and systems in accordance with UFGS 03300 and as follows:

No polymer resins with styrene shall be used for any concrete floor coating. No cone ends shall occur on faces of concrete in exposed-to-view surfaces. Chamfer all external corners. Furnish formwork in largest practicable sizes to minimize number of joints. Support reinforcement with approved chairs, spacers or ties. Provide joint and waterstop location layouts for approval.

Concrete shall have a minimum 28-day compressive strength of 27.5 MPa (4,000 psi), except interior slabs shall have a minimum 28-day compressive strength of 34.5 MPa (5,000 psi). Exterior slab on grades shall have a 28-day minimum flexural strength of 4.1 MPa (600 psi).

In addition to concrete, provide curing materials, non-shrink grout, bonding agent, floor hardener, dry-shake floor topping, perimeter insulation, capillary moisture barrier, and vapor barrier.

03330 Cast-In-Place Architectural Concrete

Provide materials, equipment and systems in accordance with UFGS 03330a and as follows:

Cast-in-place concrete walls of Weapons and Comsec Vaults exposed to Corridors shall have an architectural finish with close tolerances and defined requirements for minimization of surface defects. Utilize form liners to provide a shallow texture for visual interest. Walls of maintenance pits shall also have an architectural finish. Pit surfaces to be cast against a flat, smooth non-porous surface. Protect concrete from staining and discoloration. Provide surface sealer on all areas to remain exposed in finished construction as early in construction as possible to avoid staining by weather and other trades.

DIVISION 4: MASONRY

04200 Masonry

Provide materials, equipment and systems in accordance with UFGS 04200a and as follows:

Concrete masonry units to be split face and smooth face as indicated on drawings. Units exposed to the exterior shall be integrally colored. CMU shall be manufactured using all white cement and carefully selected aggregates to provide coloration that meets North Fort and Base Design Standards requirements. Lintel and bond beam units shall be used. Use steel lintels at openings in veneer walls.

Conduct continuous inspection. Testing of mortar, grout, masonry cores and units is required. Testing of units for efflorescence is required. Include descriptions of construction requirements and limitations for cold and hot weather construction.

Provide reinforcement, flashing materials, control and expansion joints, weep holes, veneer ties, and insulation. Tool finish exposed joints to a dense concave surface or other acceptable weather joint. Clean masonry with approved cleaners by unit masonry manufacturer and complying with masonry manufacturer's directions and technical bulletins. Remove all cleaner residues from masonry. Seal all exterior CMU surfaces, and exposed interior surfaces in repair and maintenance bays, with silane or siloxane based high solids, clear sealers.

04220 Nonbearing Masonry Veneer/Steel Stud Walls

Provide materials, equipment and systems in accordance with UFGS 04220a and as follows:

Concrete masonry units shall be sampled and tested for efflorescence in accordance with ASTM C 67 and the rating shall be: ”not effloresced”. Calculations demonstrating the insulation provides the specified U-value for heat transmission of the completed exterior wall construction shall be submitted for approval. This specification section includes: CMU, mortar, joint reinforcement, cold-formed steel framing, insulation, exterior sheathing, moisture protection, veneer anchors, and connections.

DIVISION 5: METALS

05090 Welding, Structural

Provide materials, equipment and systems in accordance with UFGS 05090a and as follows:

All welds exposed in finish work shall be ground smooth. Defective or rejected welds shall be cut out and replaced.

05091 Ultrasonic Inspection of Plates

Provide equipment and systems in accordance with UFGS 05091a and as follows:

Inspection and testing of shop and field welding shall be by an approved, qualified welding inspector. The welding inspector shall certify all reports and make a record of all welds. The welding inspector may use ultrasonic testing or any other approved aid to assure the adequacy of the weld. Welding inspector shall be certified to inspect in accordance with AWS D1.1.

05120 Structural Steel

Provide materials, equipment and systems in accordance with UFGS 05120a and as follows:

Provide mill analyses and test reports. A testing laboratory shall be used for all required tests and inspections. Provide and install all structural steel, tubing, and pipe, high strength bolts, carbon bolts, nuts, washers, and paint.

05210 Steel Joists

Provide materials, equipment and systems in accordance with UFGS 05210a and as follows:

Manufacturer’s certification required. Provide all accessories, extended and special ends and ceiling extensions as required. Do not apply construction loads until bridging and anchorages are completed.

05300 Steel Decking

Provide materials, equipment and systems in accordance with UFGS 05300a and as follows:

Steel Roof Deck: Provide fire resistance label and acoustical insulation strips as required. Provide adjustment plates, closure plates, accessories, and lateral and uplift attachment. Touch-up shop paint after installation. Clean field welds and abraded areas.

05400 Cold Formed Steel Framing

Provide materials, equipment and systems in accordance with UFGS 05400a and as follows:

Include all material requirements for studs, tracks, bridging and other miscellaneous light gauge framing. Identify component size and material properties for each type and variety. All stud walls to be non-loadbearing. Provide bracing for all stud walls that do not extend to structure.

05500 Miscellaneous Metal

Provide materials, equipment and systems in accordance with UFGS 05500a and as follows:

Welds to be continuous, ground smooth and flush. Exposed joints to be “hairline” quality. Miscellaneous metals can include the following: screens, gratings, shelf angles, ladders, ladder cage, handrails, guardrails, pipe sleeves, pipe bench stanchions, pipe post bollards, water heater supports, sill angles, corner guards, access doors and panels, expansion joint covers, seismic joint covers, trench covers, jambs, and backing for overhead rolling doors. Separate miscellaneous metal from dissimilar metals and from products containing lime or other substances, which will cause damage (galvanic corrosion) to occur. Include material and method of attachment to each substrate encountered for all miscellaneous metal components. Include finish requirements or reference finishes located in other specification sections.

DIVISION 6: WOODS & PLASTICS

06100a Rough Carpentry

Provide equipment and systems in accordance with UFGS 06100 and as follows:

Material shall bear the grade mark, stamp or other identifying marks indicating grades of material and rules of standards under which produced. Flush mounted accessories, builders hardware, casework, projection screens and marker boards shall be secured to wood blocking. Minimum size acceptable is 50 mm X 100 mm (2 inch X 4 inch) for dimensional lumber or 12 mm (1 /2 –inch) thickness for plywood. Blocking shall be rigidly attached to minimum of two studs. Use of gauge metal banding, hollow wall, or gypsum wallboard anchors is expressly forbidden.

06200a Finish Carpentry

Provide materials, equipment and systems in accordance with UFGS 06200a and as follows:

Materials shall bear the grade mark, stamp or other identifying marks indicating grades of material and rules or standards under which produced. Finish carpentry includes trim, chair rails, windowsills, built-in cabinets, counter tops, plastic laminate, and utility shelving. Coordinate with Section 12320.

DIVISION 7: THERMAL & MOISTURE PROTECTION

07110 Bituminous Dampproofing

Provide materials, equipment and systems in accordance with UFGS 07110a and as follows:

Bituminous dampproofing shall be provided on the exterior face of structural CMU walls used in veneer wall systems. Dampproofing shall be fibrated type.

07132 Bituminous Waterproofing

Provide materials, equipment and systems in accordance with UFGS 07132a and as follows:

Submit manufacturer’s data including technical information, which indicates full compliance with this section and manufacturer’s installation instruction. Bituminous waterproofing shall be provided on the exterior of

perimeter foundation walls ~~and the exterior of the perimeter wall of maintenance pits located in scheduled maintenance bays~~.

07210 Building Insulation (Non CEGS Specification)

Provide materials, equipment and systems consistent with language for similar materials in Specification 07220 and as follows:

Polyisocyanurate rigid insulation ASTM C1289, Type I or II, and Class 1 (having a minimum recovered material content of 9 percent by weight of core material in the polyisocyanurate portion). For polyisocyanurate the maximum design R-value per 25 mm of insulation used shall be 7.2. Facings shall be non-asphaltic, glass fiber reinforced.

Provide thermal resistance values as indicated on drawings. Mechanical attachment as recommended by insulation manufacturer. Vapor Barrier per ASTM D4397 and CEGS, 6-mil thick polyethylene sheeting. Vapor Barrier coverage shall be 100% with seams lapped to the next framing member, sealed with an approved sealant.

Foundation perimeter insulation shall be extruded polystyrene.

Building insulation shall comply with building code limitations on flame spread and smoke generation as appropriate to type, location and fire rating of assembly.

07220 Roof Insulation

Provide materials, equipment and systems in accordance with UFGS 07220a and as follows:

Provide polyisocyanurate rigid board insulation for use above a roof deck. Polyisocyanurate insulation shall conform to ASTM C 1289, Type II, and Class 1 (having a minimum recovered material content of 9 percent by weight of core material in the polyisocyanurate portion). For polyisocyanurate the maximum design R-value per 25 mm of insulation used shall be 7.2. Facings shall be non-asphaltic, glass fiber reinforced. Insulation attachment method coordinated with standing seam metal roof system requirements for uplift resistance.

Roof insulation shall comply with building code limitations on flame spread and smoke generation as appropriate to type, location and fire rating of assembly. Provide non-combustible sheathing between flammable insulation and occupied areas where required to meet code requirements for material or performance.

07413 Metal Siding

Provide materials, equipment and systems in accordance with UFGS 07413a and as follows:

Metal siding shall be steel in minimum 26 gauge with a polyvinylidene fluoride (PVF2) factory finish. Siding shall be overlapping sheet design with exposed fasteners. Include requirements for all flashing, trim, closure strips and miscellaneous components accessory to siding system. Siding shall include a ribbed profile to minimize the visual effects of “oil canning” and similar surface distortion.

Metal siding at TEMB structures may be prefabricated insulated “sandwich” panels with exterior and interior metal siding bonded to a rigid foam filler. Foam shall use a blowing agent that minimizes outgassing.

07416 Structural Standing Seam Metal Roof (SSSMRS) System

Provide materials, equipment and systems in accordance with UFGS 07416a and as follows:

Metal roof system shall be a fully integrated design, with all components provided by a single manufacturer and installed in the same configuration as originally tested for conformance with uplift criteria. Require submittal of manufacturer's certification of conformance with specification. Roof panels shall be minimum 24 gauge, with 38 mm (1-1/2 inch) minimum height standing seam and concealed fastener clips. Finish shall be polyvinylidene fluoride (PVF2) coating in color scheduled. Include requirements for all flashing, trim, closure strips and miscellaneous components accessory to the roof system.

07600 Sheet Metal Work, General

Provide materials, equipment and systems in accordance with UFGS 07600a and as follows:

This section includes, but is not limited to: flashing not related to roof or wall systems, sheet metal expansion joints, gutters and downspouts, and miscellaneous trim. Separate flashing and sheet metal from dissimilar metals and other construction materials, which will cause galvanic corrosion to occur. Fabricate architectural sheet metal to comply with the recommendations of SMACNA's Architectural Sheet Metal Manual. Coordinate requirements for paint finished versus mill finished materials.

07720 Roof Ventilators, Gravity Type

Provide materials, equipment and systems in accordance with UFGS 07720a and as follows:

All roof ventilators to be shrouded turbine type. "Gooseneck" type units are prohibited. Ventilators shall be aluminum, finish color to match SSSMR. Indicate size and type of curb mounting required for all ventilator units. Curbs and associated flashing shall also match SSSMR finish color.

07840 Firestopping

Provide materials, equipment and systems in accordance with UFGS 07840a and as follows:

Provide clear correlation between types of firestopping and locations (penetrations, gaps, joints, etc.) where they are to be used. List alternative systems if more than one type is acceptable. Reference indications of fire rating on drawings for all walls, floors and miscellaneous assemblies as appropriate. Indicate locations where firestopping shall be finished to match adjacent construction for aesthetic reasons.

07900 Joint Sealing

Provide materials, equipment and systems in accordance with UFGS 07900a and as follows:

Sealant and related accessories shall be compatible with substrate and appropriate for each application. Caulking shall be polyurethane type. No silicone caulking to be used. Provide a table listing sealant locations generically, the acceptable products for use at that type of location and color matching requirements, if any.

DIVISION 8: DOORS & WINDOWS

08110 Steel Doors and Frames

Provide materials, equipment and systems in accordance with UFGS 08110 and as follows:

Doors and frames shall be factory fabricated in accordance with SDI-100 and the additional requirements of this specification section. Door grade shall be interior doors: heavy duty (Grade II), exterior doors: extra heavy duty and galvanized (Grade III, insulated). Doors shall have no visible seams on any face, edge, top or

bottom. Both top and bottom of the door shall be closed flush. Frames shall be one standard gauge heavier than associated door. Frames in masonry walls shall be coated with bituminous mastic on interior face and fully grouted. Interior doors separating administrative areas from maintenance bays shall also be insulated.

Where labeled openings occur, coordination is required for labeled assembly (door, frame, and hardware), not merely labeled items within the assembly. Doors and frames shall bear the specific labels as required for the rated openings. Require labels to be protected so as to be clearly legible after all painting is concluded. Coordinate requirements with Section 11025.

Include specification for interior windows fabricated with steel frames with removable stops.

08330 Overhead Rolling Doors

Provide materials, equipment and systems in accordance with UFGS 08330a and as follows:

Sectional Rolling Doors shall be specified for a “heavy duty” working environment. Doors shall be of the standard coiling type designed to retract into a hooded cavity mounted above the door head. Doors shall be insulated. Electric door openers shall be provided with override capabilities for manual operation. Operators shall be heavy-duty draw bar type. Doors shall be provided with a permanent label showing the manufacturers name and address and the model/serial number of the door. Doors shall be designed to withstand wind loads determined by procedures in ASCE 7. Calculations to be submitted for approval. Provide leading edge safety strips interlocked with operators. Provide glass vision lights in all doors. Weatherstripping shall be provided at all edges, including and interior baffle within the hood.

08331 Metal Rolling Counter Doors

Provide materials, equipment and systems in accordance with UFGS 08331a and as follows:

Rolling counter doors shall be galvanized steel construction with baked enamel finish. Operation shall be manual push up. As a safety feature provide internal backcheck mechanism to avoid gravity free fall closing of door. At rated wall construction coordinate specification of rated door panel, hardware and means of activation. Interlock door function with fire alarm system. Door shall have key operated cylinder locks accessed only from the secured room side of the door.

08520 Aluminum and Environmental Control Aluminum Windows

Provide materials, equipment and systems in accordance with UFGS 08520a and as follows:

Provide aluminum fixed and operable windows that conform to AAMA 101 HS-HC40. Minimum 10 year warranty by manufacturer. All exterior windows shall have nominal 1” insulated, low e glazing. Interior pane shall be 1 /4” minimum thickness laminated glass. Window frames shall be dark bronze anodized. Coordinate security requirements with Section 11025.

08710 Door Hardware

Provide materials, equipment and systems in accordance with UFGS 08710 and as follows:

Comply with all ANSI and DHI requirements for commercial grade, heavy-duty hardware and with NFPA requirements for fire and life safety. A master keyed locking system shall be provided for all doors, and shall be compatible with Best locking system to match the current Base locking system. Cylinders shall be seven-pin. Cores and keys/keyways shall be fully integrated with and provide seamless extension of the existing Base master keying system. Construction interchangeable cores shall be provided. Disassembly of knob or lockset shall not be required to remove core from lockset. All locksets, exit devices, and padlocks shall

accept same interchangeable cores. Provide permanent cores, keys, and accessories prior to final inspection.

Construction keys – four total
Blank keys – two per core

After final acceptance and keying, the Government shall return the construction cores to the Contractor. Mounting height of hardware to be industry standard. All doors shall be operable from the room side without the use of a key, special effort, or knowledge. Hardware will meet ADAAG requirements.

08810 Glass and Glazing

Provide materials, equipment and systems in accordance with UFGS 08810a and as follows:

The use of insulated laminated glass with low emissivity metallic coating is mandatory. Provide the required certification label and test reports for the units. Glazing shall meet all applicable energy conservation goals. Wire glass shall be used at fire-rated assemblies. Provide sound deadening laminated glass as required. The designer shall propose applicable STC rating.

Tempered glass, wire glass, or laminated safety glass shall be used at glazed openings that are subject to accidental human impact, and at all hazardous locations, such as sidelights adjacent to doors, glazed panels closer than 459 mm (18 inches) to the floor, and glazing in doors. Exterior glass shall be dark bronze tinted with laminated glass for the interior pane. Coordinate exterior glazing requirements with Section 11025.

08845 Translucent Panel Glazing (no CEGS)

Provide materials, equipment and systems in accordance with manufacturer's standards and as follows:

Translucent panel glazing shall be glass fiber reinforced polymer sheet bonded to an aluminum grid core with perimeter channel framing. Exposed aluminum framing components shall be anodized dark bronze. Provide a single glazing panel for each building opening. Glazing shall be "crystal" color on both faces. Nominal "R" value of 4. Nominal light transmission of 30 percent. Representative products are "Kalwall" (Kalwall Corporation), "Guard-Tite" (Major Industries) and "Skywall" (Butler Manufacturing).

DIVISION 9: FINISHES

09250 Gypsum Wallboard

Provide materials, equipment and systems in accordance with UFGS 09250a and as follows:

Gypsum wallboard to be a minimum of 16mm (5/8-inch) in thickness. This section includes type "X" fire rated gypsum board, cement backer board, water-resistant gypsum board, stud wall framing, and suspended ceiling framing. Coordinate wall construction requirements with ratings and UL/FM assembly numbers indicated on drawings.

Specify STC ratings required in all wall interior types used. Minimum STC shall be 45.

Acoustical sealant: where sound retardant construction is indicated, use acoustical sealant and acoustical insulation as recommended by manufacturer. Provide expansion joints per manufacture and ASTM recommendations.

Finish on interior gypsum wallboard in all office and conference areas to be "Level 5" per Gypsum Association Standard GA 214. Other exposed wallboard shall be "Level 4".

09310 Ceramic Tile

Provide materials, equipment and systems in accordance with UFGS 09310a and as follows:

Ceramic mosaic floor tile shall be slip resistant, abrasive or textured surface, chemical and corrosion resistant, and non-porous with low-absorption characteristics. Ceramic floor tile to be mortar bed set, thin set shall not be acceptable. Grout to be chemical-resistant epoxy. Slope all tile floors 10 mm per meter (1/8-inch per foot) to floor drains where applicable. Ceramic wall tile to be glazed tile installed over solid waterproof backing. Wall tile shall be installed to building code required wainscot height throughout toilet rooms, except at showers where tile shall be full height of wall. Provide expansion, control, contraction, and isolation joints.

09510 Acoustical Ceilings

Provide materials, equipment and systems in accordance with UFGS 09510a and as follows:

Acoustical units shall be 600 mm by 600 mm or 600 mm by 1200 mm nominal size. Acoustical tile units shall have exposed tegular edges and a factory applied flat finish, including all exposed edges and bevels. Provide required seismic bracing of suspension system. Provide minimum NRC of .60.

09650 Resilient Flooring

Provide materials, equipment and systems in accordance with UFGS 09650a and as follows:

Vinyl composition tile (VCT) flooring shall meet heavy-duty requirements for layer gauge, indentation, flexibility, solvent and stain resistance. Provide 100 mm high wall base of rubber or vinyl in continuous rolls at all areas with VCT. Stairs shall be covered with a slip resistant, raised pattern rubber tile. Rubber tile shall be a product system complete with cover components for treads, risers and stringers.

09900 Painting, General

Provide materials, equipment and systems in accordance with UFGS 09900a and as follows:

All exposed surfaces shall be painted unless specified otherwise. Fire alarm base plates, electrical panel covers, fire alarm bells, and other items on walls, (with the exception of fire alarm pull stations) shall be painted to match adjacent wall color. Downspouts, gutters, HVAC equipment and other architectural features on or near the facility shall be made “invisible” by painting them to match the adjacent facility color. Exterior finishes shall be either an approved powder coat finish or two-part modified polyurethane finish. Provide options and systems per Fort Lewis Base Design Standards and guide requirements.

09915 Color Schedule

Provide materials, equipment and systems in accordance with UFGS 09915 and as follows:

Exterior Finishes

CMU: Integral color, Light Tan.

Mortar: To match current base standard

Glass and Glazing: Tinted – dark bronze

Window Frame Color: Dark bronze, anodized aluminum finish

Exposed Metal (including roof, wall panels, metal trim, louvers, gutters, and downspouts): Light Tan.

Interior Finishes

It is important that appropriate colors be selected for this type of facility; neutral or light colors shall be utilized for large background areas and wall used for display. Color-texture graphics should be used sparingly on walls. Painted CMU is not acceptable as an interior finish except where noted on the finish schedule. All interior appurtenances, except fire alarm pull boxes, shall match the wall color.

DIVISION 10: SPECIALTIES

10100 Visual Communications Specialties

Provide materials, equipment and systems in accordance with UFGS 10100a and as follows:

This section includes marker boards (white boards), tackboards and Projection Screens. Attach to wood blocking (treated in rated walls) for backing. Provide markerboards and tackboards in all Administrative offices. Provide markerboards, tackboards and wall mounted projection screens in Break, Training and Conference Rooms.

10160 Toilet Partitions

Provide materials, equipment and systems in accordance with UFGS 10160a and as follows:

Provide to meet all ADAAG requirements for accessibility. Style E, floor to ceiling post support design. Urinal screens shall be wall-supported. Partitions will be solid HDPE core (finish 5). Fasteners shall be stainless steel and vandal-proof. Attachment brackets shall be non-ferrous metal as standard with the manufacturer. Door hardware shall be non-ferrous metal with chrome plated finish, except for the stainless steel latch bolt. Hinges shall be gravity type. Provide coat hook-door bumper, and door stop/keeper with rubber bumper.

10200 Exterior Louvers and Vents (non-CEGS)

Provide materials, equipment and systems in accordance with CEGS 10200 and as follows:

Louvers shall be fabricated of 18 Ga. aluminum or 22 Ga. steel. Finish to match specifications per section 07416 Structural Standing Seam Metal Roof (SSSMR) System. Louver areas not utilized for mechanical purposes should have an insulated closure panel to provide a weather and thermal seal with a minimum u-value of .10. The edges of louver blades shall be folded or beaded for rigidity, and baffled to exclude driving rain. Louvers shall be provided with bird screens on interior face. Louvers shall bear the AMCA Certified Ratings Seal for air performance and water penetration ratings as described in AMCA 500. Coordinate installation with requirements of Section 11025.

10430 Exterior Signage

Provide materials, equipment and systems in accordance with UFGS 10430a and as follows:

Provide dimensional building letters of 300mm anodized aluminum, style: Helvetica medium, color: dark bronze, dull finish. Signage shall conform to Fort Lewis Base Design Standard and Architectural Compatibility Guide. Location and message of signage shall be coordinated with the installation.

10440 Interior Signage

Provide materials, equipment and systems in accordance with UFGS 10440a and as follows:

Signage shall be simple in design and pleasing in appearance. The system shall provide a permanent room number with two changeable messages strips on room signs. Directory signage shall provide space for a schematic floor plan (with fire exit path information) and fully changeable message content. Interior signage shall be acrylic. All signage characteristics and mounting location shall be consistent with ADAAG requirements for accessibility. Signage shall be required at all rooms, areas, and spaces. Provide directory signage at both main building entrances. Surface mounted signs shall be provided with 1.6mm thick vinyl foam tape. Signage shall conform to Fort Lewis Base Design Standards and Architectural Compatibility Guide.

10500 Lockers and Locker Benches (non-UFGS)

Provide materials, equipment and systems in accordance as follows:

Lockers and benches shall be provided at locations shown on drawings. Reference locker product Lyon "Standard" single tier lockers. Lockers shall be 24-gauge steel with 16 gauge steel door and door frame. Nominal locker size shall be 380 mm W x 450 mm D x 1830 mm H. Provide louvers at top and bottom of door panel. Accessories shall include standard hat shelf, coat hooks and number plates. Tamper guard handle shall accommodate standard padlock (NIC). Lockers shall be wall anchored, have leg closure panel, sloped top and baked enamel finish.

Locker benches shall be provided at locations shown on drawings. Bench shall be laminated hardwood, minimum 200 mm wide by 30 mm thick, finished with clear acrylic. Pedestals shall be cast iron, 450 mm high, finished with baked enamel and secured to the floor with expansion anchors.

10520 Fire Extinguisher Cabinets and Accessories (non-UFGS)

Provide materials, equipment and systems in accordance as follows:

Fire extinguisher cabinets shall be fully recessed with flat trim. Fire extinguisher cabinets, all appurtenances, and accessories shall be factory painted, red color. Cabinets in rated walls shall be rated to match, or recess notch designed to maintain the wall rating. Fire extinguishers will be provided by others.

10800 Toilet Accessories

Provide materials, equipment and systems in accordance with UFGS 10800a and as follows:

Provide in toilet rooms as applicable: soap dispensers, mirrors, toilet paper dispenser, folded paper towel dispenser, grab bars, paper towel receptacle, garment hooks, and metal shelf. Provide sanitary napkin disposal in each women's water closet stall. At showers provide recessed soap dish, towel hook and shower curtain and rod. Provide semi-recessed accessories, where possible. Mirrors shall be a single panel with width to match the adjacent lavatory countertop.

Provide a mop rack and shelf in janitor closets.

DIVISION 11: EQUIPMENT

11020 Security Vault Door

Provide materials, equipment and systems in accordance with UFGS 11020a and as follows:

Steel security – vault type door with frame shall be of standard product from manufacturer specializing in this type of fabrication. Design of door and frame to conform to Federal Specifications FS AA-D-00600. Single leaf door shall have clear opening of 1015 mm (40 inches) wide by 1980 mm (78 inches) high. Doors to meet all requirements of Class “5” Vault Door, Style “H”.

11025 Forced Entry Resistant Components

Provide materials, equipment and systems in accordance with CEGS 11025 and as follows:

Components covered in this specification are designed to resist forced entry attacks with increasing severity levels of hand, power, and thermal tools and weapons and explosives. The components include forced entry resistant personnel door/frames, louvers, and windows, glazing for doors and windows. Each type of forced entry resistant component shall be a complete assembly produced by a single manufacturer. Movable and operable components shall operate smoothly and freely. Items for exterior installation shall be designed to resist water and vapor penetrations or entrapment. Coordination with Installation Security is required for final Forced Entry Requirements.

11460 Unit Kitchen (non-UFGS)

Provide materials, equipment and systems as follows:

Unit kitchen for break room shall be 2150 mm nominal total width. Include base and wall cabinetry with plastic laminate exposed surfaces. Countertop shall be post-formed plastic laminate. Include deep basin sink, refrigerator, electric cook top, exhaust hood, oven and microwave oven.

DIVISION 12: FURNISHINGS

12320 Cabinets and Countertops

Provide materials, equipment and systems in accordance with UFGS 12320a and as follows:

~~This section includes the counter top for the second floor customer waiting area.~~ All casework shall be factory prefinished and furnished by one manufacturer.

Provide high-pressure grade laminate at all exposed surfaces per NEMA standards. High-pressure grade laminate on horizontal work surfaces shall be laminated to particleboard substrate, 725-775 kg per cubic meter (45-50 lbs. per cubic foot), with integrally coved backsplashes and drip edge. Provide one pencil drawer built into and below the countertop. Drawer slides shall be full extension type. Attachment to walls by wood blocking.

12490 Window Treatment

Provide materials, equipment and systems in accordance with UFGS 12490A and as follows:

Horizontal window blinds shall be Type II 25 mm (1-inch) aluminum slats. Coordinate color with interior finish.

12675 Floor Grating and Frame (Non UFGS)

Provide materials, equipment and systems in accordance as follows:

Exterior Grating: Frame shall be fabricated of stainless steel and furnished complete with concrete anchors, corner splices, etc., as required for recessed installation. The frame shall accept the grating thickness on one side and be flush with the finished surface on the other side, and shall provide a controlled recess depth for a flush, continuous walking surface. Mat shall be fabricated of stainless steel grille. Recessed concrete pan shall slope 21 mm per meter (¼" per foot) minimum to a drain in the concrete pan.

Interior Grating: Frame shall be fabricated of aluminum extrusion conforming to ASTM B 221, alloy 6063, temper T5. The frame shall be furnished complete with concrete anchors, corner splices, etc., as required for recessed installation. The frame shall be of the universal type to accept the grating on one side and to accept a variety of floor finishes on the other side, and to provide a controlled recess depth for a flush, continuous walking surface. Grating surface shall be carpet inserts having fusion bonded cut pile. Inserts shall be locked into treadrails shall be fabricated from 6063-T5 aluminum alloy and joined in a continuous hinge system to allow easy roll-up. Treadrail will be standard bronze anodized.

DIVISION 13: SPECIAL CONSTRUCTION

13080 Seismic Protection For Miscellaneous Equipment

Provide equipment and systems in accordance with UFGS 13080 and as follows:

Provide seismic bracing for suspended ceilings, electrical equipment and conduit and mechanical equipment, ductwork and piping.

13100 Lightning Protection System

Provide equipment and systems in accordance with UFGS 13100Aand as follows:

Provide Lightning Protection System in accordance with NFPA 780, ETL 90-6 and UL 96A.

13120 Standard Metal Building Systems

Provide materials, equipment and systems in accordance with UFGS 13120a and as follows:

Edit specification for provision of structural system only. All metal building weather enclosure components (such as roofing, siding, doors and windows) shall be addressed in separate specifications. Intention is to utilize metal building industry standardization for framing purposes only.

13121 Metal Building Systems (Minor Requirements)

Provide materials, equipment and systems in accordance with UFGS 13121a and as follows:

This guide specification covers the requirements for small, simple, readily available commercial products designed in accordance with MBMA "1996 Low Rise Building Systems Manual" with loads and load combinations in accordance with ASCE7.

13202 Fuel Storage Systems

Provide equipment and systems in accordance with UFGS 13202a and as follows:

Provide fluid storage tanks and appurtenances for MARC and CSSC as indicated on the Waste/Supply Fluids Tank Schedule.

13721 Small Intrusion Detection System

Provide equipment and systems in accordance with UFGS 13721a and as follows:

This guide specification covers the requirements for small intrusion detection systems (32 zones or less) which provide operator interaction and dynamic process manipulation, including overall system supervision, and control. The security system for this facility shall be compatible with the existing Fort Lewis Integrated Commercial Detection System (ICIDS) system. This guide specification is to be used in the preparation of project specifications in accordance with ER 1110-345-7.

13851 Fire Detection And Alarm System, Addressable

Provide a complete Fire Alarm System in accordance with UFGS-13851a and the following:

The Fire Alarm System panel and all devices shall be of the addressable type and be completely compatible with the existing base system that uses a King-Fischer -3 transmitter. The Fire Alarm System shall monitor all devices and transmit any alarms to the Base 911 center.

13852 Fire Alarm Reporting System, Radio Type

Provide a complete system in accordance with UFGS 13852a and the following:

This system shall be completely compatible with the Fire Detection And Alarm System installed in the building. It shall also be compatible with the existing Radio Fire Alarm Monitoring Base Station. It shall report by VHF radio transceiver and antenna on the Base's assigned frequency.

13930 Wet Pipe Sprinkler System, Fire Protection

The entire area of the MARC, CSSC, RSTA & IB buildings shall be provided with wet pipe sprinklers. Install systems in accordance with NFPA 13 and NFPA 24. All pipe, valves and fittings shall be UL labeled and FM approved. Use semi-recessed, chrome plated, glass bead type sprinklers in the administrative areas. Do not use gripper fittings in the piping system. Provide tamper switches for main sprinkler/standpipe valves and for sprinkler zone valves on each floor, as well as the Post Indicator Valve. Underground piping shall be in accordance with NFPA 24. Double check back flow preventers shall only be installed in the position certified by the manufacturer. Sprinkler systems shall be hydraulically designed.

DIVISION 14: CONVEYING SYSTEMS

14602 Cranes, Single-Girder Bridge, Monorail And Jib

Provide materials, equipment and systems in accordance with UFGS 14602a and as follows:

Provide bridge cranes as required for use in Vehicle Maintenance facilities. Coordinate with mechanical and electrical systems to conform with necessary clearance requirements.

DIVISION 15: MECHANICAL

15070 Seismic Protection For Mechanical Equipment

Provide equipment and systems in accordance with UFGS 15070A.

15080 Thermal Insulation for Mechanical Systems

Provide equipment and systems in accordance with UFGS 15080A.

15190 Gas Piping Systems

Provide equipment and systems in accordance with UFGS 15190a and as follows:

See 02556 Gas Distribution System.

15400 Plumbing, General Purpose

Provide equipment and systems in accordance with UFGS 15400A. Plumbing vents shall not penetrate the roof. Plumbing vents shall extend through the wall (as near to the roof as possible) and terminate downwards. Vents shall be provided with 0.5 cm stainless steel wire mesh bird screen.

15569 Water and Steam Heating; Oil, Gas or Both; up to 20 MBTUH

Provide equipment and systems in accordance with UFGS 15569a and as follows:

The boilers shall be self-contained scotch-marine firetube type (firebox shall not be accepted), 3-pass, packaged, complete with all accessories, mounted on a structural steel base. When the boilers operate at maximum output, the IBR Gross Output rate shall not exceed 27.3 kW per square meter (8,700 Btu/h per square foot) of fireside heating surface. Boilers shall be constructed and stamped in accordance with Section IV of the ASME Code and rated for 410 kPa (60 psi). The boiler shall be forced-draft. As a minimum, the burner controller shall provide all functions of a Honeywell 7800 Series controller with troubleshooting module. Where available for the selected boiler, provide modulating burner controls. If modulating burner controls are not available, provide hi-lo-off burner controls. Temperature gauges shall be provided in lieu of thermometers. Boilers shall be piped as indicated on the drawings.

15895 Air Supply, Distribution, Ventilation and Exhaust System

Provide equipment and systems in accordance with UFGS 15895a and as follows:

Isolation valves 64mm (2 ½") and smaller shall be full port ball valves. Isolation valves 75mm (3") and larger shall be gate valves. Propylene glycol shall be used in lieu of ethylene glycol. See drawings for additional requirements.

15910 Direct Digital Control Systems

See Technical Specification 15910 provided.

15940 Overhead Vehicle Tailpipe [And Welding Fume] Exhaust Removal System(s)

Provide equipment and systems in accordance with UFGS 15895a and as follows:

Motors shall have explosion proof enclosures. Motor starters shall be magnetic across- the-line with general-purpose enclosure. Motors, exhaust fans, dampers and louvers shall be configured as indicated.

Ducts shall be constructed of galvanized sheets of the minimum gauge thickness for ducts as required in SMACNA-08 and SMACNA-09.

Tailpipe adapters shall fit 50mm to 100mm nominal diameter exhaust pipe.

Flexible exhaust tubing shall be approved heat-resistant wire-reinforced glass fiber and neoprene tubing or approved heat-resistant wire-reinforced glass fiber and silicone tubing.

Exhaust hose shall be 150 mm nominal diameter. The exhaust hose shall utilize a spring operated retracting hose reel. The reel shall provide a minimum of 10.5 meters of hose retraction when utilizing the 150 mm nominal diameter hose. Exhaust fan and motor shall be separately mounted as indicated on the drawings and exhaust through the building wall translucent panels. Each exhaust hose and tailpipe adapter shall be provided with a separate reel, fan and motor.

Contractor shall size the fan, motor, damper and ductwork to provide 285 L/s flow for the calculated pressure drop through the entire system. After installation, the Contractor shall test the assembly with the greatest pressure drop to demonstrate 285 L/s exhaust flow has been achieved.

15951 Direct Digital Control for HVAC

Provide equipment and systems in accordance with UFGS 15951a and as follows:

Sequences of Operation have been provided in the drawings for several of the HVAC systems. Temperature sensors shall be Johnson Controls Ultra Precision 0.1% TE-6000-101 series, or approved equal. Carbon monoxide and carbon dioxide sensors shall provide real-time monitoring of the contaminant levels. CO sensors shall be accurate to within 1.0 ppm and the CO2 sensors shall be accurate to 50.0 ppm concentration.

15990 Testing, Adjusting and Balancing of HVAC Systems

Provide equipment and systems in accordance with UFGS 15990A.

15995 Commissioning of HVAC Systems

Provide services in accordance with UFGS 15990a and as follows:

Commissioning of systems and equipment shall take place only after TAB work is complete. An independent qualified firm or agency specializing in such work shall complete commissioning work. The independent firm or agency shall furnish a written report on the commissioning work. Commissioning work shall be coordinated with DDC system commissioning and training for the DDC system's operating personnel. All commissioning shall be performed in accordance with UFGS 15995a except for the following:

a) In paragraph 3.1 "Commissioning Team and Checklists" the second sentence shall be changed to read: "In addition, the Government will be represented by a representative of the Contracting Officer, and the using Agency."

b) In paragraph 3.1 "Commissioning Team and Checklists" the Designation "D" shall be changed to "Contractor's Mechanical Designer."

All functions of the details sequences of operations shall be tested.

Division 16: ELECTRICAL

16070 Seismic Protection For Electrical Equipment

Provide all necessary requirements in accordance with the UFGS-16070A.

16370 Electrical Distribution System, Aerial

Provide overhead to underground transition in accordance with UFGS-16370A.

16375 Electrical Distribution System, Underground

Provide equipment and a complete system in accordance with UFGS-16375a and the following:

Medium voltage cables shall be soft drawn copper, rated for 15 kV circuit voltage.

Medium voltage cable terminations shall be 15 kV between phases for 133 percent insulation level.

Power transformers shall be pad-mounted, oil-filled, loop-feed, outdoor type ~~with copper windings~~ in accordance with the requirements of ANSI C57.12.26.

16415 Electrical Work, Interior

Provide complete electrical system including power, lighting, control and distribution.

16528 Exterior Lighting Including Security and CCTV Applications

Provide electrical equipment and systems for parking and walkway lighting in accordance with UFGS-16528a and the following:

All exterior electrical shall be routed underground.

The parking lot light poles and luminaires shall be installed to match existing installations on base.

16710 Premises Distribution

Interior distribution system for telecommunications system shall be in accordance with UFGS 16710a and the details in this RFP.

16711 Telephone System, Outside Plant

Exterior distribution system for telecommunications system shall be in accordance with UFGS 16711a and the details in this RFP.

16770 Radio and Public Address Systems

Provide a public address system in accordance with UFGS 16770A.

END OF SECTION

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DAVIS-BACON GENERAL WAGE DECISIONS:

a) **WA020001 (Heavy and Highway)** - All work more than 5 feet (1.5 meters) from the perimeter of a building shall be performed under this wage decision.

b) **WA020002 (Building)** - All work inside and within 5 feet (1.5 meters) of a building shall be performed under this wage decision.

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GENERAL DECISION **WA020001** 05/10/2002 WA1

Date: May 10, 2002
General Decision Number **WA020001**

Superseded General Decision No. WA010001

State: Washington

Construction Type:
DREDGING
HEAVY
HIGHWAY

County(ies):
STATEWIDE

HEAVY AND HIGHWAY AND DREDGING CONSTRUCTION PROJECTS
(Excludes D.O.E. Hanford Site in Benton and Franklin Counties)

Modification Number	Publication Date
0	03/01/2002
1	03/08/2002
2	03/15/2002
3	03/29/2002
4	04/19/2002
5	05/03/2002
6	05/10/2002

COUNTY(ies):
STATEWIDE

CARP0001W 06/01/2001

	Rates	Fringes
COLUMBIA RIVER AREA - ADAMS, BENTON, COLUMBIA, DOUGLAS (EAST OF THE 120TH MERIDIAN), FERRY, FRANKLIN, GRANT, OKANOGAN (EAST OF THE 120TH MERIDIAN) AND WALLA WALLA COUNTIES		
CARPENTERS:		
GROUP 1:	23.18	6.00
GROUP 2:	24.29	6.00
GROUP 3:	23.45	6.00
GROUP 4:	23.18	6.00
GROUP 5:	57.45	6.00
GROUP 6:	27.32	6.00
SPOKANE AREA: ASOTIN, GARFIELD, LINCOLN, PEND OREILLE, SPOKANE, STEVENS AND WHITMAN COUNTIES		
CARPENTERS:		
GROUP 1:	22.51	6.00
GROUP 2:	23.31	6.00
GROUP 3:	22.77	6.00

GROUP 4:	22.51	6.00
GROUP 5:	55.79	6.00
GROUP 6:	26.60	6.00

CARPENTERS CLASSIFICATIONS

GROUP 1: Carpenter; Burner-Welder; Rigger and Signaler; Insulators (all types), Acoustical, Drywall and Metal Studs, Metal Panels and Partitions; Floor Layer, Sander, Finisher and Astro Turf; Layout Carpenters; Form Builder; Rough Framer; Outside or Inside Finisher, including doors, windows, and jams; Sawfiler; Shingler (wood, composition) Solar, Fiberglass, Aluminum or Metal; Scaffold Erecting and Dismantling; Stationary Saw-Off Bearer; Wire, Wood and Metal Lather Applicator
GROUP 2: Millwright, machine erector
GROUP 3: Piledriver - includes driving, pulling, cutting, placing collars, setting, welding, or creosote treated material, on all piling
GROUP 4: Bridge, dock and wharf carpenters
GROUP 5: Divers
GROUP 6: Divers Tender

DEPTH PAYY FOR DIVERS:

Each foot over 50-100 feet	$1.00
Each foot over 100-175 feet	2.25
Each foot over 175-250 feet	5.50

HAZMAT PROJECTS

Anyone working on a HAZMAT job (task), where HAZMAT certification is required, shall be compensated at a premium, in addition to the classification working in as follows:

LEVEL D + $.25 per hour - This is the lowest level of protection. No respirator is used and skin protection is minimal.

LEVEL C + $.50 per hour - This level uses an air purifying respirator or additional protective clothing.
LEVEL B + $.75 per hour - Uses same respirator protection as Level A. Supplied air line is provided in conjunction with a chemical "splash suit".

LEVEL A +$1.00 per hour - This level utilizes a fully encapsulated suit with a self-contained breathing apparatus or a supplied air line.

CARP0003O 12/01/2001

	Rates	Fringes

SOUTHWEST WASHINGTON: CLARK, COWLITZ, KLICKITAT, LEWIS(Piledriver only), PACIFIC (South of a straight line made by extending the north boundary line of Wahkiakum County west to Willapa Bay to the Pacific Ocean), SKAMANIA AND WAHKIAKUM COUNTIES and INCLUDES THE ENTIRE PENINSULA WEST OF WILLAPA BAY

SEE ZONE DESCRIPTION FOR CITIES BASE POINTS

ZONE 1:

CARPENTERS; ACOUSTICAL	26.83	8.29
DRYWALL	26.83	8.29
FLOOR LAYERS & FLOOR FINISHERS (the laying of all hardwood floors nailed and mastic set, parquet and wood-type tiles, and block floors, the sanding and finishing of floors, the preparation of old and new floors when the materials mentioned above are to be installed); INSULATORS (fiberglass and similar irritating materils	26.98	8.29
MILLWRIGHTS	27.33	8.29
PILEDRIVERS	27.33	8.29
DIVERS	63.75	8.29
DIVERS TENDERS	29.33	8.29

DEPTH PAY

50 TO 100 FEET	$1.00 PER FOOT OVER 50 FEET
100 TO 150 FEET	1.50 PER FOOT OVER 100 FEET
150 TO 200 FEET	2.00 PER FOOT OVER 150 FEET

Zone Differential (Add up Zone 1 rates):

Zone 2 -	$0.85
Zone 3 -	1.25
Zone 4 -	1.70
Zone 5 -	2.00
Zone 6 -	3.00

BASEPOINTS: ASTORIA, LONGVIEW, PORTLAND, THE DALLES, AND VANCOUVER, (NOTE: All dispatches for Washington State Counties: Cowlitz, Wahkiakum and Pacific shall be from Longview Local #1707 and mileage shall be computed from that point.)

ZONE 1: Projects located within 30 miles of the respective city hall of the above mentioned cities
ZONE 2: Projects located more than 30 miles and less than 40 miles of the respective city of the above mentioned cities
ZONE 3: Projects located more than 40 miles and less than 50 miles of the respective city of the above mentioned cities
ZONE 4: Projects located more than 50 miles and less than 60 miles of the respective city of the above mentioned cities.
ZONE 5: Projects located more than 60 miles and less than 70 miles of the respective city of the above mentioned cities
ZONE 6: Projects located more than 70 miles of the respected city of the above mentioned cities

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CARP0770D 12/01/2001

	Rates	Fringes
WESTERN WASHINGTON: CLALLAM, GRAYS HARBOR, ISLAND, JEFFERSON,		

KING, KITSAP, LEWIS (excludes piledrivers only), MASON, PACIFIC (North of a straight line made by extending the north boundary line of Wahkiakum County west to the Pacific Ocean), PIERCE, SAN JUAN, SKAGIT, SNOHOMISH, THURSTON AND WHATCOM COUNTIES

CARPENTERS AND DRYWALL APPLICATORS	27.54	7.61
CARPENTERS ON CREOSOTE MATERIAL	27.82	7.61
SAWFILERS, STATIONARY POWER SAW OPERATORS, FLOOR FINISHER, FLOOR LAYER, SHINGLER, FLOOR SANDER OPERATOR AND OPERATORS OF OTHER STATIONARY WOOD WORKING TOOLS	27.67	7.61
MILLWRIGHT AND MACHINE ERECTORS	28.54	7.61
ACOUSTICAL WOKRERS	27.70	7.61
PILEDRIVER, DRIVING, PULLING, CUTTING, PLACING COLLARS, SETTING, WELDING OR CRESOTE TREATED MATERIAL, ALL PILING	27.74	7.61
PILEDRIVER, BRIDGE, DOCK & WHARF CARPENTERS	27.54	7.61
DIVERS	67.96	7.61
DIVERS TENDER	30.24	7.61

(HOURLY ZONE PAY APPLICABLE TO ALL CLASSIFICATIONS EXCEPT MILLWRIGHT AND PILEDRIVER)

Hourly Zone Pay shall be paid on jobs located outside of the free zone computed from the city center of the following listed cities:

Seattle	Olympia	Bellingham
Auburn	Bremerton	Anacortes
Renton	Shelton	Yakima
Aberdeen-Hoquiam	Tacoma	Wenatchee
Ellensburg	Everett	Port Angeles
Centralia	Mount Vernon	Sunnyside
Chelan	Pt. Townsend	

Zone Pay	
0 -25 radius miles	Free
25-35 radius miles	$1.00/hour
35-45 radius miles	$1.15/hour
45-55 radius miles	$1.35/hour
Over 55 radius miles	$1.55/hour

(HOURLY ZONE PAY - MILLWRIGHT AND PILEDRIVER ONLY)

Hourly Zone Pay shall be computed from Seattle Union Hall, Tacoma City center, and Everett City center

Zone Pay	
0 -25 radius miles	Free
25-45 radius miles	$ .70/hour
Over 45 radius miles	$1.50/hour

CENTRAL WASHINGTON: CHELAN, DOUGLAS (WEST OF THE 120TH MERIDIAN), KITTITAS, OKANOGAN (WEST OF THE 120TH MERIDIAN) AND YAKIMA COUNTIES

CARPENTERS AND DRYWALL APPLICATORS	20.72	7.47
CARPENTERS ON CREOSOTED MATERIAL	20.82	7.47
SAWFILERS, STATIONARY POWER S37 OPERATORS, FLOOR FINISHER, FLOOR LAYER, SHINGLERS, FLOOR SANDER OPERATORS	20.85	7.47
MILLWRIGHT AND MACHINE ERECTORS	28.22	7.47
PILEDRIVER, DRIVING, PULLING, CUTTING, PLACING COLLARS, SETTING, WELDING OR CRESOTE TREATED MATERIAL, ALL PILING	27.42	7.47
PILEDRIVER, BRIDGE DOCK AND WHARF CARPENTERS	27.22	7.47
DIVERS	65.81	6.62
DIVERS TENDER	29.28	6.62

(HOURLY ZONE PAY APPLICABLE TO ALL CLASSIFICATIONS EXCEPT MILLWRIGHT AND PILEDRIVER)

Hourly Zone Pay shall be paid on jobs located outside of the free zone computed from the city center of the

following listed cities:

Seattle	Olympia	Bellingham
Auburn	Bremerton	Anacortes
Renton	Shelton	Yakima
Aberdeen-Hoquiam	Tacoma	Wenatchee
Ellensburg	Everett	Port Angeles
Centralia	Mount Vernon	Sunnyside
Chelan	Pt. Townsend	

Zone Pay	
0 -25 radius miles	Free
25-35 radius miles	$1.00/hour
35-45 radius miles	$1.15/hour
45-55 radius miles	$1.35/hour
Over 55 radius miles	$1.55/hour

(HOURLY ZONE PAY - MILLWRIGHT AND PILEDRIVER ONLY)

Hourly Zone Pay shall be computed from Seattle Union Hall, Tacoma City center, and Everett City center

Zone Pay	
0 -25 radius miles	Free
25-45 radius miles	$ .70/hour
Over 45 radius miles	$1.50/hour

ELEC0046A 12/01/2001

	Rates	Fringes

CALLAM, JEFFERSON, KING AND KITSAP COUNTIES

ELECTRICIANS	32.25	3%+9.11
CABLE SPLICERS	35.48	3%+9.11

ELEC0048C 01/01/2002

	Rates	Fringes
CLARK, KLICKITAT AND SKAMANIA COUNTIES		
ELECTRICIANS	30.20	3%+11.00
CABLE SPLICERS	30.45	3%+11.00

ELEC0073A 01/01/2002

	Rates	Fringes
ADAMS, FERRY, LINCOLN, PEND OREILLE, SPOKANE, STEVENS, WHITMAN COUNTIES		
ELECTRICIANS	23.82	3%+9.58
CABLE SPLICERS	24.22	3%+9.58

ELEC0076B 07/01/2001

	Rates	Fringes
GRAYS HARBOR, LEWIS, MASON, PACIFIC, PIERCE, AND THURSTON COUNTIES		
ELECTRICIANS	28.29	3%+10.32
CABLE SPLICERS	31.12	3%+10.32

ELEC0077C 02/01/2002

	Rates	Fringes
LINE CONSTRUCTION:		
CABLE SPLICERS	35.44	3.875%+7.20
LINEMEN, POLE SPRAYERS, HEAVY LINE EQUIPMENT MAN	31.96	3.875%+7.20
LINE EQUIPMENT MEN	27.91	3.875%+5.45
POWDERMEN, JACKHAMMERMEN	24.72	3.875%+5.45
GROUNDMEN	23.27	3.875%+5.45
TREE TRIMMER	22.46	3.875%+5.45

ELEC0112E 01/01/2002

	Rates	Fringes
ASOTIN, BENTON, COLUMBIA, FRANKLIN, GARFIELD, KITTITAS, WALLA WALLA, YAKIMA COUNTIES		
ELECTRICIANS	27.75	3%+8.63
CABLE SPLICERS	29.14	3%+8.63

ELEC0191C 08/31/2001

	Rates	Fringes
ISLAND, SAN JUAN, SNOHOMISH, SKAGIT AND WHATCOM COUNTIES		

ELECTRICIANS	29.66	3%+8.33
CABLE SPLICERS	33.23	3%+8.33

ELEC0191D 08/31/2001

	Rates	Fringes
CHELAN, DOUGLAS, GRANT AND OKANOGAN COUNTIES		
ELECTRICIANS	26.66	3%+8.03
CABLE SPLICERS	29.33	3%+8.03

ELEC0970A 01/01/2002

	Rates	Fringes
COWLITZ AND WAHKIAKUM COUNTIES		
ELECTRICIANS	27.55	3%+8.75
CABLE SPLICERS	30.31	3%+8.75

ENGI0302E 06/01/2001

	Rates	Fringes
CHELAN (WEST OF THE 120TH MERIDIAN), CLALLAM, DOUGLAS (WEST OF THE 120TH MERIDIAN), GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITSAP, KITTITAS, MASON, OKANOGAN (WEST OF THE 120TH MERIDIAN), SAN JUAN, SKAGIT, SNOHOMISH, WHATCOM AND YAKIMA (WEST OF THE 120TH MERIDIAN) COUNTIES		
PROJECTS		
CATEGORY A PROJECTS (excludes Category B projects, as show below)		
POWER EQUIPMENT OPERATORS:		
Zone 1 (0-25 radius miles):		
GROUP 1AAA	29.61	8.38
GROUP 1AA	29.11	8.38
GROUP 1A	28.61	8.38
GROUP 1	28.11	8.38
GROUP 2	27.67	8.38
GROUP 3	27.31	8.38
GROUP 4	25.21	8.38
Zone 2 (26-45 radius miles) - Add $ .70 to Zone 1 rates		
Zone 3 (Over 45 radius miles) - Add $1.00 to Zone 1 rates		

BASEPOINTS: Bellingham, Mount Vernon, Kent, Port Angeles, Port Townsend, Aberdeen, Shelton, Bremerton, Wenatchee, Yakima, Seattle, Everett

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1AAA - Cranes-over 300 tons or 300 ft. of boom (including job with attachments)

GROUP 1AA - Cranes - 200 tons to 300 tons or 250 ft. of boom (including jib and attachments); Tower crane over 175 ft. in height, base to boom

GROUP 1A - Cranes - 100 tons thru 199 tons or 150' of boom (including jib with attachments); Crane-overhead, bridge type, 100 tons and over; Tower crane up to 175 ft. in height base to boom; Loader-overhead, 8 yards and over; Shovel, excavator, backhoes-6 yards and over with attachments

GROUP 1 - Cableway; Cranes-45 tons thru 99 tons, under 150 ft. of boom (including jib with attachments); Crane-overhead, bridge type, 45 tons thru 99 tons; Shovel, excavator, backhoes over 3 yards and under 6 yards; Hard tail end dump articulating off-road equipment 45 yards and over; Loader-overhead, 6 yards to, but not including 8 yards; Mucking machine, mole, tunnel, drill and/or shield; Quad 9, HD 41, d-10; Remote control operator on rubber tired earth moving equipment; Rollagon; Scrapers-self-propelled-45 yards and over; Slipform pavers; Transporters, all track or truck type

GROUP 2 - Barrier machine (zipper); Barch Plant opeator-concrete; Bump cutter; Cranes-20 tons thru 44 tons with attachments; Cranes-overheads, bridge type-20 tons through 44 tons; Chipper; Concrete pump-truck mount with boom attachment; Crusher; Deck Engineer/Deck Winches (power); Drilling machine;

Excavator, shovel backhoe-3 yards and under; Finishing machine Bidwell, Gamaco and similar equipment; Guardrail punch; Horizontal/directional drill operator; Loaders, overhead under 6 yds.; Loaders-plant feed; Locomotives-all; Mechanics-all; Mixers-asphalt plant; Motor patrol graders-finishing; Pildriver (other than crane mount); Roto-mill, roto-grinder; Screedman, Spreader, Topside Operator-Blaw Knox, Cedar Rapids, Jaeger, Caterpillar, Barbar Green; Scraper-self-propelled, hard tail end dump, articulating off-road equipment-under 45 yards; Subgrader trimmer; Tractors, backhoes-over 75 hp; Transfer material service machine-shuttle buggy, blow knox, roadtec; Truck crane oiler/driver-100 tons and over; Truck mount portable conveyor;Yo Yo Pay Dozer

GROUP 3 - Conveyors; Cranes-thru 19 tons with attachments; Cranes-A-frame over 10 tons; Drill oilers-auger type, truck or crane mount; Dozers D9 and under; Forklifts-3000 lbs and over with attachments; horizontal/directional drill locator; Outside hoists-(elevators and manlifts), air tuggers, strao tower bucket elevators; Hydralifts/boom truck-over 10 tons; Loader-elevating type belt; Motor Patrol Grader-non-finishing; Plant Oiler-asphalt, crusher; Pumps-concrete; Roller, plant mix or multi-lift materials; Saws-concrete; Scrapers-concrete and carryall; Service engineers-equipment; Trenching machines; Truck crane oiler/driver-under 100 tons Tractors, backhoes-under 75 hp

GROUP 4 - Assistant Engineer; Bobcat; Brooms; Compressor; Concrete Finish Machine-laser screed; Cranes-A-frame-10 tons and under; Elevator and manlift-permanent and shaft type; Forklifts-under 3000 lbs. with attachments; Gradechecker, stakehop; Hydralifts, boom trucks-10 tons and under; Oil distributors, blower distribution and mulch seeding operator; Pavement breaker; Post Hole Digger-mechanical; Power

Plant; Pumps-water; Rigger and Bellman; Roller-other than plant mix; Wheel Tractors, farmall type; Shot crete/gunite equipment operator

CATEGORY B PROJECTS - 95% of the basic hourly rate for each group plus full fringe benefits applicable to Category A projects shall apply to the following projects. Reduced rates may be paid on the following:

1. Projects involving work on structures such as buildings and structures whose total value is less than $1.5 million excluding mechanical, electrical, and utility portions of the contract.
2. Projects of less than $1 million where no building is involved. Surfacing and paving included, but utilities excluded.
3. Marine projects (docks, wharfs, etc.) less than $150,000.

WORK PERFORMED ON HYDRAULIC DREDGES:

Total Project Cost $300,000 and over

GROUP 1	26.85	8.38
GROUP 2	26.95	8.38
GROUP 3	27.29	8.38
GROUP 4	27.34	8.38
GROUP 5	28.73	8.38
GROUP 6	26.85	8.38

GROUP 1: Assistant Mate (Deckhand)
GROUP 2: Oiler
GROUP 3: Assistant Engineer (Electric, Diesel, Steam or Booster Pump); Mates and Boatmen
GROUP 4: Craneman, Engineer Welder
GROUP 5: Leverman, Hydraulic
GROUP 6: Maintenance

Total Project cost under $300,000

GROUP 1	25.51	8.38
GROUP 2	25.60	8.38
GROUP 3	25.93	8.38
GROUP 4	25.97	8.38
GROUP 5	27.29	8.38
GROUP 6	25.51	8.38

GROUP 1: Assistant Mate (Deckhand)
GROUP 2: Oiler
GROUP 3: Assistant Engineer (Electric, Diesel, Steam, or Booster Pump); Mates and Boatmen
GROUP 4: Craneman, Engineer Welder
GROUP 5: Leverman, Hydraulic
GROUP 6: Maintenance

HEAVY WAGE RATES (CATEGORY A) APPLIES TO CLAM SHELL DREDGE, HOE AND DIPPER, SHOVELS AND SHOVEL ATTACHMENTS, CRANES AND BULLDOZERS.

HANDLING OF HAZAARDOUS WASTE MATERIALS: Personnel in all craft classifications subject to working inside a federally designated hazardous perimeter shall be eligible for compensation in

accordance with the following group schedule relative to the level of hazardous waste as outlined in the specific hazardous waste project site safety plan.

H-1 Base wage rate when on a hazardous waste site when not outfitted with protective clothing
H-2 Class "C" Suit - Base wage rate plus $.25 per hour.
H-3 Class "B" Suit - Base wage rate plus $.50 per hour.
H-4 Class "A" Suit - Base wage rate plus $.75 per hour.

ENGI0370C 06/01/2001

	Rates	Fringes
ADAMS, ASOTIN, BENTON, CHELAN (EAST OF THE 120TH MERIDIAN), COLUMBIA, DOUGLAS (EAST OF THE 120TH MERIDIAN), FERRY, FRANKLIN, GARFIELD, GRANT, LINCOLN, OKANOGAN (EAST OF THE 120TH MERIDIAN), PEND OREILLE, SPOKANE, STEVENS, WALLA WALLA, WHITMAN AND YAKIMA (EAST OF THE 120TH MERIDIAN) COUNTIES		
ZONE 1:		
POWER EQUIPMENT OPERATORS:		
GROUP 1A	20.94	6.02
GROUP 1	21.49	6.02
GROUP 2	21.81	6.02
GROUP 3	22.42	6.02
GROUP 4	22.58	6.02
GROUP 5	22.74	6.02
GROUP 6	23.02	6.02
GROUP 7	23.29	6.02
GROUP 8	24.39	6.02
ZONE DIFFERENTIAL (Add to Zone 1 rate): Zone 2 - $2.00		

Zone 1: Within 45 mile radius of Spokane, Moses Lake, Pasco, Washington; Lewiston, Idaho
Zone 2: Outside 45 mile radius of Spokane, Moses Lake, Pasco, Washington; Lewiston, Idaho

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1A: Boat Operator; Crush Feeder; Oiler; Steam Cleaner

GROUP 1: Bit Grinders; Bolt Threading Machine; Compressors (under 2000 CFM, gas, diesel, or electric power); Deck Hand; Drillers Helper (Assist driller in making drill rod connections, service drill engine and air compressor, repair drill rig and drill tools, drive drill support truck to and on the job site, remove drill cuttings from around bore hole and inspect drill rig while in operation); Fireman & Heater Tender; Grade Checker; Hydro-seeder, Mulcher, Nozzleman; Oiler Driver, & Cable Tender, Mucking Machine; Pumpman; Rollers, all types on subgrade, including seal and chip coatings (farm type, Case, John Deere & similar, or Compacting Vibrator), except when pulled by Dozer with operable blade; Welding Machine

GROUP 2: A-frame Truck (single drum); Assistant Refrigeration Plant (under 1000 ton); Assistant Plant Operator, Fireman or Pugmixer (asphalt); Bagley or Stationary Scraper; Belt Finishing Machine; Blower Operator (cement); Cement Hog; Compressor (2000 CFM or over, 2 or more, gas diesel or electric power); Concrete Saw (multiple cut); Distributor Leverman; Ditch Witch or similar; Elevator Hoisting Materials; Dope Pots (power agitated); Fork Lift or Lumber Stacker, hydra-lift & similar; Gin Trucks (pipeline); Hoist, single drum; Loaders (bucket elevators and conveyors); Longitudinal Float; Mixer (portable-concrete); Pavement Breaker, Hydra-Hammer & similar; Power Broom; Railroad Ballast Regulation Operator (self-propelled); Railroad Power Tamper Operator (self-propelled); Railroad Tamper Jack Operator (self-propelled; Spray Curing Machine (concrete); Spreader Box (self-propelled); Straddle Buggy (Ross & similar on construction job only); Tractor (Farm type R/T with attachment, except Backhoe); Tugger Operator

GROUP 3: A-frame Truck (2 or more drums); Assistant Refrigeration Plant & Chiller Operator (over 1000 ton); Backfillers (Cleveland & similar); Batch Plant & Wet Mix Operator, single unit (concrete); Belt-Crete Conveyors with power pack or similar; Belt Loader (Kocal or similar); Bending

Machine; Bob Cat; Boring Machine (earth); Boring Machine (rock under 8" bit) (Quarry Master, Joy or similar); Bump Cutter (Wayne, Saginau or similar); Canal Lining Machine (concrete); Chipper (without crane); Cleaning & Doping Machine (pipeline); Deck Engineer; Elevating Belt-type Loader (Euclid, Barber Green & similar); Elevating Grader-type Loader (Dumor, Adams or similar); Generator Plant Engineers (diesel or electric); Gunnite Combination Mixer & Compressor; Locomotive Engineer; Mixermobile; Mucking Machine; Posthole Auger or Punch; Pump (grout or jet); Soil Stabilizer (P & H or similar); Spreader Machine; Tractor (to D-6 or equivalent) and Traxcavator; Traverse Finish Machine; Turnhead Operator

GROUP 4: Concrete Pumps (squeeze-crete, flow-crete, pump-crete, Whitman & similar); Curb Extruder (asphalt or concrete); Drills (churn, core, calyx or diamond)(operate drilling machine, drive or transport drill rig to and on job site and weld well casing); Equipment Serviceman; Greaser & Oiler; Hoist (2 or more drums or Tower Hoist); Loaders (overhead & front-end, under 4 yds. R/T); Refrigeration Plant Engineer (under 1000 ton); Rubber-tired Skidders (R/T with or without attachments); Surface Heater & Plant Machine; Trenching Machines (under 7 ft. depth capacity); Turnhead (with re-screening); Vacuum Drill (reverse circulation drill under 8" bit)

GROUP 5: Backhoe (under 45,000 gw); Backhoe & Hoe Ram (under 3/4 yd.); Carrydeck & Boom Truck (under 25 tons); Cranes (25 tons & under), all attachments including clamshell, dragline; Derricks & Stifflegs (under 65 tons); Drilling Equipment(8" bit & over) (Robbins, reverse circulation & similar)(operates drilling machine, drive or transport drill rig to and on job site and weld well casing); Hoe Ram; Piledriving Engineers; Paving (dual drum); Railroad Track Liner Operaotr (self-propelled);

Refrigeration Plant Engineer (1000 tons & over); Signalman (Whirleys, Highline Hammerheads or similar)

GROUP 6: Asphalt Plant Operator; Automatic Subgrader (Ditches & Trimmers)(Autograde, ABC, R.A. Hansen & similar on grade wire); Backhoe (45,000 gw and over to 110,000 gw); Backhoes & Hoe Ram (3/4 yd. to 3 yd.); Batch Plant (over 4 units); Batch & Wet Mix Operator (multiple units, 2 & incl. 4); Blade Operator (motor patrol & attachments, Athey & Huber); Boom Cats (side); Cable Controller (dispatcher); Clamshell Operator (under 3 yds.); Compactor (self-propelled with blade); Concrete Pump Boom Truck; Concrete Slip Form Paver; Cranes (over 25 tons, to and including 45 tons), all attachments including clamshell, dragline; Crusher, Grizzle & Screening Plant Operator; Dozer, 834 R/T & similar; Draglines (under 3 yds.); Drill Doctor; H.D. Mechanic; H.D. Welder; Loader Operator (front-end & overhead, 4 yds. incl. 8 yds.); Multiple Dozer Units with single blade; Paving Machine (asphalt and concrete); Quad-Track or similar equipment; Rollerman (finishing asphalt pavement); Roto Mill (pavement grinder); Scrapers, all, rubber-tired; Screed Operator; Shovel(under 3 yds.); Tractors (D-6 & equilvalent & over); Trenching Machines (7 ft. depth & over); Tug Boat Operator Vactor guzzler, super sucker

GROUP 7: Backhoe (over 110,000 gw); Backhoes & Hoe Ram (3 yds & over); Blade (finish & bluetop) Automatic, CMI, ABC, Finish Athey & Huber & similar when used as automatic; Cableway Operators; Concrete Cleaning/Decontamination machine operator; Cranes (over 45 tons to but not including 85 tons), all attachments including clamshell and dragine; Derricks & Stiffleys (65 tons & over); Elevating Belt (Holland type); Heavy equipment robotics operator; Loader (360 degrees revolving Koehring Scooper or similar); Loaders (overhead & front-end, over 8 yds. to 10 yds.); Rubber-tired Scrapers (multiple engine with three or more scrapers); Shovels (3 yds. & over); Whirleys & Hammerheads, ALL

GROUP 8: Cranes (85 tons and over, and all climbing, overhead,rail and tower), all attachments including clamshell, dragline; Loaders (overhead and front-end, 10 yards and over); Helicopter Pilot

BOOM PAY: (All Cranes, Including Tower)
180' to 250' $ .30 over scale
Over 250' $ .60 over scale

NOTE: In computing the length of the boom on Tower Cranes, they shall be measured from the base of the Tower to the point of the boom.

HAZMAT: Anyone working on HAZMAT jobs, working with supplied air shall receive $1.00 an hour above classification.

ENGI0370G 06/01/2001

	Rates	Fringes
ADAMS, ASOTIN, BENTON, CHELAN (EAST OF THE 120TH MERIDIAN),		

COLUMBIA, DOUGLAS (EAST OF THE 120TH MERIDIAN), FERRY, FRANKLIN, GARFIELD, GRANT, LINCOLN, OKANOGAN (EAST OF THE 120TH MERIDIAN), PEND OREILLE, SPOKANE, STEVENS, WALLA WALLA, WHITMAN AND YAKIMA (EAST OF THE 120TH MERIDIAN) COUNTIES

WORK PERFORMED ON HYDRAULIC DREDGES

GROUP 1:	24.73	5.77
GROUP 2:	25.10	5.77
GROUP 3:	25.13	5.77
GROUP 4:	25.52	5.77
GROUP 5:	24.73	5.77

GROUP 1: Assistant Mate (Deckhand) and Oiler
GROUP 2: Assistant Engineer (Electric, Diesel, Steam, or Booster Pump); Mates and Boatmen
GROUP 3: Engineer Welder
GROUP 4: Leverman, Hydraulic
GROUP 5: Maintenance

HEAVY WAGE RATES APPLIES TO CLAM SHELL DREDGE, HOE AND DIPPER, SHOVELS AND SHOVEL ATTACHMENTS, CRANES AND BULLDOZERS.

ENGI0612A 06/01/2001

LEWIS, PIERCE, PACIFIC (THAT PORTION WHICH LIES NORTH OF A PARALLEL LINE EXTENDED WEST FROM THE NORTHERN BOUNDARY OF WAHKAIKUM COUNTY TO THE SEA IN THE STATE OF WASHINGTON) AND THURSTON COUNTIES

	Rates	Fringes
PROJECTS:		
CATEGORY A PROJECTS (excludes Category B projects, as shown below)		
POWER EQUIPMENT OPERATORS:		
ZONE 1 (0-25 radius miles):		
GROUP 1AAA	29.61	8.38
GROUP 1AA	29.11	8.38
GROUP 1A	28.61	8.38
GROUP 1	28.11	8.38
GROUP 2	27.67	8.38
GROUP 3	27.31	8.38
GROUP 4	25.21	8.38

ZONE 2 (26-45 radius miles) - Add $.70 to Zone 1 rates
ZONE 3 (Over 45 radius miles) - Add $1.00 to Zone 1 rates

BASEPOINTS: Tacoma, Olympia, and Centralia

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1AAA - Cranes-300 tons, or 300 ft of boom (including jib with attachments)

GROUP 1AA - Cranes 200 tons to 300 tons, or 250 ft of boom (including jib with attachments); Tower crane over 175 ft in

height, base to boom

GROUP 1A - Crane 100 tons thru 199 tons, or 150 of boom (including jib with attachments); Crane-overhead, bridge type, 100 tons and over; Shovel, excavator, backhoes-6 yds and over with attachments

GROUP 1 - Cableways; Cranes-45 tons thru 99 tons, under 150 ft of boom (including jib with attachments); Crane-overhead, bridge type - 45 tons thru 99 tons; Excavator, shovel, backhoes over 3 yards and under 6 yards; hard tail end dump articulating off-road equipment 45 yards and over; loader-overhead 6 yards to, but not including 8 yards; Mucking machine, mole, tunnel, drill and/or shield; Quad 9, HD 41, D-10; Remote control operator on rubber tired earth moving equipment; Rollagon; Scrapers-self-propelled-45 yds and over; Slipform pavers; Transporters-all track or truck type

GROUP 2 - Barrier machine (zipper); Batch Plant Operator-concrete; Bump cutter; Cranes-20 tons through 44 tons with attachments; Crane-overhead, bridge type-20 tons thru 44 tons; Chipper, Concrete Pump-truck mounted with boom attachment; Crushers; Deck Engineer/Deck Winches (power); Drilling machine;

Excavator, shovel, backhoe-3yards and under; Finishing machine, Bidwell, Gamaco and similar equipment; Guardrail punch; Horizontal/directional drill operator; Loaders, overhead under 6 yds.; Loaders, plant feed; Locomotive-all; Mechanics-all; Mixers, asphalt plant; Motor patrol graders-finishing; Piledriver (other than crane mount); Roto-mill, roto grinder; screedman, spreader, topside operator-Blaw Knox, Cedar Rapids, Jaeger, Caterpillar, Barbar Green; Scraper-self propelled, hard tail end dump, articulating off-road equipment under 45 yds.; Subgrader trimmer; Tractors, backhoes over 75 hp.; Transfer material service machine-shuttle buggy, Blaw Knox-Roadtec; Truck Crane Oiler/driver-100 tons and over, Truck Mount Portable Conveyor; Yo Yo Pay dozer.

GROUP 3 - Conveyors; Cranes-thru 19 tons with attachments; Cranes-A-frame over 10 tons; Drill Oilers-Auger type, truck or crane mount; Dozers-D-9 and under; Forklifts-3000 lbs. and over with attachments; Horizontal/directional drill locator; Outside hoists-(elevators and manlifts), air tuggers, strato tower bucket elevators; Hydralifts/Boom Trucks-over 10 tons; Loaders-elevating type, belt; Motor patrol grader-nonfinishing; Plant Oiler-Asphalt, Crusher; Pumps, Concrete; Roller, plant mix or multi-lift materials; Saws-concrete; Scrapers-Concrete and Carry all; Trenching machines; Truck Crane Oiler/Driver-under 100 tons; Tractor, backhoe-under 75 hp

GROUP 4 - Assistant Engineer; Bobcat; Brooms; Compressor; Concrete Finish Machine-laser screed; Crane-A-Frame, 10 tons and under; Elevator and manlift-permanent and shaft type; Forklifts-under 3000 lbs. with attachments; Gradechecker, stakehop; Hydralifts, boom trucks, 10 tons and under; Oil distributors, blower distribution and mulch seeding operator; Pavement breaker; Posthole Digger-mechanical; Power plant;

Pumps-Water; Roller-other than Plant Mix; Wheel Tractors, Farmall type; Shotcrete/Gunite Equipment Operator

CATEGORY B PROJECTS - 95% of the basic hourly rate for each group plus full fringe benefits applicable to Category A projects shall apply to the following projects: Reduced rates may be paid on the following:

1. Projects involving work on structures such as buildings and structures whose total value is less than $1.5 million excluding mechanical, electrical, and utility portions of the contract.
2. Projects of less than $1 million where no building is involved. Surfacing and paving included, but utilities excluded.
3. Marine projects (docts, wharfs, etc.) less than $150,000

WORK PERFORMED ON HYDRAULIC DREDGES:

Total Project cost $300,000 and over

GROUP 1	26.85	8.38
GROUP 2	26.95	8.38
GROUP 3	27.29	8.38
GROUP 4	27.34	8.38
GROUP 5	28.73	8.38
GROUP 6	26.85	8.38

GROUP 1: Assistant Mate (Deckhand)
GROUP 2: Oiler
GROUP 3: Assistant Engineer (Electric, Diesel, Steam or Booster Pump); Mates and Boatmen
GROUP 4: Craneman, Engineer Welder
GROUP 5: Leverman, Hydraulic
GROUP 6: Maintenance

Total Project Cost under $300,000

GROUP 1	25.51	8.38
GROUP 2	25.60	8.38
GROUP 3	25.93	8.38
GROUP 4	25.97	8.38
GROUP 5	27.29	8.38
GROUP 6	25.51	8.38

GROUP 1: Assistant Mate (Deckhand)
GROUP 2: Oiler
GROUP 3: Assistant Engineer (Electric, Diesel, Steam or Booster Pump); Mates and Boatmen
GROUP 4: Craneman, Engineer Welder
GROUP 5: Leverman, Hydraulic
GROUP 6: Maintenance

HEAVY WAGE RATES APPLIES TO CLAM SHEEL DREDGE, HOE AND DIPPER, SHOVELS AND SHOVEL ATTACHMENTS, CRANES AND BULLDOZERS

HANDLING OF HAZARDOUS WASTE MATERIALS

H-1 - When not outfitted with protective clothing of level D equipment - Base wage rate
H-2 - Class "C" Suit - Base wage rate + $.25 per hour

H-3 - Class "B" Suit - Base wage rate + $.50 per hour
H-4 - Class "A" Suit - Base wage rate +$.75 per hour

ENGI0701D 01/01/2002

	Rates	Fringes
CLARK, COWLITZ, KLICKKITAT, PACIFIC (SOUTH), SKAMANIA, AND WAHKIAKUM COUNTIES		
POWER EQUIPMENT OPERATORS (See Footnote A)		
ZONE 1:		
GROUP 1	28.55	8.95
GROUP 1A	29.98	8.95
GROUP 1B	31.41	8.95
GROUP 2	27.34	8.95
GROUP 3	26.60	8.95
GROUP 4	26.09	8.95
GROUP 5	25.50	8.95
GROUP 6	23.20	8.95

Zone Differential (add to Zone 1 rates):
Zone 2 - $1.50
Zone 3 - 3.00

For the following metropolitan counties: MULTNOMAH; CLACKAMAS; MARION; WASHINGTON; YAMHILL; AND COLUMBIA; CLARK; AND COWLITZ COUNTY, WASHINGTON WITH MODIFICATIONS AS INDICATED:

All jobs or projects located in Multnomah, Clackamas and Marion Counties, West of the western boundary of Mt. Hood National Forest and West of Mile Post 30 on Interstate 84 and West of Mile Post 30 on State Highway 26 and West of Mile Post 30 on Highway 22 and all jobs or projects located in Yamhill County, Washington County and Columbia County and all jobs or porjects located in Clark & Cowlitz County, Washington except that portion of Cowlitz County in the Mt. St. Helens "Blast Zone" shall receive Zone I pay for all classifications.

All jobs or projects located in the area outside the identified boundary above, but less than 50 miles from the Portland City Hall shall receive Zone II pay for all classifications.

All jobs or projects located more than 50 miles from the Portland City Hall, but outside the identified border above, shall receive Zone III pay for all classifications.

For the following cities: ALBANY; BEND; COOS BAY; EUGENE; GRANTS PASS; KLAMATH FALLS; MEDFORD; ROSEBURG

All jobs or projects located within 30 miles of the respective city hall of the above mentioned cities shall receive Zone I pay for all classifications.

All jobs or projects located more than 30 miles and less than 50 miles from the respective city hall of the above mentioned cities shall receive Zone II pay for all classifications.

All jobs or projects located more than 50 miles from the respective city hall of the above mentioned cities shall receive Zone III pay for all classifications.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: CONCRETE: Batch Plant and/or Wet Mix Operator, three units or more; CRANE: Helicopter Operator, when used in erecting work; Whirley Operator, 90 ton and over; LATTICE BOOM CRANE: Operator 200 tons through 299 tons, and/or over 200 feet boom; HYDRAULIC CRANE: Hydraulic Crane Operator 90 tons through 199 tons with luffing or tower attachments; FLOATING EQUIPMENT: Floating Crane, 150 ton but less than 250 ton

GROUP 1A: HYDRAULIC CRANE: Hydraulic Operator, 200 tons and over (with luffing or tower attachment); LATTICE BOOM CRANE: Operator, 200 tons through 299 tons, with over 200 feet boom; FLOATING EQUIPMENT: Floating Crane 250 ton and over

GROUP 1B: LATTICE BOOM CRANE: Operator, 300 tons through 399 tons with over 200 feet boom; Operator 400 tons and over; FLOATING

EQUIPMENT: Floating Crane 350 ton and over

GROUP 2: ASPHALT: Asphalt Plant Operator (any type); Roto Mill, pavement profiler, operator, 6 foot lateral cut and over; BLADE: Auto Grader or "Trimmer" (Grade Checker required); Blade Operator, Robotic; BULLDOZERS: Bulldozer operator over 120,000 lbs and above; Bulldozer operator, twin engine; Bulldozer Operator,tandem, quadnine, D10, D11, and similar type; Bulldozere Robotic Equipment (any type; CONCRETE: Batch Plant and/or Wet Mix Operator, one and two drum; Automatic Concrete Slip Form Paver Operator; Concrete Canal Line Operator; Concrete Profiler, Diamond Head; CRANE: Cableway Operator, 25 tons and over; HYDRAULIC CRANE: Hydraulic crane operator 90 tons through 199 tons (with luffing or tower attachment); TOWER/WHIRLEY OPERATOR: Tower Crane Operator; Whirley Operator, under 90 tons; LATTICE BOOM CRANE: 90 through 199 tons and/or 150 to 200 feet boom; CRUSHER: Crusher Plant Operator; FLOATING EQUIPMENT: Floating Clamshell, etc.operator, 3 cu. yds. and over; Floating Crane (derrick barge) Operator, 30 tons but less than 150 tons; LOADERS: Loader operator, 120,000 lbs. and above; REMOTE CONTROL: Remote controlled earth-moving equipment; RUBBER-TIRED SCRAPERS: Rubber-tired scraper operator, with tandem scrapers, multi-engine; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER OPERATOR: Shovel, Dragline, Clamshell, operator 5 cu. yds and over; TRENCHING MACHINE: Wheel Excavator, under 750 cu. yds. per hour (Grade Oiler required); Canal Trimmer (Grade Oiler required); Wheel Excavator, over 750 cu. yds. per hour; Band Wagon (in conjunction with wheel excavator); UNDERWATER EQUIPMENT: Underwater Equipment Operator, remote or otherwise; HYDRAULIC HOES-EXCAVATOR: Excavator over 130,000 lbs.

GROUP 3: BULLDOZERS: Bulldozer operator, over 70,000 lbs. up to and including 120,000 lbs.; HYDRAULIC CRANE: Hydraulic crane

operator, 50 tons through 89 tons (with luffing or tower attachment); LATTICE BOOM CRANES: Lattice Boom Crane-50 through 89 tons (and less than 150 feet boom); FORKLIFT: Rock Hound Operator; HYDRAULIC HOES-EXCAVATOR: excavator over 80,000 lbs. through 130,000 lbs.; LOADERS: Loader operator 60,000 and less than 120,000; RUBBER-TIRED SCRAPERS: Scraper Operator, with tandem scrapers; Self-loading, paddle wheel, auger type, finish and/or 2 or more units; SHOVEL, DRAGLINE, CLAMSHELL,SKOOPER OPERATOR: Shovel, Dragline, Clamshell operators 3 cu. yds. but less than 5 cu yds.

GROUP 4: ASPHALT: Screed Operator; Asphalt Paver operator (screeman required); BLADE: Blade operator; Blade operator, finish; Blade operator, externally controlled by electronic, mechanical hydraulic means; Blade operator, multi-engine; BULLDOZERS: Bulldozer Operator over 20,000 lbs and more than 100 horse up to 70,000 lbs; Drill Cat Operator; Side-boom Operator; Cable-Plow Operator (any type); CLEARING: Log Skidders; Chippers; Incinerator; Stump Splitter (loader mounted or similar type); Stump Grinder (loader mounted or similar type; Tub Grinder; Land Clearing Machine (Track mounted forestry mowing & grinding machine); Hydro Axe (loader mounted or similar type);

COMPACTORS SELF-PROPELLED: Compactor Operator, with blade; Compactor Operator, multi-engine; Compactor Operator, robotic; CONCRETE: Mixer Mobile Operator; Screed Operator; Concrete Cooling Machine Operator; Concrete Paving Road Mixer; Concrete Breaker; Reinforced Tank Banding Machine (K-17 or similar types); Laser Screed; CRANE: Chicago boom and similar types; Lift Slab Machine Operator; Boom type lifting device, 5 ton capacity or less; Hoist Operator, two (2) drum; Hoist Operator, three (3) or more drums; Derrick Operator, under 100 ton; Hoist Operator, stiff leg, guy derrick or similar type, 50 ton and over; Cableway Operator up to twenty (25) ton; Bridge Crane Operator, Locomotive, Gantry, Overhead; Cherry Picker or similar type crane hoist five (5) ton capacity or less; Hydraulic Crane Operator, under 50 tons; LATTICE BOOM CRANE OPERATOR: Lattice Boom Crane Operator, under 50 tons; CRUSHER: Generator Operator; Diesel-Electric Engineer; Grizzley Operator; DRILLING: Drill Doctor; Boring Machine Operator; Driller-Percussion, Diamond, Core, Cable, Rotary and similar type; Cat Drill (John Henry); Directional Drill Operator over 20,000 lbs pullback; FLOATING EQUIPMENT: Diesel-electric Engineer; Jack Operator, elevating barges, Barge Operator, self-unloading; Piledriver Operator (not crane type) (Deckhand required); Floating Clamshelll, etc. Operator, under 3 cu. yds. (Fireman or Diesel-Electric Engineer required); Floating Crane (derrick barge) Operator, less than 30 tons; GENERATORS: Generator Operator; Diesel-electric Engineer; GUARDRAIL EQUIPMENT: Guardrail Punch Operator (all types); Guardrail Auger Operator (all types); Combination Guardrail machines, i.e., punch auger, etc.; HEATING PLANT: Surface Heater and Planer Operator; HYDRAULIC HOES EXCAVATOR: Robotic Hydraulic backhoe operator, track and wheel type up to and including 20,0000 lbs. with any or all attachments; Excavator Operator over 20,000 lbs through 80,000 lbs.; LOADERS: Belt Loaders, Kolman and Ko Cal types; Loaders Operator, front end and overhead, 25,000 lbs and less than 60,000 lbs; Elevating Grader Operator by

Tractor operator, Sierra, Euclid or similar types; PILEDRIVERS: Hammer Operator; Piledriver Operator (not crane type); PIPELINE, SEWER WATER: Pipe Cleaning Machine Operator; Pipe Doping Machine Operator; Pipe Bending Machine Operator; Pipe Wrapping Machine Operator; Boring Machine Operator; Back Filling Machine Operator; REMOTE CONTROL: Concrete Cleaning Decontamination Machine Operator; Ultra High Pressure Water Jet Cutting Tool System Operator/Mechanic; Vacuum Blasting Machine Operator/mechanic; REPAIRMEN, HEAVY DUTY: Diesel Electric Engineer (Plant or Floating; Bolt Threading Machine operator; Drill Doctor (Bit Grinder); H.D. Mechanic; Machine Tool Operator; RUBBER-TIRED SCRAPERS: Rubber-tired Scraper Operator,single engine, single scraper; Self-loading, paddle wheel, auger type under 15 cu. yds.; Rubber-tired Scraper Operator, twin engine; Rubber-tired Scraper Operator, with push-pull attachments; Self Loading, paddle wheel, auger type 15 cu. yds. and over, single engine; Water pulls, water wagons; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER OPERATOR: Diesel Electric Engineer; Stationay Drag Scraper Operator; Shovel, Dragline, Clamshell, Operator under 3 cy yds.; Grade-all Operator; SURFACE (BASE) MATERIAL: Blade mounted spreaders, Ulrich and similar types; TRACTOR-RUBBERED TIRED: Tractor operator, rubber-tired, over 50 hp flywheel; Tractor

operator, with boom attachment; Rubber-tired dozers and pushers (Michigan, Cat, Hough type); Skip Loader, Drag Box; TRENCHING MACHINE: Trenching Machine operator, digging capacity over 3 ft depth; Back filling machine operator; TUNNEL: Mucking machine operator

GROUP 5: ASPHALT: Extrusion Machine Operator; Roller Operator (any asphalt mix); Asphalt Burner and Reconditioner Operator (any type); Roto-Mill, pavement profiler, ground man; BULLDOZERS: Bulldozer operator, 20,000 lbs. or less or 100 horse or less; COMPRESSORS: Compressor Operator (any power), over 1,250 cu. ft. total capacity; COMPACTORS: Compactor Operator, including vibratory; Wagner Pactor Operator or similar type (without blade); CONCRETE: Combination mixer and Compressor Operator, gunite work; Concrete Batch Plant Quality Control Operator; Beltcrete Operator; Pumpcrete Operator (any type); Pavement Grinder and/or Grooving Machine Operator (riding type); Cement Pump Operator, Fuller-Kenyon and similar; Concrete Pump Operator; Grouting Machine Operator; Concrete mixer operator, single drum, under (5) bag capacity; Cast in place pipe laying machine; maginnis Internal Full slab vibrator operator; Concrete finishing mahine operator, Clary, Johnson, Bidwell, Burgess Bridge deck or similar type; Curb Machine Operator, mechanical Berm, Curb and/or Curb and Gutter; Concrete Joint Machine Operator; Concrete Planer Operator; Tower Mobile Operator; Power Jumbo Operator setting slip forms in tunnels; Slip Form Pumps, power driven hydraulic lifting device for concrete forms; Concrete Paving Machine Operator; Concrete Finishing Machine Operator; Concrete Spreader Operator; CRANE: Helicopter Hoist Operator; Hoist Operator, single drum; Elevator Operator; A-frame Truck Operator, Double drum; Boom Truck Operator; HYDRAULIC CRANE OPERATOR: Hydraulic Boom Truck, Pittman; DRILLING: Churm Drill and Earth Boring Machine Operator; Directional Drill Operator over 20,000 lbs pullback; FLOATING EQUIPMENT: Fireman;

FORKLIFT: Lull Hi-Lift Operator or similar type; Fork Lift, over 5 ton and/or robotic; HYDRAULIC HOES EXCAVATORS: Hydraulic Backhoe Operator, wheel type (Ford, John Deere, Case type); Hydraulic Backhoe Operator track type up to and including 20,000 lbs.; LOADERS: Loaders, rubber-tired type, less than 25,000 lbs; Elevating Grader Operator, Tractor Towed requiring Operator or Grader; Elevating loader oeprator, Athey and similar types; OILERS: Service Oiler (Greaser); PIPELINE-SEWER WATER: Hydra hammer or simialr types; Pavement Breaker Operator; PUMPS: Pump Operator, more than 5 (any size); Pot Rammer Operator; RAILROAD EQUIPMENT: Locomotive Operator, under 40 tons; Ballast Regulator Operator; Ballast Tamper Multi-Purpose Operator; Track Liner Operator; Tie Spacer Operator; Shuttle Car Operator; Locomotive Operator, 40 tons and over; MATERIAL HAULRS: Cat wagon DJB's Volvo similar types; Conveyored material hauler; SURFACING (BASE) MATERIAL: Rock Spreaders, self-propelled; Pulva-mixer or similar types; Chiip Spreading machine operator; Lime spreading operator, construction job siter; SWEEPERS: Sweeper operator (Wayne type) self-propelled construction job site; TRACTOR-RUBBER TIRED: Tractor operator, rubber-tired, 50 hp flywheel and under; Trenching machine operator, maximum digging capacity 3 ft depth; TUNNEL: Dinkey

GROUP 6: ASPHALT: Plant Oiler; Plant Fireman; Pugmill Operator (any type); Truck mounted asphalt spreader, with screed; COMPRESSORS: Compressor Operator (any power), under 1,250 cu. ft. total capacity; CONCRETE: Plant Oiler, Assistant Conveyor Operator; Conveyor Operator; Mixer Box Operator (C.T.B., dry batch, etc.); Cement Hog Operator; Concrete Saw Operator; Concrete Curing Machine Operator (riding type); Wire Mat or Brooming Machine Operator; CRANE: Oiler; Fireman, all equipment; Truck Crane Oiler Driver; A-frame Truck Operator, single drum; Tugger or Coffin Type Hoist Operator; CRUSHER: Crusher Oiler; Crusher Feederman; CRUSHER: Crusher oiler; Crusher feederman; DRILLING: Drill Tender; Auger Oiler; FLOATING EQUIPMENT: Deckhand; Boatman; FORKLIFT: Self-propelled Scaffolding Operator, construction job site (exclduing working platform); Fork Lift or Lumber Stacker Operator, construction job site; Ross Carrier Operator, construction job site; GUARDRAIL EQUIPMENT: Oiler; Auger Oiler; Oiler, combination guardrail machines; Guardrail Punch Oiler; HEATING PLANT: Temporary Heating Plant Operator; LOADERS: Bobcat, skid steer (less than 1 cu yd.); Bucket Elevator Loader Operator, BarberGreene and similar types; OILERS: Oiler; Guardrail Punch Oiler; Truck Crane Oiler-Driver; Auger Oiler; Grade Oiler, required to check grade; Grade Checker; PIPELINE-SEWER WATER: Tar Pot Fireman; Tar Pot Fireman (power agitated); PUMPS: Pump Operator (any power); Hydrostatic Pump Operator; RAILROAD EQUIPMENT: Brakeman; Oiler; Switchman; Motorman; Ballast Jack Tamper Operator; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER, ETC. OPERATOR: Oiler, Grade Oiler (required to check grade); Grade Checker; Fireman; SWEEPER: Broom operator, self propelled, construction job site; SURFACING (BASE) MATERIAL: Roller Operator, grading of base rock (not asphalt); Tamping Machine operartor, mechanical, self-propelled; Hydrographic Seeder Machine Operator; TRENCHING MACHINE: Oiler; Grade Oiler; TUNNEL: Conveyor operator; Air filtration equipment operator

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ENGI0701E 06/01/2001

	Rates	Fringes
CLARK, COWLITZ, KLICKITAT, PACIFIC (SOUTH), SKAMANIA, AND WAHKIAKUM COUNTIES		
DREDGING:		
ZONE A		
LEVERMAN, HYDRAULIC	31.80	7.75
LEVERMAN, DIPPER, FLOATING CLAMSHELL	31.80	7.75
ASSISTANT ENGINEER	29.69	7.75
TENDERMAN	28.72	7.75
ASSISTANT MATE	26.15	7.75
ZONE B		
LEVERMAN, HYDRAULIC	33.80	7.75
LEVERMAN, DIPPER, FLOATING CLAMSHELL	33.80	7.75
ASSISTANT ENGINEER	31.69	7.75
TENDERMAN	30.72	7.75
ASSISTANT MATE	28.15	7.75
ZONE C		
LEVERMAN, HYDRAULIC	34.80	7.75
LEVERMAN, DIPPER, FLOATING CLAMSHELL	34.80	7.75
ASSISTANT ENGINEER	32.69	7.75
TENDERMAN	31.72	7.75
ASSISTANT MATE	29.15	7.75

ZONE DESCRIPTION FOR DREDGING:
ZONE A - All jobs or projects located within 30 road miles of Portland City Hall.
ZONE B - Over 30-50 road miles from Portland City Hall.
ZONE C - Over 50 road miles from Portland City Hall.

*All jobs or projects shall be computed from the city hall by the shortest route to the geographical center of the project.

IRON0014F 07/01/2001

	Rates	Fringes
ADAMS, ASOTIN, BENTON, COLUMBIA, DOUGLAS, FERRY, FRANKLIN, GARFIELD, GRANT, LINCOLN, OKANOGAN, PEND ORIELLE, SPOKANE, STEVENS, WALLA WALLA AND WHITMAN COUNTIES		
IRONWORKERS	24.52	11.35

IRON0029I 07/01/2001

	Rates	Fringes
CLARK, CLALLAM, CHELAN, COWLITZ, GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITTITAS, KLICKITAT, KITSAP, LEWIS, MASON, PACIFIC, PIERCE,		

SKAGIT, SKAMANIA, SNOHOMISH, THURSTON, WAHKAIKUM, WHATCOM AND
YAKIMA COUNTIES

IRONWORKERS	25.82	11.35

LABO0001D 06/01/2001

	Rates	Fringes
CHELAN, DOUGLAS (WEST OF THE 120TH MERIDIAN), KITTITAS AND YAKIMA COUNTIES		
LABORERS:		
ZONE 1:		
GROUP 1	14.46	5.80
GROUP 2	16.78	5.80
GROUP 3	18.50	5.80
GROUP 4	18.98	5.80
GROUP 5	19.34	5.80

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):
ZONE 2 - $ .70
ZONE 3 - $1.00

BASE POINTS: CHELAN, SUNNYSIDE, WENATCHEE,
AND YAKIMA

ZONE 1 - Projects within 25 radius miles of the respective city hall
ZONE 2 - More than 25 but less than 45 radius miles from the respective city hall
ZONE 3 - More than 45 radius miles from the respective city hall

CALLAM, GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (NORTH OF STRAIGHT LINE MADE BY EXTENDING THE NORTH BOUNDARY WAHKIAKUM COUNTY WEST TO THE PACIFIC OCEAN), PIERCE, SAN JUAN, SKAGIT, SNOHOMISH, THURSTON AND WHATCOM COUNTIES

LABORERS:		
ZONE 1:		
GROUP 1	16.92	5.80
GROUP 2	19.24	5.80
GROUP 3	23.92	5.80
GROUP 4	24.40	5.80
GROUP 5	24.76	5.80

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):
ZONE 2 - $ .70
ZONE 3 - $1.00

BASE POINTS: BELLINGHAM, MT. VERNON, EVERETT, SEATTLE, KENT, TACOMA, OLYMPIA, CENTRALIA, ABERDEEN, SHELTON, PT. TOWNSEND, PT. ANGELES, AND BREMERTON

ZONE 1 - Projects within 25 radius miles of the respective city

hall
ZONE 2 - More than 25 but less than 45 radius miles from the respective city hall
ZONE 3 - More than 45 radius miles from the respective city hall

LABORERS CLASSIFICATIONS

GROUP 1: Landscaping and Planting; Watchman; Window Washer/Cleaner (detail clean-up, such as but not limited to cleaning floors, ceilings, walls, windows, etc., prior to final acceptance by the owner)

GROUP 2: Batch Weighman; Crusher Feeder; Fence Laborer; Flagman; Pilot Car

GROUP 3: General Laborer; Air, Gas, or Electric Vibrating Screed; Asbestos Abatement Laborer; Ballast Regulator Machine; Brush Cutter; Brush Hog Feeder; Burner; Carpenter Tender; Cement Finisher Tender; Change House or Dry Shack; Chipping Gun (under 30 lbs.); Choker Setter; Chuck Tender; Clean-up Laborer; Concrete

Form Stripper; Curing Laborer; Demolition (wrecking and moving including charred material); Ditch Digger; Dump Person; Fine Graders; Firewatch; Form Setter; Gabian Basket Builders; Grout Machine Tender; Grinders; Guardrail Erector; Hazardous Waste Worker (Level C); Maintenance Person; Material Yard Person; Pot Tender; Rip Rap Person; Riggers; Scale Person; Sloper Sprayer; Signal Person; Stock Piler; Stake Hopper; Toolroom Man (at job site); Topper-Tailer; Track Laborer; Truck Spotter; Vinyl Seamer

GROUP 4: Cement Dumper-Paving; Chipping Gun (over 30 lbs.); Clary Power Spreader; Concrete Dumper/Chute Operator; Concrete Saw Operator; Drill Operator (hydraulic, diamond, aiartrac); Faller and Bucker Chain Saw; Grade Checker and Transit Person; Groutmen (pressure) including post tension beams; Hazardous Waste Worker (Level B); High Scaler; Jackhammer; Laserbeam Operator; Manhole Builder-Mudman; Mortarman and Hodcarrier; Nozzleman (concrete pump, green cutter when using combination of high pressure air and water on concrete and rock, sandblast, gunite, shotcrete, water blaster, vacuum blaster); Pavement Breaker; Pipe Layer and Caulker; Pipe Pot Tender; Pipe Reliner (not insert type); Pipe Wrapper; Power Jacks; Railroad Spike Puller-Power; Raker-Asphalt; Rivet Buster; Rodder; Sloper (over 20'); Spreader (concrete); Tamper and Similar electric, air and glas operated tool; Timber Person-sewer (lagger shorer and cribber); Track Liner Power; Tugger Operator; Vibrator; Well Point Laborer

GROUP 5: Caisson Worker; Miner; Powderman; Re-Timberman; Hazardous Waste Worker (Level A).

LABO0238E 06/01/2001

	Rates	Fringes

ADAMS, ASOTIN, BENTON, COLUMBIA, DOUGLAS (EAST OF THE 120TH MERIDIAN), FERRY, FRANKLIN, GARFIELD, GRANT, LINCOLN, OKANOGAN, PEND OREILLE, STEVENS, SPOKANE, WALLA WALLA AND WHITMAN COUNTIES

LABORERS:
ZONE 1:

GROUP 1	17.66	5.00
GROUP 2	19.76	5.00
GROUP 3	20.03	5.00
GROUP 4	20.30	5.00
GROUP 5	20.58	5.00
GROUP 6	21.95	5.00

Zone Differential (Add to Zone 1 rate): $2.00

BASE POINTS: Spokane, Moses Lake, Pasco, Lewiston

Zone 1: 0-45 radius miles from the main post office.
Zone 2: 45 radius miles and over from the main post office.

LABORERS CLASSIFICATIONS

GROUP 1: Flagman; Landscape Laborer; Scaleman; Traffic Control Maintenance Laborer (to include erection and maintenance of barricades, signs and relief of flagperson); Window Washer/Cleaner (detail cleanup, such as, but not limited to cleaning floors, ceilings, walls, windows, etc. prior to final acceptance by the owner)

GROUP 2: Asbestos Abatement Worker; Brush Hog Feeder; Carpenter Tender; Cement Handler; Clean-up Laborer; Concrete Crewman (to include stripping of forms, hand operating jacks on slip form construction, application of concrete curing compounds, pumpcrete machine, signaling, handling the nozzle of squeezcrete or similar machine,6 inches and smaller); Confined Space Attendant; Concrete Signalman; Crusher Feeder; Demolition (to include clean-up, burning, loading, wrecking and salvage of all material); Dumpman; Fence Erector; Firewatch; Form Cleaning Machine Feeder, Stacker; General Laborer; Grout Machine Header Tender; Guard Rail (to include guard rails, guide and reference posts, sign posts, and right-of-way markers); Hazardous Waste Worker, Level D (no respirator is used and skin protection is minimal); Miner, Class "A" (to include all bull gang, concrete crewman, dumpman and pumpcrete crewman, including distributing pipe, assembly & dismantle, and nipper); Nipper; Riprap Man; Sandblast Tailhoseman; Scaffold Erector (wood or steel); Stake Jumper; Structural Mover (to include separating foundation, preparation, cribbing, shoring, jacking and unloading of structures); Tailhoseman (water nozzle); Timber Bucker and Faller (by hand); Track Laborer (RR); Truck Loader; Well-Point Man; All Other Work Classifications Not Specially Listed Shall Be Classified As General Laborer

GROUP 3: Aspahlt Raker; Asphalt Roller, walking; Cement Finisher Tender; Concrete Saw, walking; Demolition Torch; Dope Pot Firemen, non-mechanical; Driller Tender (when required to move and position machine); Form Setter, Paving; Grade Checker using level; Hazardous Waste Worker, Level C (uses a chemical "splash suit" and air purifying respirator); Jackhammer Operator;

Miner, Class "B" (to include brakeman, finisher, vibrator, form setter); Nozzleman (to include squeeze and flo-crete nozzle); Nozzleman, water, air or steam; Pavement Breaker (under 90 lbs.); Pipelayer, corrugated metal culvert; Pipelayer, multi-plate; Pot Tender; Power Buggy Operator; Power Tool Operator, gas, electric, pneumatic; Railroad Equipment, power driven, except dual mobile power spiker or puller; Railroad Power Spiker or Puller, dual mobile; Rodder and Spreader; Tamper (to include operation of Barco, Essex and similar tampers); Trencher, Shawnee; Tugger Operator; Wagon Drills; Water Pipe Liner; Wheelbarrow (power driven)

GROUP 4: Air and Hydraulic Track Drill; Brush Machine (to include horizontal construction joint cleanup brush machine, power propelled); Caisson Worker, free air; Chain Saw Operator and Faller; Concrete Stack (to include laborers when laborers working on free standing concrete stacks for smoke or fume control above 40 feet high); Gunite (to include operation of machine and nozzle); Hazardous Waste Worker, Level B (uses

same respirator protection as Level A. A supplied air line is provided in conjunction with a chemical "splash suit"); High Scaler; Laser Beam Operator (to include grade checker and elevation control); Miner, Class C (to include miner, nozzleman for concrete, laser beam operator and rigger on tunnels); Monitor Operator (air track or similar mounting); Mortar Mixer; Nozzleman (to include jet blasting nozzleman, over 1,200 lbs., jet blast machine power propelled, sandblast nozzle); Pavement Breaker (90 lbs. and over); Pipelayer (to include working topman, caulker, collarman, jointer, mortarman, rigger, jacker, shorer, valve or meter installer); Pipewrapper; Plasterer Tender; Vibrators (all)

GROUP 5 - Drills with Dual Masts; Hazardous Waste Worker, Level A (utilizes a fully encapsulated suit with a self-contained breathing apparatus or a supplied air line); Miner Class "D", (to include raise and shaft miner, laser beam operator on riases and shafts)

GROUP 6 - Powderman

LABO0238G 06/01/2001

	Rates	Fringes
COUNTIES EAST OF THE 120TH MERIDIAN: ADAMS, ASOTIN, BENTON, COLUMBIA, DOUGLAS, FERRY, FRANKLIN, GARFIELD, GRANT, LINCOLN, OKANOGAN, PEND OREILLE, STEVENS, SPOKANE, WALLA WALLA, WHITMAN		
HOD CARRIERS	21.35	5.00

LABO0335A 06/01/2001

	Rates	Fringes
CLARK, COWLITZ, KLICKITAT, PACIFIC (SOUTH OF A STRAIGHT LINE MADE BY EXTENDING THE NORTH BOUNDARY LINE OF WAHKIAKUM COUNTY WEST TO THE PACIFIC OCEAN), SKAMANIA AND WAHKIAKUM COUNTIES		
ZONE 1:		

LABORERS:

GROUP 1	22.27	6.75
GROUP 2	22.77	6.75
GROUP 3	23.15	6.75
GROUP 4	23.47	6.75
GROUP 5	20.12	6.75
GROUP 6	18.06	6.75
GROUP 7	15.36	6.75

Zone Differential (Add to Zone 1 rates):
Zone 2 $ 0.65
Zone 3 - 1.15
Zone 4 - 1.70
Zone 5 - 2.75

BASE POINTS: GOLDENDALE, LONGVIEW, AND VANCOUVER

ZONE 1: Projects within 30 miles of the respective city all.
ZONE 2: More than 30 miles but less than 40 miles from the

respective city hall.
ZONE 3: More than 40 miles but less than 50 miles from the respective city hall.
ZONE 4: More than 50 miles but less than 80 miles from the respective city hall.
ZONE 5: More than 80 miles from the respective city hall.

LABORERS CLASSIFICATIONS

GROUP 1: Asphalt Plant Laborers; Asphalt Spreaders; Batch Weighman; Broomers; Brush Burners and Cutters; Car and Truck Loaders; Carpenter Tender; Change-House Man or Dry Shack Man; Choker Setter; Clean-up Laborers; Curing, Concrete; Demolition, Wrecking and Moving Laborers; Dumpers, road oiling crew; Dumpmen (for grading crew); Elevator Feeders; Guard Rail, Median Rail Reference Post, Guide Post, Right of Way Marker; Fine Graders; Fire Watch; Form Strippers (not swinging stages); General Laborers; Hazardous Waste Worker; Leverman or Aggregate Spreader (Flaherty and similar types); Loading Spotters; Material Yard Man (including electrical); Pittsburgh Chipper Operator or Similar Types; Railroad Track Laborers; Ribbon Setters (including steel forms); Rip Rap Man (hand placed); Road Pump Tender; Sewer Labor; Signalman; Skipman; Slopers; Spraymen; Stake Chaser; Stockpiler; Tie Back Shoring; Timber Faller and Bucker (hand labor); Toolroom Man (at job site); Tunnel Bullgang (above ground); Weight-Man-Crusher (aggregate when used)

GROUP 2: Applicator (including pot power tender for same), applying protective material by hand or nozzle on utility lines or storage tanks on project; Brush Cutters (power saw); Burners; Choker Splicer; Clary Power Spreader and similar types; Clean-up Nozzleman-Green Cutter (concrete, rock, etc.); Concrete Power Buggyman; Concrete Laborer; Crusher Feeder; Demolition and Wrecking Charred Materials; Gunite Nozzleman Tender; Gunite or Sand Blasting Pot Tender; Handlers or Mixers of all Materials of an irritating nature (including cement and lime); Tool Operators (includes but not limited to: Dry Pack Machine; Jackhammer;

Chipping Guns; Paving Breakers); Pipe Doping and Wrapping; Post Hole Digger, air, gas or electric; Vibrating Screed; Tampers; Sand Blasting (Wet); Stake-Setter; Tunnel-Muckers, Brakemen, Concrete Crew, Bullgang (underground)

GROUP 3: Asbestos Removal; Bit Grinder; Drill Doctor; Drill Operators, air tracks, cat drills, wagon drills, rubber-mounted drills, and other similar types including at crusher plants; Gunite Nozzleman; High Scalers, Strippers and Drillers (covers work in swinging stages, chairs or belts, under extreme conditions unusual to normal drilling, blasting, barring-down, or sloping and stripping); Manhole Builder; Powdermen; Concrete Saw Operator; Pwdermen; Power Saw Operators (Bucking and Falling); Pumpcrete Nozzlemen; Sand Blasting (Dry); Sewer Timberman; Track Liners, Anchor Machines, Ballast Regulators, Multiple Tampers, Power Jacks, Tugger Operator; Tunnel-Chuck Tenders, Nippers and Timbermen; Vibrator; Water Blaster

GROUP 4: Asphalt Raker; Concrete Saw Operator (walls);

Concrete Nozzelman; Grade Checker; Pipelayer; Laser Beam (pipelaying)-applicable when employee assigned to move, set up, align; Laser Beam; Tunnel Miners; Motorman-Dinky Locomotive-Tunnel; Powderman-Tunnel; Shield Operator-Tunnel

GROUP 5: Traffic Flaggers

GROUP 6: Fence Builders

GROUP 7: Landscaping or Planting Laborers

LABO0335L 06/01/2001

	Rates	Fringes
CLARK, COWLITZ, KLICKITAT, PACIFIC (SOUTH OF A STRAIGHT LINE MADE BY EXTENDING THE NORTH BOUNDARY LINE OF WAHKIAKUM COUNTY WEST TO THE PACIFIC OCEAN), SKAMANIA AND WAHKIAKUM COUNTIES		
HOD CARRIERS	24.64	5.75

PAIN0005B 06/01/2001

	Rates	Fringes
STATEWIDE EXCEPT CLARK, COWLITZ, KLICKITAT, PACIFIC (SOUTH), SKAMANIA, AND WAHKIAKUM COUNTIES		
STRIPERS	21.25	6.01

PAIN0005D 03/01/2000

	Rates	Fringes
CLALLAM, GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITSAP, LEWIS, MASON, PIERCE, SAN JUAN, SKAGIT, SNOHOMISH, THURSTON AND WHATCOM COUNTIES		
PAINTERS	22.94	3.73

PAIN0005G 07/01/2001

	Rates	Fringes
ADAMS, ASOTIN; BENTON AND FRANKLIN (EXCEPT HANFORD SITE); CHELAN, COLUMBIA, DOUGLAS, FERRY, GARFIELD, GRANT, KITTITAS, LINCOLN, OKANOGAN, PEND OREILLE, SPOKANE, STEVENS, WALLA WALLA, WHITMAN AND YAKIMA COUNTIES		
PAINTERS*:		
Brush, Roller, Striping, Steam-cleaning and Spray	19.17	4.24
Application of Cold Tar Products, Epoxies, Polyure thanes, Acids, Radiation Resistant Material, Water and Sandblasting, Bridges, Towers, Tanks, Stacks, Steeples	20.17	4.24
TV Radio, Electrical Transmission Towers	20.92	4.24
Lead Abatement, Asbestos Abatement	20.17	4.24

*$.70 shall be paid over and above the basic wage rates listed for work on swing stages and high work of over 30 feet.

PAIN0055C 11/01/1999

	Rates	Fringes
CLARK, COWLITZ, KLICKITAT, PACIFIC, SKAMANIA, AND WAHKIAKUM COUNTIES		
PAINTERS:		
Brush & Roller	17.10	3.48
Spray and Sandblasting	17.70	3.48
High work - All work 60 ft. or higher	17.60	3.48

PAIN0055L 06/01/2001

	Rates	Fringes
CLARK, COWLITZ, KLICKITAT, SKAMANIA and WAHKIAKUM COUNTIES		
PAINTERS:		
HIGHWAY AND PARKING LOT STRIPER	22.06	5.75

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* PLAS0072E 06/01/2001

	Rates	Fringes
ADAMS, ASOTIN, BENTON, CHELAN, COLUMBIA, DOUGLAS, FERRY, FRANKLIN, GARFIELD, GRANT, KITTITAS, LINCOLN, OKANOGAN, PEND OREILLE, SPOKANE, STEVENS, WALLA WALLA, WHITMAN, AND YAKIMA COUNTIES		
ZONE 1:		
CEMENT MASONS	22.18	5.63

Zone Differential (Add to Zone 1 rate): Zone 2 - $2.00

BASE POINTS: Spokane, Pasco, Moses Lake, Lewiston

Zone 1: 0 - 45 radius miles from the main post office
Zone 2: Over 45 radius miles from the main post office

PLAS0528A 12/31/2001

	Rates	Fringes
CLALLAM, GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (NORTH), PIERCE, SAN JUAN, SKAGIT, SNOHOMISH, THURSTON, AND WHATCOM COUNTIES		
CEMENT MASON	26.66	9.49
COMPOSITION, COLOR MASTIC, TROWEL MACHINE, GRINDER, POWER TOOLS, GUNNITE NOZZLE	26.91	9.49

PLAS0555B 06/01/2001

	Rates	Fringes
CLARK, COWLITZ, KLICKITAT, PACIFIC (SOUTH), SKAMANIA, AND WAHKIAKUM COUNTIES		
ZONE 1:		
CEMENT MASONS	24.04	9.00
COMPOSITION WORKERS AND POWER MACHINERY OPERATORS	24.48	9.00
CEMENT MASONS ON SUSPENDED, SWINGING AND/OR HANGING SCAFFOLD	24.48	9.00
CEMENT MASONS DOING BOTH COMPOSITION/POWER MACHINERY AND SUSPENDED/HANGING SCAFFOLD	24.93	9.00

Zone Differential (Add To Zone 1 Rates):
Zone 2 - $0.65
Zone 3 - 1.15
Zone 4 - 1.70
Zone 5 - 2.75

BASE POINTS: BEND, CORVALLIS, EUGENE, LONGVIEW, MEDFORD, PORTLAND, SALEM, THE DALLES, VANCOUVER

ZONE 1: Projects within 30 miles of the respective city hall
ZONE 2: More than 30 miles but less than 40 miles from the respective city hall.
ZONE 3: More than 40 miles but less than 50 miles from the respective city hall.
ZONE 4: More than 50 miles but less than 80 miles from the respective city hall.
ZONE 5: More than 80 miles from the respective city hall

PLUM0032B 01/01/2002

	Rates	Fringes
CLALLAM, KING AND JEFFERSON COUNTIES		
PLUMBERS AND PIPEFITTERS	32.08	11.53

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* PLUM0032D 01/01/2002

	Rates	Fringes
CHELAN, KITTITAS (NORTHERN TIP), DOUGLAS (NORTH), AND OKANOGAN (NORTH) COUNTIES		
PLUMBERS AND PIPEFITTERS	25.09	9.17

PLUM0044C 06/01/2001

	Rates	Fringes
ADAMS (NORTHERN PART), ASOTIN (CLARKSTON ONLY), FERRY (EASTERN PART), LINCOLN (EASTERN PART), PEND ORIELLE, STEVENS, SPOKANE, AND WHITMAN COUNTIES		
PLUMBERS AND PIPEFITTERS	26.21	9.14

PLUM0082A 06/01/2001

	Rates	Fringes
CLARK (NORTHERN TIP INCLUDING WOODLAND), COWLITZ, GRAYS HARBOR, LEWIS, MASON (EXCLUDING NE SECTION), PACIFIC, PIERCE SKAMANIA, THURSTON AND WAHKIAKUM COUNTIES		
PLUMBERS AND PIPEFITTERS	24.57	14.72

PLUM0265C 06/01/2001

	Rates	Fringes
ISLAND, SKAGIT, SNOHOMISH,SAN JUAN AND WHATCOM COUNTIES		
PLUMBERS AND PIPEFITTERS	28.37	10.24

PLUM0290K 04/01/2002

	Rates	Fringes
CLARK (ALL EXCLUDING NORTHERN TIP INCLUDING CITY OF WOODLAND)		
PLUMBERS AND PIPEFITTERS	31.31	12.12

PLUM0598E 06/01/2001

	Rates	Fringes
ADAMS (SOUTHERN PART), ASOTIN (EXCLUDING THE CITY OF CLARKSTON), BENTON, COLUMBIA, DOUGLAS (EASTERN HALF), FERRY (WESTERN PART), FRANKLIN, GARFIELD, GRANT, KITTITAS (ALL BUT NORTHERN TIP), KLICKITAT, LINCOLN (WESTERN PART), OKANOGAN (EASTERN), WALLA WALLA AND YAKIMA COUNTIES		

PLUMBERS	28.85	11.55

PLUM0631A 06/01/2001

	Rates	Fringes
MASON (NE SECTION), AND KITSAP COUNTIES		
PLUMBERS/PIPEFITTERS:		
All new construction, additions, and remodeling of commercial building projects such as: cocktail lounges and taverns, professional buildings, medical clinics, retail stores, hotels and motels, restaurants and fast food types, gasoline service stations, and car washes where		
the plumbing and mechanical cost of the project is less than $100,000	14.55	7.98
All other work where the plumbing and mechanical cost of the project is $100,000 and over	24.65	13.41

TEAM0037C 06/01/2001

	Rates	Fringes
CLARK, COWLITZ, KLICKITAT, PACIFIC (South of a straight line made by extending the north boundary line of Wahkiakum County west to the Pacific Ocean), SKAMANIA, AND WAHKIAKUM COUNTIES		
TRUCK DRIVERS		
ZONE 1:		
GROUP 1	23.40	8.30
GROUP 2	23.52	8.30
GROUP 3	23.65	8.30
GROUP 4	23.91	8.30
GROUP 5	24.13	8.30
GROUP 6	24.29	8.30
GROUP 7	24.49	8.30

Zone Differential (Add to Zone 1 Rates):
Zone 2 - $0.65
Zone 3 - 1.15
Zone 4 - 1.70
Zone 5 - 2.75

BASE POINTS: ASTORIA, THE DALLES, LONGVIEW AND VANCOUVER

ZONE 1: Projects within 30 miles of the respective city hall.
ZONE 2: More than 30 miles but less than 40 miles from the respective city hall.
ZONE 3: More than 40 miles but less than 50 miles from the

respective city hall.
ZONE 4: More than 50 miles but less than 80 miles from the respective city hall.
ZONE 5: More than 80 miles from the respective city hall.

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: A Frame or Hydra lifrt truck w/load bearing surface; Articulated dump truck; Battery Rebuilders; Bus or Manhaul Driver; Concrete Buggies (power operated); Concrete pump truck; Dump Trucks, side, end and bottom dumps, including Semi Trucks and Trains or combinations there of: up to and including 10 cu. yds.; Lift Jitneys, Fork Lifts (all sizes in loading, unloading and transporting material on job site); Loader and/or Leverman on Concrete Dry Batch Plant (manually operated); Pilot Car; Pickup truck; Solo Flat Bed and misc. Body Trucks, 0-10 tons; Truck Tender; Truck Mechanic Tender; Water Wagons (rated capacity) up to 3,000 gallons; Transit Mix and Wet or Dry Mix - 5 cu. yds. and under; Lubrication Man, Fuel Truck Driver, Tireman,

Wash Rack, Steam Cleaner or combinations; Team Driver; Slurry Truck Driver or Leverman; Tireman

GROUP 2: Boom truck/hydra lift or retracting crane; Challenger; Dumpsters or similar equipment all sizes; Dump Trucks/articulated dumps 6 cu to 10 cu.; Flaherty Spreader Driver or Leverman; Lowbed Equipment, Flat Bed Semi-trailer or doubles transporting equipment or wet or dry materials; Lumber Carrier, Driver-Straddle Carrier (used in loading, unloading and transporting of materials on job site); Oil Distributor Driver or Leverman; Transit mix and wet or dry mix trcuks: over 5 cu. yds. and including 7 cu. yds.; Vacuum trucks; Water truck/Wagons (rated capacity) over 3,000 to 5,000 gallons

GROUP 3: Ammonia nitrate distributor driver; Dump trucks, side, end and bottom dumps, including Semi Trucks and Trains or combinations thereof: over 10 cu. yds. and including 30 cu. yds. includes Articulated dump trucks; Selfpropelled street sweeper; Transit mix and wet or dry mix truck: over 7 cu yds. and including 11 cu yds.; Truck Mechanic Welder Body Repairman; Utility and cleanup truck; Water Wagons (rated capacity) over 5,000 to 10,000 gallons

GROUP 4: Asphalt burner; Dump Trucks, side, end and bottom cumps, including Semi-Trucks and Trains or combinations thereof: over 30 cu. yds. and including 50 cu. yds. includes articulated dump trucks; Fire guard; Transit Mix and Wet or Dry Mix Trucks, over 11 cu. yds. and including 15 cu. yds.; Water Wagon (rated capacity) over 10,000 gallons to 15,000 gallons

GROUP 5: Dump Trucks, side, end and bottom dumps, including Semi Trucks and Trains or combinations thereof: over 50 cu. yds. and including 60 cu. yds. includes articulated dump trucks

GROUP 6: Bulk cement spreader w/o auger; Dry prebatch concrete mix trucks; Dump trucks, side, end and bottom dumps, including Semi Trucks and Trains of combinations thereof: over 60 cu. yds.

and including 80 cu. yds., and includes articulated dump trucks; Skid truck

GROUP 7: Dump Trucks, side, end and bottom dumps, including Semi Trucks and Trains or combinations thereof: over 80 cu. yds. and including 100 cu. yds., includes articulated dump trucks; Industrial lift truck (mechanical tailgate)

TEAM0174A 06/01/2001

	Rates	Fringes
CLALLAM, GRAYS HARBOR, ISLAND, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (North of a straight line made by extending the north boundary line of Wahkiakum County west to the Pacific Ocean), PIERCE, SAN JUAN, SKAGIT, SNOHOMISH, THURSTON AND WHATCOM COUNTIES		
TRUCK DRIVERS;		
GROUP 1:	24.94	9.12
GROUP 2:	24.36	9.12
GROUP 3:	22.08	9.12
GROUP 4:	18.00	9.12
GROUP 5:	24.70	9.12

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1 -"A-frame or Hydralift" trucks and Boom trucks or similar equipment when "A" frame or "Hydralift" and Boom truck or similar equipment is used; Buggymobile; Bulk Cement Tanker; Dumpsters and similar equipment, Tournorockers, Tournowagon, Tournotrailer, Cat DW series, Terra Cobra, Le Tourneau, Westinghouse, Athye Wagon, Euclid Two and Four-Wheeled power tractor with trailer and similar top-loaded equipment transporting material: Dump Trucks, side, end and bottom dump, including semi-trucks and trains or combinations thereof with 16 yards to 30 yards capacity: Over 30 yards $.15 per hour additional for each 10 yard increment; Explosive Truck (field mix) and similar equipment; Hyster Operators (handling bulk loose aggregates); Lowbed and Heavy Duty Trailer; Road Oil Distributor Driver; Spreader, Flaherty Transit mix used exclusively in heavy construction; Water Wagon and Tank Truck-3,000 gallons and over capacity

GROUP 2 - Bulllifts, or similar equipment used in loading or unloading trucks, transporting materials on job site; Dumpsters, and similar equipment, Tournorockers, Tournowagon, Turnotrailer, Cat. D.W. Series, Terra Cobra, Le Tourneau, Westinghouse, Athye wagon, Euclid two and four-wheeled power tractor with trailer and similar top-loaded equipment transporting material: Dump trucks, side, end and bottom dump, including semi-trucks and trains or combinations thereof with less than 16 yards capacity; Flatbed (Dual Rear Axle); Grease Truck, Fuel Truck, Greaser, Battery Service Man and/or Tire Service Man; Leverman and loader at bunkers and batch plants; Oil tank transport; Scissor truck; Slurry Truck; Sno-Go and similar equipment; Swampers; Straddler Carrier (Ross, Hyster) and similar equipment; Team Driver;

Tractor (small, rubber-tired)(when used within Teamster jurisdiction); Vacuum truck; Water Wagon and Tank trucks-less than 3,000 gallons capacity; Winch Truck; Wrecker, Tow truck and similar equipment

GROUP 3 - Flatbed (single rear axle); Pickup Sweeper; Pickup Truck. (Adjust Group 3 upward by $2.00 per hour for onsite work only)

GROUP 4 - Escort or Pilot Car

GROUP 5 - Mechanic

HAZMAT PROJECTS

Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in addition to the classification working in as follows:

LEVEL C: +$.25 per hour - This level uses an air purifying respirator or additional protective clothing.

LEVEL B: +$.50 per hour - Uses same respirator protection as Level A. Supplied air line is provided in conjunction with a chemical "splash suit."

LEVEL A: +$.75 per hour - This level utilizes a fully-encapsulated suit with a self-contained breathing apparatus or a supplied air line.

ZONE DIFFERENTIALS

Zone pay will be calculated from the city center of the following listed cities:

BELLINGHAM	CENTRALIA	RAYMOND	OLYMPIA
EVERETT	SHELTON	ANACORTES	BELLEVUE
SEATTLE	PORT ANGELES	MT. VERNON	KENT
TACOMA	PORT TOWNSEND	ABERDEEN	BREMERTON

TRAVEL - Zone A - 0 - 25 miles - Free Zone
Zone B - 25 - 45 miles - $ .70 per hour.
Zone C - Over 45 miles - $1.00 per hour.

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* TEAM0760C 06/01/2001

	Rates	Fringes
ADAMS, ASOTIN, BENTON, CHELAN, COLUMBIA, DOUGLAS, FERRY, FRANKLIN, GARFIELD, GRANT KITTITAS, LINCOLN, OKANOGAN, PEND OREILLE, SPOKANE, STEVENS, WALLA WALLA, AND WHITMAN COUNTIES		
TRUCK DRIVERS (ANYONE WORKING ON HAZMAT JOBS SEE FOOTNOTE A BELOW)		
ZONE 1: (INCLUDES ALL OF YAKIMA COUNTY)		
GROUP 1	17.73	8.00
GROUP 2	20.00	8.00
GROUP 3	20.50	8.00
GROUP 4	20.83	8.00

GROUP 5	20.94	8.00
GROUP 6	21.11	8.00
GROUP 7	21.64	8.00
GROUP 8	21.97	8.00

Zone Differential (Add to Zone 1 rate: Zone 2 - $2.00)

BASE POINTS: Spokane, Moses Lake, Pasco, Lewiston

Zone 1: 0-45 radius miles from the main post office.
Zone 2: 45 radius miles and over from the main post office

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Escort Driver or Pilot Car; Employee Haul; Power Boat Hauling Employees or Material

GROUP 2: Fish Truck; Flat Bed Truck; Fork Lift (3000 lbs. and under); Leverperson (loading trucks at bunkers); Trailer Mounted Hydro Seeder and Mulcher; Seeder & Mulcher; Stationary Fuel Operator; Tractor (small, rubber-tired, pulling trailer or similar equipment)

GROUP 3: Auto Crane (2000 lbs. capacity); Buggy Mobile & Similar; Bulk Cement Tanks & Spreader; Dumptor (6 yds. & under); Flat Bed Truck with Hydraullic System; Fork Lift (3001-16,000 lbs.); Fuel Truck Driver, Steamcleaner & Washer; Power Operated Sweeper; Rubber-tired Tunnel Jumbo; Scissors Truck; Slurry Truck Driver; Straddle Carrier (Ross, Hyster, & similar); Tireperson; Transit Mixers & Truck Hauling Concrete (3 yd. to & including 6 yds.); Trucks, side, end, bottom & articulated end dump (3 yards to and including 6 yds.); Warehouseperson (to include shipping & receiving); Wrecker & Tow Truck

GROUP 4: A-Frame; Burner, Cutter, & Welder; Service Greaser; Trucks, side, end, bottom & articulated end dump (over 6 yards to and including 12 yds.); Truck Mounted Hydro Seeder; Warehouseperson; Water Tank truck (0-8,000 gallons)

GROUP 5: Dumptor (over 6 yds.); Lowboy (50 tons & under); Self-loading Roll Off; Semi-Truck & Trailer; Tractor with Steer Trailer; Transit Mixers and Trucks Hauling Concrete (over 6 yds. to and including 10 yds.); Trucks, side, end, bottom and end dump (over 12 yds. to & including 20 yds.); Truck-Mounted Crane (with load bearing surface either mounted or pulled, up to 14 ton); Vacuum Truck (super sucker, guzzler, etc.)

GROUP 6: Flaherty Spreader Box Driver; Flowboys; Fork Lift (over 16,000 lbs.); Dumps (Semi-end); Mechanic (Field); Semi-end Dumps; Transfer Truck & Trailer; Transit Mixers & Trucks Hauling Concrete (over 10 yds. to & including 20 yds.); Trucks, side, end, bottom and articulated end dump (over 20 yds. to & including 40 yds.); Truck and Pup; Tournarocker, DW's & similar with 2 or more 4 wheel-power tractor with trailer, gallonage or yardage scale, whichever is greater Water Tank Truck (8,001-14,000 gallons)

GROUP 7: Oil Distributor Driver; Stringer Truck (cable oeprated

trailer); Transit Mixers & Trucks Hauling Concrete (over 20 yds.); Truck, side, end, bottom end dump (over 40 yds. to & including 100 yds.); Truck Mounted Crane (with load bearing surface either mounted or pulled (16 through 25 tons);

GROUP 8: Prime Movers and Stinger Truck; Trucks, side, end, bottom and articulated end dump (over 100 yds.); Helicopter Pilot Hauling Employees or Materials

Footnote A - Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in additon to the classification working in as follows:

LEVEL C-D: - $.50 PER HOUR (This is the lowest level of protection. This level may use an air purifying respirator or additional protective clothing.
LEVEL A-B: - $1.00 PER HOUR (Uses supplied air is conjunction with a chemical spash suit or fully encapsulated suit with a self-contained breathing apparatus.

NOTE: Trucks Pulling Equipment Railers: shall receive $.15/hour over applicable truck rate

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

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

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

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted

because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

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

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor

200 Constitution Avenue, N. W.
Washington, D. C. 20210

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

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

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

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

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

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

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GENERAL DECISION **WA020002** 05/10/2002 WA2

Date: May 10, 2002
General Decision Number **WA020002**

Superseded General Decision No. WA010002

State: Washington

Construction Type:
BUILDING

County(ies):

CHELAN	KITSAP	PIERCE
CLALLAM	KITTITAS	SNOHOMISH
GRAYS HARBOR	LEWIS	THURSTON
JEFFERSON	MASON	
KING	PACIFIC	

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	03/01/2002
1	03/08/2002
2	03/22/2002
3	03/29/2002
4	04/05/2002
5	04/19/2002
6	05/03/2002
7	05/10/2002

COUNTY(ies):

CHELAN	KITSAP	PIERCE
CLALLAM	KITTITAS	SNOHOMISH
GRAYS HARBOR	LEWIS	THURSTON
JEFFERSON	MASON	
KING	PACIFIC	

ASBE0007A 01/01/2002

	Rates	Fringes
ASBESTOS WORKERS/INSULATORS: (Includes application of all insulating materials, protective coverings, coating and finishes to all types of mechanical systems)	29.07	6.79

BOIL0242B 04/01/2002

	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		

BOILERMAKERS	26.27	11.95

BOIL0502B 01/01/2002

CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC, PIERCE, SNOHOMISH AND THURSTON COUNTIES

	Rates	Fringes
BOILERMAKERS	26.27	12.20

* BRWA0001A 06/01/2001

CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (northern part), PIERCE, SNOHOMISH AND THURSTON COUNTIES

	Rates	Fringes
BRICKLAYERS	28.13	7.24

BRWA0001F 06/01/2001

PACIFIC COUNTY (SOUTHERN PART)

	Rates	Fringes
BRICKLAYERS	25.77	9.70
MARBLE MASONS	26.77	9.70

BRWA0001G 05/01/2001

PACIFIC (SOUTHERN PORTION) COUNTY

	Rates	Fringes
TILE SETTER AND TERRAZZO WORKERS	23.65	7.63
TILE AND TERRAZZO FINISHERS	17.75	5.87

* BRWA0001H 06/01/2001

CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP,LEWIS, MASON, PACIFIC (NORTHERN HALF), PIERCE, THURSTON AND SNOHOMISH COUNTIES

	Rates	Fringes
TILE AND TERRAZZO WORKERS	25.35	7.48
TILE AND TERRAZZO FINISHERS	20.13	6.53

* BRWA0003A 06/01/2001

CHELAN AND KITTITAS COUNTIES

	Rates	Fringes
BRICKLAYERS	23.16	8.41

* BRWA0003E 07/01/2001

CLELAN AND KITTITAS

	Rates	Fringes
TILE AND TERRAZZO FINISHERS	14.70	6.33

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* BRWA0003F 07/01/2001

	Rates	Fringes
CLELAN AND KITTITAS		
TERRAZZO WORKERS & TILE LAYER	18.50	6.33

CARP0770E 12/01/2001

	Rates	Fringes
WESTERN WASHINGTON: CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (NORTH), PIERCE, SNOHOMISH AND THURSTON COUNTIES		
CARPENTERS AND DRYWALL APPLICATORS	27.54	7.61
CARPENTERS ON CREOSOTE MATERIAL	27.64	7.61
INSULATION APPLICATORS	25.09	7.61
SAWFILERS, STATIONARY POWER SAW OPERATORS, FLOOR FINISHER, FLOOR LAYER, SHINGLER, FLOOR SANDER OPERATORS OF OTHER STATIONARY WOOD WORKING TOOLS	27.67	7.61
MILLWRIGHT AND MACHINE ERECTORS	28.54	7.61
ACOUSTICAL WOKRERS	27.70	7.61
PILEDRIVER, DRIVING, PULLING, CUTTING, PLACING COLLARS, SETTING, WELDING OR CRESOTE TREATED MATERIAL, ALL PILING	27.74	7.61
PILDRIVER, BRIDGE DOCK & WHARF CARPENTERS	27.54	7.61
DIVERS	67.96	7.61
DIVERS TENDER	30.24	7.61

(HOURLY ZONE PAY APPLICABLE TO ALL CLASSIFICATIONS EXCEPT MILLWRIGHT AND PILEDRIVER)

Hourly Zone Pay shall be paid on jobs located outside of the free zone computed from the city center of the following listed cities:

Seattle	Olympia	Bellingham
Auburn	Bremerton	Anacortes
Renton	Shelton	Yakima
Aberdeen-Hoquiam	Tacoma	Wenatchee
Ellensburg	Everett	Port Angeles
Centralia	Mount Vernon	Sunnyside
Chelan	Pt. Townsend	

Zone Pay	
0 -25 radius miles	Free
25-35 radius miles	$1.00/hour
35-45 radius miles	$1.15/hour
45-55 radius miles	$1.35/hour
Over 55 radius miles	$1.55/hour

(HOURLY ZONE PAY - MILLWRIGHTS AND PILEDRIVERS ONLY)

Hour Zone Pay shall be computed from Seattle Union Hall, Tacoma City center, and Everett City center

Zone Pay	
0 -25 radius miles	Free
25-45 radius miles	$ .70/hour
Over 45 radius miles	$1.50/hour

Millwrights and Piledrivers who reside in Aberdeen, Bellingham, Port Angeles, Mount Vernon, Olympia, Wenatchee, or Yakima Local Union jurisdication areas, working on jobs in their respective area, shall have their Zone Pay measured from their respective city center

CENTRAL WASHINGTON: CHELAN AND KITTITAS COUNTIES

CARPENTERS AND DRYWALL APPLICATORS	20.72	7.47
CARPENTERS ON CREOSOTED MATERIALS	20.82	7.47
INSULATION APPLICATORS	20.72	7.47
SAWFILER, STATIONARY POWER SAW OPERATORS, FLOOR FINISHER, FLOOR LAYER, SHINGLERS, FLOOR SANDER OPERATOR AND OPERATORS OF OTHER STATIONARY WOOD WORKING TOOLS	20.85	7.47
MILLWRIGHTS AND MACHINE ERECTORS	28.22	7.47
ACCOUSTICAL WORKERS	20.98	7.47
PILDRIVER, DRIVING, PULLING, CUTTING, PLACING COLLARS, SETTING, WELDING, OR CREOSOTE TREATED MATERIAL, ALL PILING	27.22	7.47
PILEDRIVER, BRIDGE DOCK & WHARF CARPENTERS	27.42	7.47
DIVERS	67.18	7.47
DIVERS TENDER	29.89	7.47

CARP9003A 12/01/2001

	Rates	Fringes
PACIFIC COUNTY (South of a straight line made by extending the north boundary line of Wahkiakum County west to Willapa Bay to the Pacific Ocean, and thence north through the natural waterway to the Pacific Ocean (this will include the entire peninsula west of Willapa Bay)		
SEE ZONE DESCRIPTION FOR CITIES BASE POINTS		
ZONE 1:		
CARPENTERS	26.83	8.29
DRYWALL, ACOUSTICAL & LATHERS	26.83	8.29
FLOOR LAYERS & FLOOR FINISHERS (the laying of all hardwood		

floors nailed and mastic set, parquet and wood-type tiles, and block floors, the sanding and finishing of floors, the preparation of old and new floors when the materials mentioned above are to be installed; INSULATORS (fiberglass and similar irritating material) 26.98 8.29
MILLWRIGHTS 27.33 8.29
PILEDRIVERS 27.33 8.29
DIVERS 63.75 8.29
DIVERS TENDERS 29.33 8.29

Zone Differential (Add to Zone 1 rates):
Zone 2 - $0.85
Zone 3 - 1.25
Zone 4 - 1.70
Zone 5 - 2.00
Zone 6 - 3.00

BASEPOINTS: GOLDENDALE, LONGVIEW, AND VANCOUVER

ZONE 1: Projects located within 30 miles of the respective city hall of the above mentioned cities
ZONE 2: Projects located more than 30 miles and less than 40 miles of the respective city of the above mentioned cities
ZONE 3: Projects located more than 40 miles and less than 50 miles of the respective city of the above mentioned cities

ZONE 4: Projects located more than 50 miles and less than 60 miles of the respective city of the above mentioned cities.
ZONE 5: Projects located more than 60 miles and less than 70 miles of the respective city of the above mentioned cities
ZONE 6: Projects located more than 70 miles of the respected city of the above mentioned cities

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ELEC0046B 12/31/2001

	Rates	Fringes
CALLAM, JEFFERSON, KING AND KITSAP COUNTIES		
ELECTRICIANS	32.25	3%+9.11
CABLE SPLICERS	35.48	3%+9.11

ELEC0046C 06/01/2001

	Rates	Fringes
CALLAM, JEFFERSON, KING, KITSAP COUNTIES		
SOUND AND COMMUNICATION TECHNICIAN	20.11	4.59

SCOPE OF WORK

Includes the installation, testing, service and maintenance, of the following systems which utilize the trabsmission and/or transference of voice, sound vision and digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms, fire alarms and life safety systems (hang, terminate devices and panels and to conduct functional and systems tests), and low voltage master clock systems.

WORK EXCLUDED
Raceway systems are not covered (excluding Ladder-Rack for the purpose of the above listed systems). Chases and/or nipples (not to exceed 10 feet) may be installed on open wiring systems.

Energy management systems.

SCADA (Supervisory Control and Data Acquisition) when not intrinsic to the above listed systems (in the scope).

ELEC0076A 07/01/2001

GRAYS HARBOR, LEWIS, MASON, PACIFIC, PIERCE, THURSTON COUNTIES	Rates	Fringes
ELECTRICIANS	28.29	3%+10.32
CABLE SPLICERS	31.12	3%+10.32

ELEC0076D 06/01/2000

GRAYS HARBOR, LEWIS, MASON, PACIFIC, PIERCE AND THURSTON COUNTIES	Rates	Fringes
SOUND AND COMMUNICATIONS TECHNICIAN	18.59	5.24

SCOPE OF WORK

Includes the installation, testing, service and maintenance, of the following systems which utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms and low voltage master clock systems.

A. Communication systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems
SCADA (Supervisory control/data acquisition

PCM (Pulse code modulation)
Inventory control systems
Digital data systems
Broadband & baseband and carriers
Point of sale systems
VSAT data systems
Data communication systems
RF and remote control systems
Fiber optic data systems

B. Sound and Voice Transmission/Transference Systems
Background-Foreground Music
Intercom and Telephone Interconnect Systems
Sound and Musical Entertainment Systems
Nurse Call Systems
Radio Page Systems
School Intercom and Sound Systems
Burglar Alarm Systems
Low-Voltage Master Clock Systems
Multi-Media/Multiplex Systems
Telephone Systems
RF Systems and Antennas and Wave Guide

C. *Fire Alarm Systems-installation, wire pulling and testing.

D. Television and Video Systems
Television Monitoring and Surveillance Systems
Video Security Systems
Video Entertainment Systems
Video Educational Systems

Microwave Transmission Systems
CATV and CCTV

E. Security Systems
Perimeter Security Systems
Vibration Sensor Systems
Sonar/Infrared Monitoring Equipment
Access Control Systems
Card Access Systems

*Fire Alarm Systems
1. Fire Alarms-In Raceways
a. Wire and cable pulling, in raceways, performed at the current electrician wage rate and fringe benefits.
b. Installation and termination of devices, panels, startup, testing and programming performed by the technician.
2. Fire Alarms-Open Wire Systems
a. Open wire systems installed by the technician.

ELEC0112B 01/01/2002

	Rates	Fringes
KITTITAS COUNTY		

ELECTRICIANS	27.75	3%+8.63
CABLE SPLICERS	29.14	3%+8.63

ELEC0112G 06/01/2000

	Rates	Fringes
KITTTITAS COUNTY		
COMMUNICATION & SOUND TECHNICIANS	19.00	4.80

SCOPE OF WORK

The work covered shall include the installation, testing, service and maintenance, of the following systems that utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for TV monitoring and surveillance, background foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms and low voltage master clock systems.

A. Communication systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems
- SCADA (Supervisory control/data acquisition
- PCM (Pulse code modulation)
- Inventory control systems
- Digital data systems
- Broadband & baseband and carriers
- Point of sale systems
- VSAT data systems
- Data communication systems
- RF and remote control systems
- Fiber optic data systems

B. Sound and Voice Transmission/Transference Systems
- Background-Foreground Music
- Intercom and Telephone Interconnect Systems
- Sound and Musical Entertainment Systems
- Nurse Call Systems
- Radio Page Systems
- School Intercom and Sound Systems
- Burglar Alarm Systems
- Low-Voltage Master Clock Systems
- Multi-Media/Multiplex Systems
- Telephone Systems
- RF Systems and Antennas and Wave Guide

C. *Fire Alarm Systems-installation, wire pulling and testing.

D. Television and Video Systems
Television Monitoring and Surveillance Systems

Video Security Systems
Video Entertainment Systems
Video Educational Systems
Microwave Transmission Systems
CATV and CCTV

E. Security Systems
Perimeter Security Systems
Vibration Sensor Systems
Sonar/Infrared Monitoring Equipment
Access Control Systems
Card Access Systems

*Fire Alarm Systems
1. Fire Alarms-In Raceways
a. Wire and cable pulling, in raceways, performed at the current electrician wage rate and fringe benefits.
b. Installation and termination of devices, panels, startup, testing and programing performed by the technician.
2. Fire Alarms-Open Wire Systems
a. Open wire systems installed by the technician.

ELEC0191A 08/31/2001

	Rates	Fringes
CHELAN COUNTY		
ELECTRICIANS	26.66	3%+8.03
CABLE SPLICERS	29.33	3%+8.03

ELEC0191E 10/01/2001

	Rates	Fringes
CHELAN AND SNOHOMISH COUNTIES		
SOUND AND COMMUNICATIONS		
TECHNICIANS	20.50	4.82

SCOPE OF WORK

The work covered shall include the installation, testing, service and maintenance, of the following systems that utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for TV monitoring and surveillance, background foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms and low voltage master clock systems.

A. Communication systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems
SCADA (Supervisory control/data acquisition
PCM (Pulse code modulation)

Inventory control systems
Digital data systems
Broadband & baseband and carriers
Point of sale systems
VSAT data systems
Data communication systems
RF and remote control systems
Fiber optic data systems

B. Sound and Voice Transmission/Transference Systems
Background-Foreground Music
Intercom and Telephone Interconnect Systems
Sound and Musical Entertainment Systems
Nurse Call Systems
Radio Page Systems
School Intercom and Sound Systems
Burglar Alarm Systems
Low-Voltage Master Clock Systems
Multi-Media/Multiplex Systems
Telephone Systems
RF Systems and Antennas and Wave Guide

C. *Fire Alarm Systems-installation, wire pulling and testing.

D. Television and Video Systems
Television Monitoring and Surveillance Systems
Video Security Systems
Video Entertainment Systems
Video Educational Systems
Microwave Transmission Systems

CATV and CCTV

E. Security Systems
Perimeter Security Systems
Vibration Sensor Systems
Sonar/Infrared Monitoring Equipment
Access Control Systems
Card Access Systems

*Fire Alarm Systems
1. Fire Alarms-In Raceways
a. Wire and cable pulling, in raceways, performed at the current electrician wage rate and fringe benefits.
b. Installation and termination of devices, panels, startup, testing and programming performed by the technician.
2. Fire Alarms-Open Wire Systems
a. Open wire systems installed by the tchnician.

ELEC0191L 08/31/2000

	Rates	Fringes
SNOHOMISH COUNTY		
ELECTRICIANS	28.21	3%+7.23

CABLE SPLICERS	31.03	3%+7.23

ELEV0019B 07/01/2001

	Rates	Fringes
CHELAN, CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, KITTITAS, LEWIS, MASON, PIERCE, SNOHOMISH AND THURSTON COUNTIES		
ELEVATOR MECHANICS	31.675	7.195+a

FOOTNOTE a: Vacation Pay: 8% with 5 or more years of service, 6% for 6 months to 5 years service. Paid Holidays: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Friday after, and Christmas Day.

ELEV0023B 04/01/2002

	Rates	Fringes
PACIFIC COUNTY		
ELEVATOR MECHANIC	32.735	7.455+a

FOOTNOTE a: Vacation Pay: 8% with 5 or more years of service, 6% for 6 months to 5 years service. Paid Holidays: Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Friday after, and Christmas Day, and New Years Day.

ENGI0302B 06/01/2001

	Rates	Fringes
CHELAN (WEST OF THE 120TH MERIDIAN), CLALLAM, GRAYS HARBOR,		
JEFFERSON, KING, KITSAP, KITTITAS, MASON AND SNOHOMISH COUNTIES		

ON PROJECTS DESCRIBED IN FOOTNOTE A BELOW, THE RATE FOR EACH GROUP SHALL BE 95% OF THE BASE RATE PLUS FULL FRINGE BENEFITS. ON ALL OTHER WORK, THE FOLLOWING RATES APPLY.

POWER EQUIPMENT OPERATORS:		
Zone 1 (0-25 radius miles):		
GROUP 1AAA	29.61	8.38
GROUP 1AA	29.11	8.38
GROUP 1A	28.61	8.38
GROUP 1	28.11	8.38
GROUP 2	27.67	8.38
GROUP 3	27.31	8.38
GROUP 4	25.21	8.38

Zone Differential (Add to Zone 1 rates):
Zone 2 (26-45 radius miles) - $ .70
Zone 3 (Over 45 radius miles) - $1.00

BASEPOINTS: Aberdeen, Bellingham, Bremerton, Everett, Kent, Mount Vernon, Port Angeles, Port Townsend, Seattle, Shelton, Wenatchee, Yakima

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1AAA - Cranes-over 300 tons, or 300 ft of boom (including jib with attachments)

GROUP 1AA - Cranes 200 to 300 tons, or 250 ft of boom (including jib with attachments); Tower crane over 175 ft in height, base to boom

GROUP 1A - Cranes, 100 tons thru 199 tons, or 150 ft of boom (including jib with attachments); Crane-overhead, bridge type, 100 tons and over; Tower crane up to 175 ft in height base to boom; Loaders-overhead, 8 yards and over; Shovels, excavator, backhoes-6 yards and over with attachments

GROUP 1 - Cableway; Cranes 45 tons thru 99 tons, under 150 ft of boom (including jib with attachments); Crane-overhead, bridge type, 45 tons thru 99 tons; Derricks on building work; Excavator, shovel, backhoes over 3 yards and under 6 yards; Hard tail end dump articulating off-road equipment 45 yards and over; Loader-overhead 6 yards to, but not including 8 yards; Mucking machine, mole, tunnel, drill and/or shield; Quad 9, HD 41, D-10; Remote control operator on rubber tired earth moving equipment; Rollagon; Scrapers-self propelled 45 yards and over; Slipform pavers; Transporters, all truck or track type

GROUP 2 - Barrier machine (zipper); Batch Plant Operaor-Concrete; Bump Cutter; Cranes, 20 tons thru 44 tons with attachments; Crane-overhead, bridge type-20 tons through 44 tons; Chipper; Concrete Pump-truck mount with boom attachment; Crusher; Deck Engineer/Deck Winches (power); Drilling machine; Excavator,

shovel, backhoe-3 yards and under; Finishing Machine, Bidwell, Gamaco and similar equipment; Guardrail punch; Horizontal/directional drill operator; Loaders-overhead under 6 yards; Loaders-plant feed; Locomotives-all; Mechanics-all; Mixers-asphalt plant; Motor patrol graders-finishing; Piledriver (other than crane mount); Roto-mill,roto-grinder; Screedman, spreader, topside operator-Blaw Knox, Cedar Rapids, Jaeger, Caterpillar, Barbar Green; Scraper-self propelled, hard tail end dump, articulating off-road equipment-under 45 yards; Subgrade trimmer; Tractors, backhoes-over 75 hp; Transfer material service machine-shuttle buggy, blaw knox-roadtec; Truck crane oiler/driver-100 tons and over; Truck Mount portable conveyor; Yo Yo Pay dozer

GROUP 3 - Conveyors; Cranes-thru 19 tons with attachments; A-frame crane over 10 tons; Drill oilers-auger type, truck or crane mount; Dozers-D-9 and under; Forklift-3000 lbs. and over with attachments; Horizontal/directional drill locator; Outside hoists-(elevators and manlifts), air tuggers, strato tower bucket elevators; Hydralifts/boom trucks over 10 tons; Loader-elevating type, belt; Motor patrol grader-nonfinishing; Plant oiler-asphalt, crusher; Pumps-concrete; Roller, plant mix or multi-lift materials; Saws-concrete; Scrpers-concrete and carry-all; Service engineer-equipment; Trenching machines; Truck Crane Oiler/Driver under 100 tons; Tractors, backhoe 75 hp and under

GROUP 4 - Assistant Engineer; Bobcat; Brooms; Compressor; Concrete finish mahine-laser screed; Cranes-A frame-10 tons and under; Elevator and Manlift-permanent or shaft type; Gradechecker, Stakehop; Forklifts under 3000 lbs. with attachments; Hydralifts/boom trucks, 10 tons and under; Oil distributors, blower distribution and mulch seeding operator; Pavement breaker; Posthole digger, mechanical; Power plant; Pumps, water; Rigger and Bellman; Roller-other than plant mix; Wheel Tractors, farmall type; Shotcrete/gunite equipment operator

FOOTNOTE A- Reduced rates may be paid on the following:

1. Projects involving work on structures such as buildings and bridges whose total value is less than $1.5 million excluding mechanical, electrical, and utility portions of the contract.

2. Projects of less than $1 million where no building is involved. Surfacing and paving included, but utilities excluded.

3. Marine projects (docks, wharfs, etc.) less than $150,000.

HANDLING OF HAZARDOUS WASTE MATERIALS: Personnel in all craft classifications subject to working inside a federally designated hazardous perimeter shall be elgible for compensation in accordance with the following group schedule relative to the level of hazardous waste as outlined in the specific hazardous waste project site safety plan.
H-1 Base wage rate when on a hazardous waste site when not outfitted with protective clothing
H-2 Class "C" Suit - Base wage rate plus $ .25 per hour.
H-3 Class "B" Suit - Base wage rate plus $ .50 per hour.
H-4 Class "A" Suit - Base wage rate plus $ .75 per hour.

ENGI0370I 06/01/2001

	Rates	Fringes
CHELAN (EAST OF THE 120TH MERIDIAN) COUNTY		
ZONE 1:		
POWER EQUIPMENT OPERATORS:		
GROUP 1A	20.44	6.02
GROUP 1	20.99	6.02
GROUP 2	21.31	6.02
GROUP 3	21.92	6.02
GROUP 4	22.08	6.02
GROUP 5	22.24	6.02
GROUP 6	22.52	6.02
GROUP 7	22.79	6.02
GROUP 8	23.89	6.02

ZONE DIFFERENTIAL (Add to Zone 1 rate): Zone 2 - $2.00

Zone 1: Within 45 mile radius of Spokane, Moses Lake, Pasco, Washington; Lewiston, Idaho

Zone 2: Outside 45 mile radius of Spokane, Moses Lake, Pasco, Washington; Lewiston, Idaho

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1A: Boat Operator; Crush Feeder; Oiler; Steam Cleaner

GROUP 1: Bit Grinders; Bolt Threading Machine; Compressors (under 2000 CFM, gas, diesel, or electric power); Deck Hand; Drillers Helper (assist driller in making drill rod connections, service drill engine and air compressor, repair drill rig and drill tools; drive drill support truck to and on the job site, remove drill cuttings from around bore hole and inspect drill rig while in operation); Fireman & Heat Tender; Grade Checker; Hydro-seeder, Mulcher, Nozzleman; Oiler Driver, & Cable Tender, Mucking Machine; Pumpman; Rollers, all types on subgrade, including seal and chip coatings (farm type, Case, John Deere & similar, or Compacting Vibrator), except when pulled by Dozer with operable blade; Welding Machine

GROUP 2: A-frame Truck (single drum); Assistant Refrigeration Plant (under 1000 ton); Assistant Plant Operator, Fireman or Pugmixer (asphalt); Bagley or Stationary Scraper; Belt Finishing Machine; Blower Operator (cement); Cement Hog; Compressor (2000 CFM or over, 2 or more, gas diesel or electric power); Concrete Saw (multiple cut); Distributor Leverman; Ditch Witch or similar; Elevator Hoisting Materials; Dope Pots (power agitated); Fork Lift or Lumber Stacker, hydra-lift & similar; Gin Trucks

(pipeline); Hoist, single drum; Loaders (bucket elevators and conveyors); Longitudinal Float; Mixer (portable-concrete); Pavement Breaker, Hydra-Hammer & similar; Power Broom; Railroad Ballast Regulation Operator (self-propelled); Railroad Power Tamper Operator (self-propelled); Railroad Tamper Jack Operator (self-propelled; Spray Curing Machine (concrete); Spreader Box (self-propelled); Straddle Buggy (Ross & similar on construction job only); Tractor (Farm type R/T with attachment, except Backhoe); Tugger Operator

GROUP 3: A-frame Truck (2 or more drums); Assistant Refrigeration Plant & Chiller Operator (over 1000 ton); Backfillers (Cleveland & similar); Batch Plant & Wet Mix Operator, single unit (concrete); Belt-Crete Conveyors with power pack or similar; Belt Loader (Kocal or similar); Bending Machine; Bob Cat; Boring Machine (earth); Boring Machine (rock under 8" bit) (Quarry Master, Joy or similar); Bump Cutter (Wayne, Saginau or similar); Canal Lining Machine (concrete); Chipper (without crane); Cleaning & Doping Machine (pipeline); Deck Engineer; Elevating Belt-type Loader (Euclid, Barber Green & similar); Elevating Grader-type Loader (Dumor, Adams or similar); Generator Plant Engineers (diesel or electric); Gunnite Combination Mixer & Compressor; Locomotive Engineer; Mixermobile; Mucking Machine; Posthole Auger or Punch; Pump (grout or jet); Soil Stabilizer (P & H or similar); Spreader Machine; Tractor (to D-6 or equivalent) and Traxcavator; Traverse Finish Machine; Turnhead Operator

GROUP 4: Concrete Pumps (squeeze-crete, flow-crete, pump-crete,

Whitman & similar); Curb Extruder (asphalt or concrete); Drills (churn, core, calyx or diamond)(Operate drilling machine, drive or transport drill rig to and on job site and weld well casing); Equipment Serviceman, Greaser & Oiler; Hoist (2 or more drums or Tower Hoist); Loaders (overhead & front-end, under 4 yds. R/T); Refrigeration Plant Engineer (under 1000 ton); Rubber-tired Skidders (R/T with or without attachments); Surface Heater & Planer Machine; Trenching Machines (under 7 ft. depth capacity); Turnhead (with re-screening); Vacuum Drill (reverse circulation drill under 8" bit)

GROUP 5: Backhoe (under 45,000 gw); Backhoe and Hoe Ram (under 3/4 yd.); Carrydeck & boom truck (under 25 tons); Cranes (25 tons & under),all attachments including clamshell, dragline); Derricks & Stifflegs (under 65 tons); Drilling Equipment (8" bit & over) (Robbins, reverse circulation & similar)(operates drill machine, drive or transport drill rig to and on job site and weld well casing); Hoe Ram; Piledriving Engineers; Paving (dual drum); Railroad Track Liner Operator(self-propelled); Refrigeration Plant Engineer (1000 tons & over); Signalman (Whirleys, Highline Hammerheads or similar)

GROUP 6: Asphalt Plant Operator; Automatic Subgrader (Ditches & Trimmers) (Autograde, ABC, R.A. Hansen & similar on grade wire); Backhoe (45,000 gw and over to 110,000 gw); Backhoes & Hoe Ram (3/4 yd. to 3 yd.); Batch Plant (over 4 units); Batch & Wet Mix Operator (multiple units, 2 & incl. 4); Blade Operator (Motor Patrol & Attachments, Athey & Huber); Boom Cats (side); Cableway

Controller (dispatcher); Clamshell Operator (under 3 yds.); Compactor (self-propelled with blade); Concrete Pump Boom Truck; Concrete Slip Form Paver; Cranes (over 25 tons including 45 tons), all attachments including clamshell, dragline; Crusher, Grizzle & Screening Plant Operator; Dozer, 834 R/T & similar; Draglines (under 3 yds.); Drill Doctor; H.D.Mechanic; H.D. Welder; Loader Operator (front-end & overhead, 4 yds. incl. 8 yds.), Multiple Dozer Units with single blade; Paving Machine (asphalt and concrete); Quad-Track or similar equipment; Rollerman (finishing asphalt pavement); Roto Mill (pavement grinder); Scrapers, all rubber-tired; Screed Operator; Shovel (under 3 yds.); Tractors (D-6 & equilvalent & over); Trenching Machines (7 ft. depth & over); Tug Boat Operator; Vactor Guzzler, super sucker

GROUP 7: Backhoe (over 110,000 gw); Backhoes & Hoe Ram (3 yds. & over); Blade (finish & bluetop), Automatic, CMI, ABC, Finish Athey & Huber & similar when used as automatic; Cableway Operators; Clamshell Operator (3 yds. & over); Cranes (over 45 tons to but not including 85 tons), all attachments including clamshell and dragline; Derricks & Stifflegs (65 tons & over); Draglines (3 yds. & over); Elevating Belt (Holland type); Heavy Equipment Robotics Operator; Loader (360 degrees revolving Koehring Scooper or similar); Loaders (overhead & front-end, over 8 yds. to 10 yds.); Rubber-tired Scrapers (multiple engine with three or more scrapers); Shovels (3 yds. & over); Ultra High Pressure Wateriet Cutting Tool System Operator (30,000 psi); Vacuum Blasting Machine Operator; Whirleys &

Hammerheads, ALL

GROUP 8: Cranes (85 tons and over, and all climbing, overhead, rail and tower); Loaders (overhead and front-end, 10 yards and over); Helicopter Pilot

BOOM PAY: (All Cranes, Including Tower)
180' to 250' $.30 over scale
Over 250' $.60 over scale

NOTE: In computing the length of the boom on Tower Cranes, they shall be measured from the base of the tower to the point of the boom.

HAZMAT: Anyone working on HAZMAT jobs, working with supplied air shall receive $1.00 an hour above classification.

ENGI0612B 06/01/2001

	Rates	Fringes
LEWIS, PIERCE, PACIFIC (portion lying north of a parallel line extending west from the northern boundary of Wahkaikum County to the sea) AND THURSTON COUNTIES		
ON PROJECTS DESCRIBED IN FOOTNOTE A BELOW, THE RATE FOR EACH GROUP SHALL BE 90% OF THE BASE RATE PLUS FULL FRINGE BENEFITS. ON ALL OTHER WORK, THE FOLLOWING RATES APPLY.		
POWER EQUIPMENT OPERATORS:		
Zone 1 (0-25 radius miles):		
GROUP 1AAA	29.16	8.38
GROUP 1AA	29.11	8.38
GROUP 1A	28.61	8.38
GROUP 1	28.11	8.38
GROUP 2	27.67	8.38
GROUP 3	27.31	8.38
GROUP 4	25.21	8.38

Zone Differential (Add to Zone 1 rates):
Zone 2 (26-45 radius miles) = $ .70
Zone 3 (Over 45 radius miles) - $1.00

BASEPOINTS: CENTRALIA, OLYMPIA, TACOMA

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1 AAA - Cranes-over 300 tons or 300 ft of boom (including jib with attachments)

GROUP 1AA - Cranes- 200 tonsto 300 tons, or 250 ft of boom (including jib with attachments; Tower crane over 175 ft in height, bas to boom

GROUP 1A - Cranes, 100 tons thru 199 tons, or 150 ft of boom (including jib with attachments); Crane-overhead, bridge type, 100 tons and over; Tower crane up to 175 ft in height base to boom; Loaders-overhead, 8 yards and over; Shovels, excavator,

backhoes-6 yards and over with attachments

GROUP 1 - Cableway; Cranes 45 tons thru 99 tons under 150 ft of boom (including jib with attachments); Crane-overhead, bridge type, 45 tons thru 99 tons; Derricks on building work; Excavator, shovel, backhoes over 3 yards and under 6 yards; Hard tail end dump articulating off-road equipment 45 yards and over; Loader-overhead, 6 yards to, but not including, 8 yards; Mucking machine, mole, tunnel, drill and/or shield; Quad 9 HD 41, D-10; Remote control operator on rubber tired earth moving equipment; Rollagon; Scrapers-self-propelled 45 yards and over; Slipform pavers; Transporters, all track or truck type

GROUP 2 - Barrier machine (zipper); Batch Plant Operator-concrete; Bump Cutter; Cranes, 20 tons thru 44 tons with attachments; Crane-Overhead, bridge type, 20 tons through 44 tons; Chipper; Concrete pump-truck mount with boom attachment; Crusher; Deck engineer/deck winches (power); Drilling machine; Excavator, shovel, backhoe-3 yards and under; Finishing machine, Bidwell, Gamaco and similar equipment; Guardrail punch; Loaders, overhead under 6 yards; Loaders-plant feed; Locomotives-all; Mechanics- all; Mixers, asphalt plant; Motor patrol graders, finishing; Piledriver (other than crane mount); Roto-mill, roto-grinder; Screedman, spreader, topside operator-Blaw Knox, Cedar Rapids, Jaeger, Caterpillar, Barbar Green; Scraper-self-propelled, hard tail end dump, articulating off-road equipment-under 45 yards; Subgrader trimmer; Tractors, backhoe over 75

hp; Transfer material service machine-shuttle buggy, Blaw Knox-Roadtec; Truck Crane oiler/driver-100 tons and over; Truck Mount Portable Conveyor; Yo Yo pay

GROUP 3 - Conveyors; Cranes through 19 tons with attachments; Crane-A-frame over 10 tons; Drill oilers-auger type, truck or crane mount; Dozer-D-9 and under; Forklift-3000 lbs. and over with attachments; Horizontal/directional drill locator; Outside Hoists-(elevators and manlifts), air tuggers, strato tower bucket elevators; Hydralifts/boom trucks over 10 tons; Loaders-elevating type, belt; Motor patrol grader-nonfinishing; Plant oiler-asphalt, crusher; Pump-Concrete; Roller, plant mix or multi-lfit materials; Saws-concrete; Scrapers, concrete and carry all; Service engineers-equipment; Trenching machines; Truck crane oiler/driver under 100 tons; Tractors, backhoe under 75 hp

GROUP 4 - Assistant Engineer; Bobcat; Brooms; Compressor; Concrete Finish Machine-laser screed; Cranes A-frame 10 tons and under; Elevator and manlift (permanent and shaft type); Forklifts-under 3000 lbs. with attachments; Gradechecker, stakehop; Hydralifts/boom trucks, 10 tons and under; Oil distributors, blower distribution and mulch seeding operator; Pavement breaker; Posthole digger-mechanical; Power plant; Pumps-water; Rigger and Bellman; Roller-other than plant mix; Wheel Tractors, farmall type; Shotcrete/gunite equipment operator

FOOTNOTE A- Reduced rates may be paid on the following:

1. Projects involving work on structures such as buildings and

bridges whose total value is less than $1.5 million excluding mechanical, electrical, and utility portions of the contract.

2. Projects of less than $1 million where no building is involved. Surfacing and paving included, but utilities excluded.

3. Marine projects (docks, wharfs, etc.) less than $150,000.

HANDLING OF HAZARDOUS WASTE MATERIALS: Personnel in all craft classifications subject to working inside a federally designated hazardous perimeter shall be elgible for compensation in accordance with the following group schedule relative to the level of hazardous waste as outlined in the specific hazardous waste project site safety plan.

H-1 Base wage rate when on a hazardous waste site when not outfitted with protective clothing
H-2 Class "C" Suit - Base wage rate plus $ .25 per hour.
H-3 Class "B" Suit - Base wage rate plus $ .50 per hour.
H-4 Class "A" Suit - Base wage rate plus $ .75 per hour.

IRON0086A 07/01/2001

	Rates	Fringes
IRONWORKERS	25.82	11.35

LABO0001I 06/01/2001

	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		
LABORERS:		
ZONE 1:		
GROUP 1	14.46	5.80
GROUP 2	16.78	5.80
GROUP 3	18.50	5.80
GROUP 4	18.98	5.80
GROUP 5	19.34	5.80

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):
ZONE 2 - $ .70
ZONE 3 - $1.00

BASE POINTS: CHELAN, SUNNYSIDE, WENATCHEE, AND YAKIMA

ZONE 1 - Projects within 25 radius miles of the respective city hall
ZONE 2 - More than 25 but less than 45 radius miles from the respective city hall
ZONE 3 - More than 45 radius miles from the respective city hall

CALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (North of a straight line made by extending the north boundary of Wahkiakum County west to the Pacific Ocean), PIERCE, SNOHOMISH AND THURSTON COUNTIES

LABORERS:
ZONE 1:

GROUP 1	16.92	5.80
GROUP 2	19.24	5.80
GROUP 3	23.92	5.80
GROUP 4	24.40	5.80
GROUP 5	24.76	5.80

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):
ZONE 2 - $ .70
ZONE 3 - $1.00

BASE POINTS: BELLINGHAM, MT. VERNON, EVERETT, SEATTLE, KENT, TACOMA, OLYMPIA, CENTRALIA, ABERDEEN, SHELTON, PT. TOWNSEND, PT. ANGELES, AND BREMERTON

ZONE 1 - Projects within 25 radius miles of the respective city hall
ZONE 2 - More than 25 but less than 45 radius miles from the respective city hall
ZONE 3 - More than 45 radius miles from the respective city hall

LABORERS CLASSIFICATIONS

GROUP 1: Landscaping and Planting; Watchman; Window Washer/Cleaner (detail clean-up, such as but not limited to cleaning floors, ceilings, walls, windows, etc., prior to final acceptance by the owner)
GROUP 2: Batch Weighman; Crusher Feeder; Fence Laborer; Flagman; Pilot Car

GROUP 3: General Laborer; Air, Gas, or Electric Vibrating Screed; Asbestos Abatement Laborer; Ballast Regulator Machine; Brush Cutter; Brush Hog Feeder; Burner; Carpenter Tender; Cement Finisher Tender; Change House or Dry Shack; Chipping Gun (under 30 lbs.); Choker Setter; Chuck Tender; Clean-up Laborer; Concrete Form Stripper; Curing Laborer; Demolition (wrecking and moving including charred material); Ditch Digger; Dump Person; Fine Graders; Firewatch; Form Setter; Gabian Basket Builders; Grout Machine Tender; Grinders; Guardrail Erector; Hazardous Waste Worker (Level C); Maintenance Person; Material Yard Person; Pot Tender; Rip Rap Person; Riggers; Scale Person; Sloper Sprayer; Signal Person; Stock Piler; Stake Hopper; Toolroom Man (at job site); Topper-Tailer; Track Laborer; Truck Spotter; Vinyl Seamer

GROUP 4: Cement Dumper-Paving; Chipping Gun (over 30 lbs.); Clary Power Spreader; Concrete Dumper/Chute Operator; Concrete Saw Operator; Drill Operator (hydraulic, diamond, aiartrac); Faller and Bucker Chain Saw; Grade Checker and Transit Person; Groutmen (pressure) including post tension beams; Hazardous Waste Worker (Level B); High Scaler; Jackhammer; Laserbeam Operator; Manhole Builder-Mudman; Mortarman and Hodcarrier; Nozzleman (concrete pump, green cutter when using combination of high pressure air and water on concrete and rock, sandblast, gunite, shotcrete, water blaster, vacuum blaster); Pavement Breaker; Pipe Layer and Caulker; Pipe Pot Tender; Pipe Reliner (not insert

type); Pipe Wrapper; Power Jacks; Railroad Spike Puller-Power; Raker-Asphalt; Rivet Buster; Rodder; Sloper (over 20'); Spreader (concrete); Tamper and Similar electric, air and glas operated tool; Timber Person-sewer (lagger shorer and cribber); Track Liner Power; Tugger Operator; Vibrator; Well Point Laborer

GROUP 5: Caisson Worker; Miner; Powderman; Re-Timberman; Hazardous Waste Worker (Level A).

LABO0238I 06/01/2001

	Rates	Fringes
CHELAN COUNTY		
HOD CARRIERS	21.35	5.00

LABO0335C 06/01/2001

	Rates	Fringes
PACIFIC (South of a straight line made by extending the north boundary line of Wahkiakum County west to the Pacific Ocean) COUNTY		
ZONE 1:		
LABORERS:		
GROUP 1	22.27	6.75
GROUP 2	22.77	6.75
GROUP 3	23.15	6.75
GROUP 4	23.47	6.75
GROUP 5	20.12	6.75
GROUP 6	18.06	6.75
GROUP 7	15.36	6.75

LABORERS CLASSIFICATIONS

GROUP 1: Asphalt Plant Laborers; Asphalt Spreaders; Batch Weighman; Broomers; Brush Burners and Cutters; Car and Truck Loaders; Carpenter Tender; Change-House Man or Dry Shack Man; Choker Setter; Clean-up Laborers; Curing-concrete; Demolition, Wrecking, and Moving Laborers; Dumpers, road oiling crew; Dumpmen (for grading crew); Elevator Feeders; Guard Rail, Median Rail, Reference Post, Guide Post, Right-of-way Marker; Fine Graders; Fire Watch; Form Strippers (not swinging stages); General Laborers; Hazardous Waste Worker; Leverman or Aggregate Spreader (Flaherty and similar types); Loading Spotters; Material Yard Man (including electrical); Pittsburgh Chipper Operator or similar types; Railroad Track Laborers; Ribbon Setters (including steel forms); Rip Rap Man (hand placed); Road Pump Tender; Sewer Laborer; Signalman; Skipman; Slopers; Spraymen; Stake Chaser; Stockpiler; Tie Back Shoring; Timber Faller and Bucker (hand labor); Toolroom Man (at job site); Tunnel Bullgang (above ground); Weight-Man-Crusher (aggregate when used)

GROUP 2: Applicator (including pot power tender for same), applying protective material by hand or nozzle on utility lines

or storage tanks on project; Brush (power saw); Burners; Choker Splicer; Clary Power Spreader and similar types; Clean up-nozzleman-Green cutter (concrete, rock, etc.); Concrete Laborer; Concrete Power Buggyman; Crusher Feeder; Demolition and Wrecking Charred Materials; Gunite Nozzleman Tender; Gunite or Sand Blasting Pot Tender; Handlers or Mixers of all Materials of an irritating nature (including cement and lime); Pipe Doping & Wrapping; Tool Operators (includes but not limited to: Dry pack machine, Jackhammer, Chipping guns, Paving breakers); Post Hole Digger, air, gas or electric; Vibrating Screed; Tampers; Sand Blasting (wet); Stake-Setter; Tunnel-Muckers, Brakemen, Concrete Crew, Bull gang (Underground)

GROUP 3: Asbestos Removal (structural removal only); Bit Grinder; Drill Doctor; Drill Operators, air tracks cat drills, wagon drills, rubber-mounted drills, and other similar types; Concrete Saw Operator; Gunite Nozzleman; High scalers, strippers and drillers (covers work in swinging stages, chairs or belts, under extreme conditions unusual to normal drilling, blasting, barring-down, or sloping and stripping); Manhole Builder; Powdermen; Power Saw Operators (Bucking and Falling); Pumpcrete Nozzlemen; Sand Blasting (dry); Sewer Timberman; Track Liners;

Anchor Machines; Ballast Regulators; Multiple Tampers; Power Jacks; Tugger Operator; Tunnel-Chuck Tenders, Nippers and Timbermen; Vibrator; Water Blaster

GROUP 4: Asphalt Raker; Concrete Saw Operator (walls); Concrete Nozzelman; Grade Checker; Pipelayer; Laser Beam (Tunnel) applicable when assigned to move, set up, align laser beam; Miner-Tunnel; Motorman-dinky Locomotive-Tunnel; Powderman-Tunnel; Shield Operator-Tunnel

GROUP 5: Traffic Flaggers

GROUP 6: Fence Builders

GROUP 7: Landscaping and Planting Laborers

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):

ZONE 2 - $0.65
ZONE 3 - 1.15
ZONE 4 - 1.70
ZONE 5 - 2.75

ZONE DEFINITIONS

BASE POINTS: GOLDENDALE, LONGVIEW, AND VANCOUVER

ZONE 1: Projects within 30 miles of the respective city halL
ZONE 2: More than 30 miles but less than 40 miles from the respective city hall.
ZONE 3: More than 40 miles but less than 50 miles from the respective city hall.
ZONE 4: More than 50 miles but less than 80 miles from the respective city hall.

ZONE 5: More than 80 miles from the respective city hall.

LABO0335K 06/01/2001

	Rates	Fringes
PACIFIC(south of a straight line made by extending the north boundary of Wahkiakum County west to the Pacific Ocean)		
HOD CARRIERS	24.64	5.75

PAIN0005A 03/01/2000

	Rates	Fringes
CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PIERCE, SNOHOMISH AND THURSTON COUNTIES		
PAINTERS	22.94	3.73

PAIN0005C 06/10/2000

	Rates	Fringes
CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PIERCE, SNOHOMISH AND THURSTON COUNTIES		
DRYWALL FINSIHERS	25.50	7.82

PAIN0005H 07/01/2001

	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		
PAINTERS:		
BRUSH, PAPERHANGER, STEAM-CLEANING, STRIPING and SPRAY	19.17	4.24
TV, RADIO, ELECTRICAL TRANSMISSION TOWERS	20.92	4.24

PAIN0005P 06/01/2001

	Rates	Fringes
CALLAM, GRAYS HARBOR, JEFFERSON, LEWIS, MASON, PACIFIC (NORTHERN PORTION), PIERCE AND THURSTON COUNTIES		
SOFT FLOOR LAYERS	21.77	6.63

PAIN0054G 09/01/2001

	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		
GLAZIERS	17.32	3.17

PAIN0054I 06/01/1999

	Rates	Fringes

CHELAN AND KITTITAS COUNTIES

DRYWALL FINISHER (TAPER)	19.98	4.25

PAIN0055M 01/01/2000

	Rates	Fringes
PACIFIC COUNTY		
DRYWALL FINSIHERS	24.00	7.60

PAIN0055N 11/01/1999

	Rates	Fringes
PACIFIC COUNTY		
PAINTERS:		
Brush & Roller	17.10	3.48
Spray and Sandblasting	17.70	3.48
High work - All work		
60 ft. or higher	17.60	3.48

PAIN0188A 01/01/2002

	Rates	Fringes
CLALLAM, JEFFERSON, KING, KITSAP, LEWIS, MASON, PIERCE, SNOHOMISH AND THURSTON COUNTIES		
GLAZIERS	29.23	6.73

PAIN0188B 07/01/2001

	Rates	Fringes
GRAYS HARBOR AND PACIFIC COUNTIES		
GLAZIERS	14.58	4.69

PAIN1238D 06/01/2001

	Rates	Fringes
KING, KITSAP AND SNOHOMISH COUNTIES		
SOFT FLOOR LAYERS	23.69	6.91

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* PLAS0072C 06/01/2001

	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		
Zone 1:		
CEMENT MASONS	21.36	5.63

Zone Differential (Add to Zone 1 rates): Zone 2 - $2.00

BASE POINTS: Spokane, Pasco, Moses Lake, and Lewiston

Zone 1: 0 - 45 radius miles from the main post office
Zone 2: 45 radius miles from the main post office

PLAS0082D 06/01/2001

	Rates	Fringes
PACIFIC (South of a straight line made by extending the north boundary line of Wahkiakum County west to the Pacific Ocean) COUNTY		
PLASTERERS	25.19	6.58

PLAS0528B 12/31/2001

	Rates	Fringes
CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (North of a straight line made by extending the north boundary line of Wahkiakum Count, west to the Pacific Ocean), PIERCE, SNOHOMISH AND THURSTON COUNTIES		
CEMENT MASONS	26.66	9.49

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* PLUM0032A 01/01/2002

	Rates	Fringes
CHELAN AND KITTITAS (NORTHERN TIP) COUNTIES		
PLUMBERS AND PIPEFITTERS	25.09	9.17

PLUM0032B 01/01/2002

	Rates	Fringes
CLALLAM, KING AND JEFFERSON COUNTIES		
PLUMBERS AND PIPEFITTERS	32.08	11.53

PLUM0082D 06/01/2001

	Rates	Fringes
GRAYS HARBOR, LEWIS, MASON (EXCLUDING NE SECTION), PACIFIC, PIERCE AND THURSTON COUNTIES		
PLUMBERS AND PIPEFITTERS	24.57	14.72

PLUM0265A 06/01/2001

	Rates	Fringes
SNOHOMISH COUNTY		
PLUMBERS AND PIPEFITTERS:	28.37	10.24

PLUM0598B 06/01/2001

	Rates	Fringes
KITTITAS (ALL BUT NORTHERN TIP)		
PLUMBERS AND PIPEFITTERS	28.85	11.55

PLUM0631A 06/01/2001

	Rates	Fringes
MASON (NE SECTION), AND KITSAP COUNTIES		
PLUMBERS/PIPEFITTERS:		
All new construction, additions, and remodeling of commercial building projects such as: cocktail lounges and taverns, professional buildings, medical clinics, retail stores, hotels and motels, restaurants and fast food types, gasoline service stations, and car washes where the plumbing and mechanical cost of the project is less than $100,000	14.55	7.98
All other work where the plumbing and mechanical cost of the project is $100,000 and over	24.65	13.41

ROOF0054A 10/01/2001

	Rates	Fringes
CLALLAM, JEFFERSON, KING, KITSAP, MASON AND SNOHOMISH COUNTIES		
ROOFERS	25.12	7.41

ROOF0153A 01/01/2002

	Rates	Fringes
GRAYS HARBOR, LEWIS, PACIFIC, PIERCE AND THURSTON COUNTIES		
ROOFERS	24.50	6.44

ROOF0189A 07/01/2001

	Rates	Fringes
CHELAN COUNTY		
ROOFERS	19.05	6.05

ROOF0189E 07/01/2001

	Rates	Fringes
KITTITAS COUNTY		
ROOFERS	17.48	5.60

SFWA0699B 07/01/2001

	Rates	Fringes
KING, KITSAP, PIERCE, SNOHOMISH AND THURSTON COUNTIES		
SPRINKLER FITTERS	31.48	10.95

SHEE0066D 06/01/2001

	Rates	Fringes
CHELAN COUNTY		
SHEET METAL WORKERS	24.04	7.26

SHEE0066F 06/01/2001

	Rates	Fringes
CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC, PIERCE, SNOHOMISH AND THURSTON COUNTIES		
SHEET METAL WORKERS	29.98	9.67

SHEE0066M 06/01/2001

	Rates	Fringes
KITTITAS COUNTY		
SHEET METAL WORKERS	25.43	8.85

TEAM0174B 06/01/2001

	Rates	Fringes
CLALLAM, GRAYS HARBOR, JEFFERSON, KING, KITSAP, LEWIS, MASON, PACIFIC (North of a straight line made by extending the north boundary line of Wahkiakum County west to the Pacific Ocean), PIERCE, SNOHOMISH AND THURSTON COUNTIES		
TRUCK DRIVERS:		
GROUP 1:	24.94	9.12
GROUP 2:	24.36	9.12
GROUP 3:	22.08	9.12
GROUP 4:	18.00	9.12
GROUP 5:	24.70	9.12

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1 -"A-frame or Hydralift" trucks and Boom trucks or similar equipment when "A" frame or "Hydralift" and Boom truck or similar equipment is used; Buggymobile; Bulk Cement Tanker; Dumpsters and similar equipment, Tournorockers, Tournowagon, Tournotrailer, Cat DW series, Terra Cobra, Le Tourneau, Westinghouse, Athye Wagon, Eucid Two and Four-Wheeled power tractor with trailer and similar top-loaded equipment transporting material: Dump Trucks, side, end and bottom dump,

including semi-trucks and trains or combinations thereof with 16 yards to 30 yards capacity: Over 30 yards $.15 per hour additional for each 10 yard increment; Explosive Truck (field mix) and similar equipment; Hyster Operators (handling bulk loose aggregates); Lowbed and Heavy Duty Trailer; Road Oil Distributor Driver; Spreader, Flaherty Transit mix used exclusively in heavy construction; Water Wagon and Tank Truck-3,000 gallons and over capacity

GROUP 2 - Bulllifts, or similar equipment used in loading or unloading trucks, transporting materials on job site; Dumpsters, and similar equipment, Tournorockers, Tournowagon, Turnotrailer, Cat. D.W. Series, Terra Cobra, Le Tourneau, Westinghous, Athye wagon, Euclid two and four-wheeled power tractor with trailer and similar top-loaded equipment transporting material, Dump trucks, side, end and bottom dump, including semi-trucks and trains or combinations thereof with less than 16 yards capacity; Flatbed: (Dual Rear Axle); Grease Truck, Fuel Truck, Greaser, Battery Service Man and/or Tire Service Man; Leverman and loader at bunkers and batch plants; Oil tank transport; Scissor, Slurry

Truck; Sno-Go and similar equipment; Swampers; Straddler Carrier (Ross, Hyster) and similar equipment; Team Driver; Tractor (small rubber-tired (when used within Teamster jurisdiction); Vacuum truck; Water Wagon and Tank trucks-less than 3,000 gallons capacity; Winch truck; Wrecker, tow truck and similar equipment

GROUP 3 - Flatbed: single rear axle; Pickup sweeper, Pickup Truck (Adjust upward by $2.00 per hour for onsite work)

GROUP 4 - Escort or pilot driver

GROUP 5 - Mechanic

HAZMAT PROJECTS

Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in addition to the classification working in as follows:
LEVEL C: +$.25 per hour - This level uses an air purifying respirator or additional protective clothing.
LEVEL B: +$.50 per hour - Uses same respirator protection as Level A. Supplied air line is provided in conjunction with a chemical "splash suit."
LEVEL A: +$.75 per hour - This level utilizes a fully-encapsulated suit with a self-contained breathing apparatus or a supplied air line.

ZONE DIFFERENTIAL

Zone pay will be calculated from the city center of the following listed cities:

BELLINGHAM	CENTRALIA	RAYMOND	OLYMPIA
EVERETT	SHELTON	ANACORTES	BELLEVUE
SEATTLE	PORT ANGELES	MT. VERNON	KENT
TACOMA	PORT TOWNSEND	ABERDEEN	BREMERTON

Zone A - 0 - 25 miles - Free Zone
Zone B - 25 - 45 miles - $ .70 per hour
Zone C - Over 45 miles - $1.00 per hour

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* TEAM0760F 06/01/2001

	Rates	Fringes
CHELAN AND KITTITAS COUNTIES		
(ANYONE WORKING ON HAZMAT JOBS SEE FOOTNOTE A BELOW)		
TRUCK DRIVERS:		
GROUP 1	19.33	8.00
GROUP 2	21.97	8.00
GROUP 3	22.08	8.00
GROUP 4	22.41	8.00
GROUP 5	22.52	8.00
GROUP 6	22.68	8.00
GROUP 7	23.22	8.00
GROUP 8	23.64	8.00

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Escort Driver or Pilot Car; Employee Haul; Power Boat Hauling Employees or Material

GROUP 2: Fish Truck; Flat Bed Truck; Fork Lift (3000 lbs. and under); Trailer Mounted Hydro Seeder and Mulcher; Leverperson (loading trucks at bunkers); Seeder & Mulcher; Stationary Fuel Operator; Tractor (small, rubber-tired, pulling trailer or similar equipment)

GROUP 3: Auto Crane (2000 lbs. capacity); Buggy Mobile & Similar; Bulk Cement Tanks & Spreader; Dumptor (6 yds. & under); Flat Bed Truck with Hydraulic System; Fork Lift (3001-16,000 lbs.); Fuel Truck Driver; Steamcleaner & Washer; Power Operated Sweeper; Rubber-tired Tunnel Jumbo; Scissors Truck; Slurry Truck Driver; Straddle Carrier (Ross, Hyster, & similar); Tireperson; Transit Mixers & Truck Hauling Concrete (3 yd. to & including 6 yds.); Trucks, side, end, bottom and articulated end dump (3 yards to and including 6 yds.); Warehouseperson (to include shipping & receiving); Wrecker & Tow Truck

GROUP 4: A-Frame; Burner, Cutter, & Welder; Service Greaser; Trucks, side, end, bottom and articulated end dump (over 6 yds. to & including 12 yds.); Truck Mounted Hydro Seeder; Warehouseperson; Water Tank truck (0-8000 gallons)

GROUP 5: Dumpster (over 6 yds.); Lowboy (50 tons & under); Self-Loading Roll Off; Semi-Truck & Trailer; Tractor with Steer Trailer; Transit Mixers and Trucks Hauling Concrete (over 6 yds. to and including 10 yds.); Trucks, side, end, bottom and articulated end dump (over 12 yds. to & including 20 yds.); Truck-Mounted Crane (with load bearing surface either mounted or

pulled)(up to 14 ton); Vacuum Truck (super sucker, guzzler, etc.)

GROUP 6: Flaherty Spreader Box Driver; Flowboys; Fork Lift (over 16,000 lbs.); Dumps (Semi-end); Lowboy (over 50 tons); Mechanic (Field); Transfer Truck and Trailer; Transit Mixers & Trucks Hauling Concrete (over 10 yds. to & including 20 yds.); Trucks, side, end, bottom and end dump (over 20 yds. to & including 40 yds.); Truck and Pup; Tournarocker, DW's & similar with 2 or more 4 wheel-power tractor with trailer, gallonage or yardage scale, whichever is greater; Water Tank Truck (8,001-14,000 gallons)

GROUP 7: Oil Distributor Driver; Stringer Truck (cable operated trailer); Transit Mixers & Hauling Concrete (over 20 yds.); Truck, side, end, bottom and articulated end dump (over 40 yds. to & including 100 yds.); Truck Mounted Crane (with load bearing surface either mounted or pulled (16 through 25 tons)

GROUP 8: Prime Movers and Stinger Truck; Trucks, side, end, bottom and articulated end dump (over 100 yds.); Helicopter

Pilot Hauling Employees or Materials

Footnote A- Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in additon to the classification working in as follows:

LEVEL D: - $.25 PER HOUR (This is the lowest level of protection. No respirator is used and skin protection is minimal.
LEVEL C: - $.50 PER HOUR (This level uses an air purifying respirator or additional protective clothing.
LEVEL B: - $.75 PER HOUR (Uses same respirator protection as Level A. Supplied air line is provided in conjunction with a chemical "spash suit."
LEVEL A: - $1.00 PER HOUR (this level utilizes a fully-encapsulated suit with a self-contained breathing apparatus or a supplied air line.

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

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

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

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can

be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

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

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

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

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

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

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

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

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

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

GENERAL: The attached Division 1 Specifications have been prepared by the Government and specify administrative and procedural requirements applicable to this contract.

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SECTION 01001

SUPPLEMENTARY REQUIREMENTS

PART 1 GENERAL

1.1 DEFINITIONS

The references listed below are to be defined as indicated wherever they may be used in the TECHNICAL SPECIFICATIONS.

"SUPPLEMENTARY REQUIREMENTS " shall be read to pertain to any of the sections of the DIVISION 1 as required by the content of the section or paragraph containing the reference.

Specification “SECTION 01300 – SUBMITTALS” shall be read as a specification “SECTION 01330 – SUBMITTAL PROCEDURES”.

Specification “SECTION 01400 – CONTRACTOR QUALITY CONTROL” shall be read as a specification “SECTION 01451 – CONTRACTOR QUALITY CONTROL”.

1.2 CONSTRUCTION SCHEDULING

The instructions for preparation and submittal of the Contractor-prepared Network Analysis System are found in SECTION 01320, PROJECT SCHEDULE.

1.3 CORRESPONDENCE

1.3.1 All correspondence shall be addressed to the Administrative Contracting Officer, shall be serially numbered commencing with Number 1, with no numbers missing or duplicated and shall be furnished with an original and one copy. Enclosures attached or transmitted with the correspondence shall also be furnished with an original and one copy. Each serial letter shall make reference to the contract name, contract number and shall have only one subject.

1.3.2 All correspondence from the Contracting Officer will be also serially numbered with no numbers missing or duplicated. Letters to the Contractor will be forwarded in duplicate.

1.3.3 In the event there is more than one project within a contract, correspondence shall contain separate and distinct submittals to identify each project by name.

1.3.4 For submission of Contractor payment requests, See Section 01025, PAYMENT.

1.4 IDENTIFICATION OF EMPLOYEES AND MILITARY REGULATIONS:

(a) The Contractor shall be responsible for compliance with all regulations and orders of the Commanding Officer of the Military Installation, respecting identification of employees, movements on installation, parking, truck entry, and all other military regulations which may affect the work.

(b) The work under this Contract is to be performed at an operating Military Installation with consequent restrictions on entry and movement of nonmilitary personnel and equipment.

(c) The Commanding Officer of Fort Lewis, Washington, has initiated the following specific requirement regarding vehicle registration for this contract.

Contractors performing work on Fort Lewis shall, after award, register all vehicles to be used on the installation with the Vehicle Registration Section of the Law Enforcement Command. Contractor employees entering the installation in privately owned vehicles (POVs) shall also register their vehicles. A copy of contract award, proof of liability insurance, current driver's license and state vehicle registration shall be required to register Contractor, subcontractor, and employee vehicles.

Upon completion of the contract, it shall be the prime contractor's responsibility to collect all vehicle decals issued under the contract including those issued to employees and subcontractors. Decals are to be carefully removed from the vehicle, placed in an envelope and attached to the original documentation (i.e., post vehicle registration document) received with the decal. Decals, with documentation, must be returned to Vehicle Registration, Building 5236. Proof of decal clearance for all vehicles registered under this contract will be issued to the prime contractor and shall be returned to the Contracting Officer prior to final payment.

In the event of contract extension, it shall be the prime contractor's responsibility to report time extension to Vehicle Registration, with evidence of same. For further information, contact Vehicle Registration, Building 5236 (Telephone: (253) 967-7668), Fort Lewis, Washington 98433-5000.

(d) Employee Access and Identification: The employee who requires access to Fort Lewis to perform work under this contract shall obtain a Government issued identification badge.

1. Employee Access: The contractor shall, prior to the contract start date, provide the sponsoring agency the name of the employee who shall require access to Fort Lewis to perform work. This notification shall include the employee's last name, first name and middle initial and the employee's Social Security Number. The contractor shall ensure that the employee obtains a badge prior to beginning performance. Contractor employees hired during the term of the contract must obtain the badge before beginning work under the contract. If an employee no longer needs a badge for any reason (e.g., quits his/her job or is no longer performs work under the contract), the Contractor shall return the badge to the Contracting Officer's Representative (COR) within two (2) calendar days of such change. If the badge cannot be returned within the required time frame for any reason, the contractor shall immediately notify the COR verbally, followed up in writing the next work day. An employee's inability to obtain entrance to a Government installation because he/she does not have the required Government provided ID badge shall not excuse timely performance of the requirements of this contract. The Government may change the location(s) at which badges are issued or returned, with or without advance notice to the Contractor, at no additional cost to the Government as a result thereof.

2. Contractor Request for Government Identification Badge. The required information shall be submitted to the Sponsoring Agency on the form entitled *CONTRACTOR REQUEST FOR GOVERNMENT IDENTIFICATION BADGE (S)*. The form is on the Directorate of Contracting web page and may be accessed at web address http://150.192.40.37:82 . After approval by a Contracting Officer, contractor shall be directed to have employee(s) report to a specified building to obtain their badges.

3. Lost or Stolen Badges. Government provided ID badges shall not be reproduced or copied by the Contractor, its subcontractors, or their employees. If an employee's badge is lost or stolen the Contractor shall verbally report the loss or theft to the COR on the day such loss or theft is discovered; followed by a written report of the circumstances to the Contracting Officer. The within report shall be completed one (1) calendar day after the loss or theft is discovered.

4. Use and Wear of Badge. Each contractor employee shall wear Government furnished identification badge while performing work under the contract. The badge shall be worn on the upper

front of the outer garment unless precluded by OSHA regulation(s). The badge shall not be used for access to any Government installation except for performance of work under the contract for which it was issued.

5. Expiration/Termination. The contractor shall, upon expiration or termination of the contract, collect all badges and turn them in to the COR. The final invoice will not be considered proper for purposes of the Prompt Payment Act (FAR 52.232-25, in Section I) until all badges have been accounted for.

6. Entrance Denial by Military Police. Contractor employees may be denied entry to the Installation by Military Police if it is determined that such entry may be contrary to good order, discipline, or the security of the Installation.

1.5 ADVANCED NOTICE OF CONTRACTOR PERFORMED ACCEPTANCE TESTING

The Contractor shall notify the Contracting Officer a minimum of 20 days prior to performing any acceptance or "buy off" testing of the following systems, (1) EMCS, (2) Fire Detection/Protection, and (3) HVAC. Advance notification is not required for testing performed as part of fabrication or installation.

1.6 CONTRACTOR'S FILES

Contractor shall maintain "Approved (Action Code "A") and "Approved Except as Noted (Action Code "B") shop drawing files in fabrication shops and at project sites for government use.

1.7 AUDIO-VIDEO RECORDINGS

1.7.1 General

The Contractor shall provide all equipment, materials, and trained personnel to visually and audibly record (video tape) all on site operations and maintenance (O&M) training sessions for this contract. The video technician shall be employed by a video production company that has been in business for a minimum of 2 years. The Contractor shall submit the resume of the technician and video production company. Also the Contractor shall submit for approval an agenda or an outline breakdown of the proposed presentation. Video tapes shall be produced in the VHS format. Audio shall be adjusted, filtered or otherwise controlled to insure that the trainer can be understood at all times. Each system or piece of equipment shall be covered in a single tape or set of tapes which shall be correlated with the O&M manuals provided. Video tapes and their individual storage cases shall be identified with a typewritten label showing the project, equipment or system, and contract number; this same information shall be provided as an introduction on each video tape. When two or more tapes are provided, they shall be submitted as a set in an appropriate storage container.

1.7.2 Submittals

Prior to conducting the training sessions the following shall be submitted for approval:

1) A training plan consisting of the agenda or an outline breakdown of the proposed presentation and

2) The qualifications of the trainer and the video recording technician

Two copies of the video taped material shall be submitted to the Contracting Officer within 10 days after completion of video taping the training sessions.

1.8 MECHANICAL AND ELECTRICAL LAYOUT DRAWINGS

The Contractor shall submit, for Contracting Officer's approval, scaled layout drawings, including appropriate elevations and sections, as required, showing the room arrangement the Contractor proposes for all pieces of mechanical and electrical equipment and appurtenances thereto, such as but not limited to: air conditioning equipment, boilers, compressors, hot water tanks, pumps, electrical control panels, ducts and piping, etc., that are to be located in the room. Mechanical and electrical layouts shall be coordinated to eliminate any conflicts of installed equipment. No payments will be made to the Contractor for furnishing or installing equipment until the layout drawings have been approved by the Contracting Officer. Mechanical and electrical equipment layout drawings shall be identified and submitted as specified herein. Equipment rooms shown on the drawings are of adequate size to accommodate equipment of required capacities as available from several manufacturers with sufficient space left for access, servicing, and removal. The use of equipment items with dimensions such as "to crowd the space" will not be permitted.

1.9 COLOR BOARDS

Three sets of exterior color boards shall be submitted as part of the 65% Building design submittal (see specification section 00810, paragraph Design Submittals). The board shall include samples of colors and finishes of every exterior finish. Where special finishes such as architectural concrete or prefinished metal panels are required, samples of not less than 305 mm (12 inches) square shall be submitted with the board. Boards shall include, where applicable, color samples of integrally colored block, brick, and prefinished metal roofing and siding. The board shall be 610 mm by 610 mm (24 inches by 24 inches). If more space is needed, more than one board per set may be submitted. This is not meant to replace the samples called for in other portions of the specifications. The Contractor shall certify that he has reviewed the color boards in detail and that they are in strict accordance with the contract drawings and specifications, except as may be otherwise explicitly stated.

1.10 SPECIAL SAFETY REQUIREMENTS:

All construction activities shall be conducted in strict compliance with the Corps of Engineers Safety and Health Requirements Manual EM 385-1-1, and Occupational Safety and Health Administration regulations, as applicable. The manual is available on line at:

http://www.usace.army.mil/inlet/usace-docs/eng-manuals/em385-1-1/toc.htm

1.10.1 In addition to Safety and Health Requirements Manual EM 385-1-1, and all applicable OSHA standards, the Contractor shall comply with the requirements listed below. Paragraph numbers refer to EM 385-1-1 or are added thereto.

(a) Paragraph 01.A.12: Add new paragraph: Safety Personnel. The Contractor shall designate a person on his staff to manage the Contractor's safety and accident prevention program. This person will provide a point of contact for the Contracting Officer on matters of job safety, and shall be responsible for ensuring the health and safety of on site personnel.

(b) Paragraph 01.D.02, revise as follows:

(1) Replace paragraph 01.D.02c with the following:
"c. Property damage in excess of $2,000.00

(2) Add new paragraph d as follows:
"An injury resulting in a lost workday, not including the day of injury."

1.11 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (ER 415-1-15 31 OCT 89)

This Paragraph specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the CONTRACT CLAUSE entitled "Default (Fixed Price Construction)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

1.11.1 The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

1.11.2 The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

1.11.3 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
9	8	8	4	2	3	1	2	4	7	10	10

1.11.4 Upon acknowledgment of the notice to proceed (NTP) and continuing throughout the contract, the contractor will record on the daily QCQ report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delays must prevent work on critical activities for 50 percent or more of the contractor's scheduled work day.

1.11.5 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 1.11.3, 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)".

PARTS 2 AND 3 NOT USED

END OF SECTION

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SECTION 01005

SITE SPECIFIC
SUPPLEMENTARY REQUIREMENTS

1. CONDUCT OF WORK

1.1 COORDINATION AND ACCESS TO SITE

1.1.1 Coordination with using agencies shall be made through the Contracting Officer to assist the Contractor in completing the work with a minimum of interference and inconvenience.

1.1.2 Vehicle Access:

1.1.2.1 All Contractor-owned and privately-owned vehicles require an access pass/vehicle decal. This pass is obtained from the Fort Lewis Vehicle Registrar, Building 2140 (Waller Hall) by showing proof of insurance; the vehicle registration; Washington State driver's license; and a letter with original signature of prime Contractor or his superintendent stating the contract name and number, the contract period for which the pass is required, and the employee's name. See Paragraph IDENTIFICATION OF EMPLOYEES AND MILITARY REGULATIONS in SECTION 01001 for specific requirements.

1.1.2.2 Commercial vehicle access to Fort Lewis will be allowed at the Logistic Center Gate (Exit 123 from I-5) and the Dupont Gate (Exit 119 from I-5). The Logistics Center Gate (primary access point for commercial traffic) is open for inbound commercial vehicle access and inspection from 0530 hours to 2000 hours, Monday through Friday. The Dupont Gate (secondary access point for commercial access) is open for inbound commercial vehicle access and inspection from 0530 hours to 2000 hours 7 days per week. **All commercial vehicles will be searched.** Drivers should anticipate delays.

1.1.2.3 If the commercial vehicle is a cement concrete truck carrying a load for delivery, carrying a load of hot asphalt concrete for delivery or a garbage or refuse collection truck, the driver shall notify the gate guard as soon as possible and request that the vehicle be given priority for being searched; however, the Government does not guarantee that the vehicle will be given priority.

1.1.3 When keys are required for access to facilities on this contract, they shall be obtained through the Contracting Officer.

1.1.3.1 The Contractor shall be responsible for Government-owned keys issued for access to facilities or areas pertinent to this contract.

1.1.3.2 Upon completion of the work in an area, or upon request of the Contracting Officer, the key or keys relevant to the completed areas shall be returned.

1.1.3.3 Should the Contractor lose a key:

a. the Contracting Officer shall be notified, in writing, within three (3) working days after the loss is discovered and

b. should the key not be found before final acceptance, the final contract payment shall be reduced by $100 for each key not returned.

1.1.4 Work hours in the construction area will be restricted to 7:30 a.m. to 4 p.m. daily, Monday through Friday, excluding Federal holidays. Work hours other than as specified above shall be coordinated with and approved by the Contracting Officer.

1.1.5 Contractor's workmen shall have on either a uniform with the firm name and the workman's last name or shall have a badge pinned on with both the firm name and the workman's photograph and full name.

1.2 UTILITY OUTAGES

Contractor shall coordinate utility outages with the Contracting Officer at least 7 days in advance. Outages shall be kept to a minimum and any one outage shall not last more than 2 hours. All utility work shall be performed in such a way as to minimize traffic impact.

1.3 PROTECTION OF GOVERNMENT PROPERTY

In addition to requirements of the CONTRACT CLAUSES, Contractor shall protect all Government property within the buildings in which he is working, except for such property as is required to be demolished. Property which is to be demolished shall be protected until its scheduled demolition time. Protection shall include, but not be limited to, protection from construction generated dust, debris, water, and vibration.

1.4 COMMUNICATIONS

The Contractor shall coordinate work on telecommunication systems with the Fort Lewis Directorate of Information Management (DOIM). See Section 00860 – Part II , paragraph 3.5 ELECTRICAL DESIGN REQUIREMENTS for details.

END OF SECTION

SECTION 01025

PAYMENT

1.1 GENERAL

The contract price for each item shall constitute full compensation for furnishing all plant, labor, materials, appurtenances, and incidentals and performing all operations necessary to construct and complete the items in accordance with these specifications and the applicable drawings, including surveying performed by the Contractor. Payment for each item shall be considered as full compensation, notwithstanding that minor features may not be mentioned herein. Work paid for under one item will not be paid for under any other item. No separate payment will be made for the work, services, or operations required by the Contractor, as specified in DIVISION 1, GENERAL REQUIREMENTS, to complete the project in accordance with these specifications; all costs thereof shall be considered as incidental to the work.

1.2 PAYMENT

(Contractor will complete this section)

1.3 PROGRESS PAYMENT INVOICE

Requests for payment shall be submitted in accordance with Federal Acquisition Regulations (FAR) Subpart 32.9, entitled "PROMPT PAYMENT", and Paragraphs 52.232-5 and 52.232-27, entitled "Payments Under Fixed-Price Construction Contracts", and "Prompt Payment for Construction Contracts", respectively. In addition each request shall be submitted in the number of copies and to the designated billing office as shown in the Contract.

1.3.1 When submitting payment requests, the Contractor shall complete Blocks 1 through 12 of the "PROGRESS PAYMENT INVOICE" Form as directed by the Contracting Officer. (A sample form is attached at the end of this Technical Specification Section.) The completed form shall then become the cover document to which all other support data shall be attached.

1.3.2 One additional copy of the entire request for payment, to include the "PROGRESS PAYMENT INVOICE" cover document, shall be forwarded to a separate address as designated by the Contracting Officer.

1.3.3 The Contractor shall submit with each pay request, a list of subcontractors that have worked during that pay period. The listing shall be broken down into weeks, identifying each subcontractor that has worked during a particular week, and indicate the total number of employees that have worked on site for each subcontractor for each week. The prime Contractor shall also indicate the total number of employees for its on site staff for each week.

PARTS 2 and 3 NOT USED

PROGRESS PAYMENT INVOICE

See Federal Acquisition Regulations (FAR) 32.900, 52.232-5, & 52.232-27

1. PROJECT AND LOCATION	2. DATE
3. CONTRACTOR NAME AND ADDRESS (Must be the same as in the Contract)	4. CONTRACT NO. 5. INVOICE NO.
6. DESCRIPTION OF WORK	7. PERIOD OF PERFORMANCE From: To:
8. DISCOUNT TERMS	
9. OFFICIAL TO WHOM PAYMENT IS TO BE FORWARDED Name: Title: Phone: ( ) -	10. OFFICIAL TO BE NOTIFIED OF DEFECTIVE INVOICE Name: Title: Phone ( ) -

11. CERTIFICATION: I hereby certify, to the best of my knowledge and belief, that

(1) The amounts requested are only for the performance in accordance with the specifications, terms, and conditions of this contract;

(2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification,

in accordance with subcontract agreements and the requirements of Chapter 39 of Title 31, United States Code;

and

(3) This request for progress payment 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.

_____ _____ _____

(Signature) **(Title)** **(Date)**

12. OTHER INFORMATION OR DOCUMENTATION required by Contract. Provide two (2) copies of each (check and attach if applicable): _____ Updated Progress Chart/Schedule _____ Progress Narrative _____ Certified Payrolls (submitted weekly) _____ Safety Exposure Report _____ Updated Submittal \register _____ Progress Photos _____ Subcontractor/Employee Listings	(FOR GOVERNMENT USE ONLY) Retainage: _____% Amt: $_____ Withholdings: $ _____ Reason: _____ _____ Following items are current: As-Builts _____ Yes _____ No O & M Manuals _____ Yes _____ No 1354 Data _____ Yes _____ No Submittal Register _____Yes _____No

END OF SECTION

SECTION 01035

MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 PROPOSED PROJECT MODIFICATIONS

Price proposals for proposed modifications shall be submitted in accordance with the requirements of the Contract Clause MODIFICATION PROPOSALS - PRICE BREAKDOWNS. If change order work impacts or delays other unchanged contract work, the costs of such impacts or delays shall be included in the proposals and separately identified. Additional instructions for submitting price proposals can be found in NPSP-415-1-1, INSTRUCTION AND INFORMATION FOR CONTRACTORS, a copy of which will be furnished to the Contractor at the Preconstruction Conference. For information applicable to equipment rates used in contract modifications, refer to Section 00800 - SPECIAL CLAUSES, clause “EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE”.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01320

PROJECT SCHEDULE

PART 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 SUBMITTALS:

SD-07 Schedules

GA Preliminary project schedule, two (2) copies.

GA initial project schedule, two (2) copies
Activity No. Sort
Predecessor/successor listing
Cost Schedule
Floppy Disk with schedule data in Standard Data Exchange Format (SDEF).
Activity Code Dictionary.

FIO Periodic schedules updates, monthly updates two (2) copies.
Floppy Disks with schedule data in Standard Data Exchange Format (SDEF).
Narrative
Activity No. Sort
Cost Schedule
Cash Flow Report (S-Curve)

SD-08 Statements

Qualifications; GA .

Documentation showing qualifications of personnel preparing schedule reports.

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.

PART 2 PRODUCTS (Not Applicable)

PART 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 will 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 including the SDEF (Standard Data Exchange Format). 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 Precedence Diagram Method (PDM)

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 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, (at the lowest tier), 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.

3.3.2.5 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.

3.3.2.6 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. Whenever possible, changes shall be added to the schedule by adding new activities. Existing activities shall not normally be changed to reflect modifications.

3.3.2.7 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.

3.3.2.8 Phase of Work

All activities shall be identified in project schedule by phases of work in which the activity occurs. Activities shall not contain work in more than one phase of work. The project phase of each activity shall be by the unique Phase of Work Code.

3.3.2.9 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 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.

3.3.2.10 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.

3.3.2.11 Critical Activities

The following activities shall be listed as separate line activities on a Contractor's project schedule:

- ?? submission and approval of mechanical/electric layout drawings
- ?? submission and approval of O&M manuals
- ?? submission and approval of as-built drawings
- ?? submission and approval of 1354 data and installed equipment lists
- ?? submission and approval of testing and air balance (TAB) firm
- ?? submission of TAB specialist design review report
- ?? submission and approval of fire protection specialist
- ?? submission and approval of testing and balancing and HVAC commissioning plans and data
- ?? air and water balance dates
- ?? HVAC commissioning dates
- ?? any other systems testing
- ?? prefinal inspection correction of punchlist from prefinal inspection
- ?? final inspection
- ??

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 of 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" were "X" refers to the phase of work. "Start Phase X" activity shall have an "ES" constraint date equal to the date on which 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 Phse X" where "X" refers to the phase of work. The "End Phase X" activity shall have an "LF" 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 ensure 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 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 10 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 judgment 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 as noted in paragraph 1.1 items shall be submitted by the Contractor for the preliminary submission, initial submission, and every periodic project schedule update throughout the life of the project:

3.5.1 Data Disks

Two data disks containing the project schedule shall be provided. Data on the disks adhere to the SDEF format specified in ER 1-1-11, Appendix A.

3.5.1.1 File Medium

Required data shall be submitted on 89 mm (3.5 inch) disks, formatted to hold 1.44 MB of data.

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 version used to prepare the C.P.M.

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 ensure 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 critical path, a description of current and anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken or required to be taken. The narrative report is expected to relay to the Government, the Contractor's thorough analysis of the schedule output and its plans to compensate for any problems, either current or potential, which are revealed through that analysis.

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. 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. Preceding and succeeding activities shall include all information listed above in paragraph Schedule Reports. A blank line shall be left between each activity grouping.

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. Completed activities shall not be shown on this report.

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, Activity Description, Original Budgeted Amount, Total Quantity, Quantity to Date, Percent Complete (based on cost), Earnings to Date.

3.5.4.5 Cash Flow Report

A report showing scheduled cost of work-in-place by week (tabular report) and a cash flow curve by week (S-curve plot), both based on early dates.

3.5.5 Network Diagram

The time scaled network diagram shall be required on the initial schedule submission and on quarterly 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 shall be provided 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.

3.10 NAS DATA

The Contractor shall provide the Government with the means to electronically transfer all required NAS data into the Resident Management System (RMS) program using the Standard Data Exchange Format (SDEF). The Contractor may use network analysis software different from that used by the Contracting Officer in the Resident Office, however, the Contractor shall also furnish the following:

NAS data that complies with the Standard Data Exchange Format (SDEF). This is a standard ASCII format for exchanging scheduling data and is compatible with our resident management system. Many software developers provide the capability to convert and export schedule data to the SDEF at no additional cost. The SDEF specifications are in Appendix A of ER 1-1-11 PROGRESS, SCHEDULES, AND NETWORK ANALYSIS SYSTEMS, available from the Internet http://www.usace.army.mil/search.html#Publications

END OF SECTION

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SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

INTRODUCTION Design submittal activities shall follow the guide lines presented in Section 00810 Design-Build Contract Procedures. All correspondence shall follow the guidance of Section 01001 Supplementary Requirements, paragraph 1.3 Correspondence. The following guidance is to be followed for all construction related submittals, all submittals required in Division 1 specifications and all submittals identified in Section 00860 Statement of Work as requiring Contracting Officer approval.

1.1 CONTROL AND SCHEDULING OF SUBMITTALS

1.1.1 Submittal Coordination Meeting

After the preconstruction conference and before any submittals are sent to the Contracting Officer's Representative (COR), with the exception of Division 1 submittals, the Contractor shall meet with the COR to develop an approved preliminary submittal register, ENG Form 4288. During the meeting all required items will be identified and grouped into three categories:

?? Government Approved (G)

Government approval is required for extensions of design, critical materials, variations/deviations, an "or equal" decision, equipment whose compatibility with the entire system must be checked, architectural items such as Color Charts/ Patterns/ Textures, and other items as designated by the COR. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," these submittals will be acted on as "shop drawings."

?? For Information Only

Submittals not requiring Government approval will be for information only. These are items such as Installation Procedures, Certificates of compliance, Samples, Qualifications, etc. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," these submittals will not be acted on as "shop drawings."

?? Those items that can be visually inspected by the Contractor's Quality Control Representative (CQC) on site or are provided to the Government other than with an ENG Form 4025: The items that fall into this category shall remain on the register but shall not be submitted to the COR. For these items, the "Classification" column on the submittal register shall remain blank.

1.1.2 Final Submittal Register

The final submittal register shall be coordinated with the progress schedule and submitted within 30 days of Notice to Proceed. In preparing the final document, adequate time (minimum of 30 days) shall be allowed for review and approval, and possible resubmittal of each item on the register.

1.1.3 Submittal Register Updates

The Contractor's quality control representative shall review the listing at least every 30 days and take appropriate action to maintain an effective system. Copies of updated or corrected listings shall be submitted to the COR at least every 30 days in the quantity specified.

1.2 SUBMITTAL TYPES

Throughout these specifications submittals may be identified with the prefix "SD" (submittal data) followed by a number (category, i.e., data, drawings, reports, etc.). This is for bookkeeping and record sorting in the system:

SD-01 Data

Submittals which provide calculations, descriptions, or documentation regarding the work.

SD-04 Drawings

Submittals which graphically show relationship of various components of the work, schematic diagrams of systems, details of fabrication, layouts of particular elements, connections, and other relational aspects of the work.

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 n the work.

SD-08 Statements

A document, required of the Contractor, or through the Contractor from a subcontractor, supplier, installer, or manufacturer to confirm the quality or orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel, qualifications, or other quality verifications.

SD-09 Reports

Reports of inspections or tests, including analyses and interpretation of test results. Each report shall be properly identified. Test methods used shall be identified and test results shall be recorded.

SD-13 Certificates

Statement signed by an official authorized to certify on behalf of the manufacturer that a product, system or material meets specified requirements. The statement must be dated after the award of this contract and state the Contractor's name and address, project and location, and list specific requirements which are being certified.

SD-14 Samples

Fabricated and/or unfabricated physical examples of materials, products, and/or units of work as complete units or as portions of units.

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.

Submittals required by the Contract Clauses and other non-technical parts of the contract are not necessarily included in this section. These type of submittals can be added to the register before or during the submittal coordination meeting.

1.3 APPROVED SUBMITTALS

The approval of submittals by the COR 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. The Contractor, under the CQC requirements of this contract, is responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work. After submittals have been approved by the COR, no resubmittal for the purpose of substituting materials or equipment will be given consideration.

1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the COR and promptly furnish a corrected submittal in the format and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, written notice, as required under the Contract Clause entitled "Changes," shall be given to the COR.

1.5 PAYMENT

Separate payment will not be made for submittals, and all costs associated therein shall be included in the applicable unit prices or lump sum prices contained in the schedule. Payment will not be made for any material or equipment which does not comply with contract requirements.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

Prior to submittal, all items shall be checked and approved by the Contractor's CQC and each item of the submittal shall be stamped, signed, and dated. Each respective transmittal form (ENG Form 4025) shall be signed and dated by the CQC certifying that the accompanying submittal complies with the contract requirements. This procedure applies to all submittals. 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 lists; certifications; warranties and other such required items. Units of weights and measures used on all submittals shall be the same as the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. GA submittals shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. The COR may request submittals in addition to those listed when deemed necessary to adequately describe the work covered in the respective sections. The Contractor shall maintain a complete and up-to-date file of all submittals/items on site for use by both the Contractor and the Government.

3.2 SUBMITTAL REGISTER (ENG Form 4288)

The submittal register - ENG Form 4288 – for Divisions 1 through 16 shall be developed by the Contractor prior to the submittal coordination meeting and list each item of equipment and material or data for which

submittals are required in the Technical Specifications. (See paragraph SUBMITTALS at the beginning of each specification section.) The Contractor shall approve all items listed on the submittal register. During the submittal coordination meeting, the preliminary submittal register will be reviewed and annotated. When the final submittal register is submitted for approval, the Contractor shall complete the column entitled “Item No.” and all data under “Contractor Schedule Dates” and return five completed copies to the COR for approval. The Contractor shall review the list to ensure its completeness and may expand general category listings to show individual entries for each item. The numbers in column “Item No.” are to be assigned sequentially starting with "1" for each specification section. DO NOT preassign transmittal numbers when preparing the submittal register. When a conflict exists between the submittal register and a submittal requirement in the technical sections, other than those submittals referenced in Paragraph 3.9: Field Test Reports, the approved submittal register shall govern. The preliminary, and then the final approved submittal register, will become the scheduling document and will be updated monthly and used to control submittals throughout the life of the contract. Names and titles of individuals authorized by the Contractor to approve shop drawings shall be submitted to COR with the final ENG 4288 form. Supplier or subcontractors certifications are not acceptable as meeting this requirement. (Sample form ENG 4288 is attached at the end of this specification section.)

3.3 SCHEDULING

Submittals covering component items forming a system, or items that are interrelated, shall be coordinated and submitted concurrently. Certifications shall be submitted together with other pertinent information and/or drawings. Additional processing time beyond 30 days, or number of copies, may be shown by the COR on the submittal register attached in the “Remarks” column, or may be added by the COR during the coordination meeting. No delays damages or time extensions will be allowed for time lost due to the Contractor not properly scheduling and providing submittals.

3.4 TRANSMITTAL FORM (ENG Form 4025)

Transmittal Form 4025 (sample at end of this section) shall be used for submitting both GA and FIO submittals in accordance with the instructions on the reverse side of the form. Transmittal numbers shall be assigned sequentially. Electronic generated 4025 forms shall be printed on carbonless paper and be a reasonable facsimile of the original 4025. If electronic forms are not used, the original 4025 forms shall be used (do not photo copy) and will be furnished by the COR. These forms shall be filled in completely prior to submittal. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item. Each submittal item shall be listed separately on the form, naming subcontractor, supplier, or manufacturer, applicable specification paragraph number(s), drawing/sheet number, pay item number, and any other information needed to identify the item, define its use, and locate it in the work. One or more 4025 forms may be used per specification section, however, DO NOT include more than one specification section per transmittal.

3.5 CROSS-REFERENCE (ENG FORM 4288/ENG FORM 4025)

To provide a cross-reference between the approved submittal register and transmittal forms, the Contractor shall record the "transmittal numbers" assigned when submitting items in column “Transmittal No.” of the ENG FORM 4288. The item numbers in column “Item No.” of submittal register shall correspond to the item numbers on ENG Form 4025.

3.6 SUBMITTAL PROCEDURE

3.6.1 General

Shop drawings with 4025 forms shall be submitted in the number of copies specified in subparagraphs "Government Approved Submittals" and "Information Only Submittals," or as indicated on the submittal register in the “Remarks” column. Submit a complete collated “reviewers copy” with one 4025 form and

attachments (not originals). The remaining copies (4 for Government approved, 2 for information only) of 4025 forms and attachments shall not be collated. This would not apply to a series of drawings.

3.6.2 Approval of Submittals by the Contractor

Before submittal to the COR, the Contractor shall review and correct shop drawings prepared by subcontractors, suppliers, and itself, for completeness and compliance with plans and specifications. The Contractor shall not use red markings for correcting material to be submitted. Red markings are reserved for COR's use. Approval by the Contractor shall be indicated on each shop drawing by an approval stamp containing information as shown in this section. Submittals not conforming to the requirements of this section will be returned to the Contractor for correction and resubmittal.

3.6.3 Variations

For submittals which include proposed variations requested by the Contractor, column "h" of ENG Form 4025 shall be checked and the submittal shall be classified as GA, and submitted accordingly. The Contractor shall set forth in writing the justification for any variations and annotate such variations on the transmittal form in the REMARKS block. Variations are not approved unless there is an advantage to the Government. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted variations.

3.6.4 Drawings

Each drawing shall be not larger than A1 size (841 mm wide by 594 mm high), with a title block in lower right hand corner and a 75 mm by 100 mm clear area adjacent. The title block shall contain the subcontractor's or fabricator's name, contract number, description of item(s), bid item number, and a revision block. Provide a blank margin of 20 mm at bottom, 50 mm at left, and 10 mm at top and right. Where drawings are submitted for assemblies of more than one piece of equipment or systems of components dependent on each other for compatible characteristics, complete information shall be submitted on all such related components at the same time. The Contractor shall ensure that information is complete and that sequence of drawing submittal is such that all information is available for reviewing each drawing. Drawings for all items and equipment, of special manufacture or fabrication, shall consist of complete assembly and detail drawings. All revisions after initial submittal shall be shown by number, date, and subject in revision block.

3.6.4.1 Submittals Containing Drawings Larger than A3 size, (297 mm high by 420 mm wide)

For GA submittals containing drawings larger than A3 size, one reproducible and one blue line copy will be required to be submitted with five copies of the ENG Form 4025. The marked-up reproducible (and/or any review comments contained on the page-size comment sheet(s) at the Government's option) will be returned to the Contractor upon review. Three copies of blue line drawings (generated from the reviewed reproducible) will be provided to the Government within 10 days of Contractor's receipt of the reviewed reproducible. The Contractor shall not incorporate approved work into the project until the Government has received the three blue line copies. The Contractor shall use the marked-up reproducible to make any additional copies as needed. For FIO submittals, one reproducible and two blue line copies will be required to be submitted with the appropriate number of copies of ENG Form 4025.

3.6.5 Printed Material

All requirements for shop drawings shall apply to catalog cuts, illustrations, printed specifications, or other data submitted, except that the 75 mm by 100 mm clear area adjacent to the title block is not mandatory. Inapplicable portions shall be marked out and applicable items such as model numbers, sizes, and accessories shall be indicated by arrow or highlighted.

3.7 SAMPLES REQUIRING LABORATORY ANALYSIS

See Section 01451 CONTRACTOR QUALITY CONTROL for procedures and address for samples requiring Government testing.

3.8 SAMPLES REQUIRING VISUAL INSPECTION

Samples requiring only physical inspection for appearance and suitability shall be coordinated with the on-site Government quality assurance representative (QAR).

3.9 FIELD TEST REPORTS

Routine tests such as soil density, concrete deliveries, repetitive pressure testing shall be delivered to the QAR with the daily Quality Control reports. See SECTION: 01451 CONTRACTOR QUALITY CONTROL.

3.10 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

3.11 GOVERNMENT APPROVED SUBMITTALS (G)

The Contractor shall submit 5 copies of G submittals with 5 corresponding 4025 forms. Upon completion of GA submittal review, copies as specified below will be marked with an action code, dated, and returned to the Contractor. See “Drawings” above for special instructions if drawings larger than size A3 are used.

3.11.1 Processing of GA Submittals

Submittals will be reviewed and processed as follows:

a. Approved as Submitted (Action Code "A"): Shop drawings which can be approved without correction will be stamped "Approved" and two copies will be returned to the Contractor. No resubmittal required.

b. Approved Except as Noted (Action Code "B"): Shop drawings which have only minor discrepancies will be annotated in red to indicate necessary corrections. Marked material will be stamped "Approved Except as Noted" and two copies returned to the Contractor for correction. No resubmittal required.

c. Approved Except as Noted (Action Code "C"): Shop drawings which are incomplete or require more than minor corrections will be annotated in red to indicate necessary corrections. Marked material will be stamped "Approved Except as Noted - Resubmission Required" and two copies returned to the Contractor for correction. Resubmittal of only those items needing correction required.

d. Disapproved (Action Code "E"): Shop drawings which are fundamentally in error, cover wrong equipment or construction, or require extensive corrections, will be returned to the Contractor stamped "Disapproved." An explanation will be furnished on the submitted material or on ENG Form 4025 indicating reason for disapproval. Complete resubmittal required.

e. Resubmittal will not be required for shop drawings stamped "A" or "B" unless subsequent changes are made by Contractor or a contract modification. For shop drawings stamped "C" or "E," Contractor shall make corrections required, note any changes by dating the revisions to correspond with the change request date, and promptly resubmit the corrected material. Resubmittals shall be associated with the “parent” by use of sequential alpha characters (for example, resubmittal of transmittal 8 will be 8A, 8B, etc). Government costs incurred after the first resubmittal may be charged to the Contractor.

3.12 INFORMATION ONLY SUBMITTALS

The Contractor shall submit three copies of data and four copies of ENG Form 4025. 'Information only' submittals will not be returned. Government approval is not required on information only submittals. These submittals will be used for information purposes. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the Contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications and will not prevent the COR from requiring removal and replacement if nonconforming material is incorporated in the work. This does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or check testing by the Government in those instances where the technical specifications so prescribe.

3.12.1 Processing of Information Only Submittals

FIO submittals shall be submitted prior to delivery of the material or equipment to the job site. ENG Form 4025 shall be marked with the words "contractor approved - information copy only" in the REMARKS block of the form. Submittals will be monitored and spot checks made. When such checks indicate noncompliance, the Contractor will be notified by the same method used for G submittals. Resubmittal of nonconforming information only submittals shall be reclassified G and shall be in five copies.

3.13 CONTRACTOR APPROVAL STAMP

The stamp used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR:
_____

CONTRACT NUMBER
_____

TRANSMITTAL NUMBER _____

ITEM NUMBER _____

SPECIFICATION SECTION _____

PARAGRAPH NUMBER _____

_____ APPROVED AS SUBMITTED

_____ APPROVED WITH CORRECTIONS

AS NOTED

SIGNATURE: _____

TITLE: _____ DATE _____

CONTRACTORS REVIEW STAMP

MAXIMUM SIZE:

3 INCHES BY 3 INCHES

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE
(Read instructions on the reverse side prior to initiating this form)

DATE

TRANSMITTAL NO.

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO:	FROM:	CONTRACT NO.	CHECK ONE: ☐ THIS IS A NEW TRANSMITTAL ☐ THIS IS A RESUBMITTAL OF TRANSMITT./_____
SPECIFICATION SEC. NO. *(Cover only one section with each transmittal)*	PROJECT TITLE AND LOCATION		CHECK ONE: THIS TRANSMITTAL IS FOR ☐ FIO ☐ GOV'T. APPROVAL

ITEM NO. a.	DESCRIPTION OF ITEM SUBMITTED *(Type size, model number/etc.)* b.	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. *(See instruction no. 8)* c.	NO. OF COPIES d.	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE g.	VARIATION *(See instruction No. 8)* h.	FOR CE USE CODE i.
				SPEC. PARA. NO. e.	DRAWING SHEET NO. f.			

REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.

_____
NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED *(List by Item No.)*	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

ENG FORM 4025-R, MAR 95 *(ER 415-1-10)* EDITION OF SEP 93 IS OBSOLETE. SHEET ___ OF ___ (Reverse, CEMPCE)

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.

2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.

3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.

4. Submittals requiring expeditious handling will be submitted on a separate form.

5. Separate transmittal form will be used for submittals under separate sections of the specifications.

6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".

7. Form is self-transmittal, letter of transmittal is not required.

8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.

9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A	--	Approved as submitted.	E	--	Disapproved (See attached).
B	--	Approved, except as noted on drawings.	F	--	Receipt acknowledged.
C	--	Approved, except as noted on drawings. Refer to attached sheet resubmission required.	FX	--	Receipt acknowledged, does not comply as noted with contract requirements.
D	--	Will be returned by separate correspondence.	G	--	Other *(Specify)*

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

END OF SECTION

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SECTION 01312

QUALITY CONTROL SYSTEM (QCS)

1.1 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- ?? Administration
- ?? Finances
- ?? Quality Control
- ?? Submittal Monitoring
- ?? Scheduling
- ?? Import/Export of Data

1.1.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01320, PROJECT SCHEDULE, Section 01330, SUBMITTAL PROCEDURES, and Section 01451, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on (3-1/2 inch) high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

1.3 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

Hardware

- IBM-compatible PC with 200 MHz Pentium or higher processor
- 32+ MB RAM
- 4 GB hard drive disk space for sole use by the QCS system
- 3 1/2 inch high-density floppy drive
- Compact disk (CD) Reader
- Color monitor
- Laser printer compatible with HP LaserJet III or better, with minimum 4 MB installed memory.
- Connection to the Internet, minimum 28 BPS

Software

- MS Windows 95 or newer version operating system (MS Windows NT 4.0 or newer is recommended)
- Word Processing software compatible with MS Word 97 or newer
- Internet browser
- The Contractor's computer system shall be protected by virus protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.
- Electronic mail (E-mail) compatible with MS Outlook

1.4 RELATED INFORMATION

1.4.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.4.2 Contractor Quality Control(CQC) Training

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

1.5 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.6 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The QCS database typically shall include current data on the following items:

1.6.1 Administration

1.6.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

1.6.1.2 Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format via E-mail.

1.6.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

1.6.1.5 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.6.1.7 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.6.2 Finances

1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.6.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01451, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01451, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the Government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

1.6.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.6.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

1.6.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 200.

1.6.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

1.6.4 Submittal Management

The Contractor will input the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER, using QCS . Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts", or Section 01320, PROJECT SCHEDULE, as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01320, PROJECT SCHEDULE). The updated schedule data shall be included with each pay request submitted by the Contractor.

1.6.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

1.7 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

1.8.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs

may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.8.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

1.9 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

END OF SECTION

SECTION 01410

ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

The contractor shall perform the work minimizing environmental pollution and damage as the result of construction operations under this contract. 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 humankind; 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 esthetics, noise, solid waste, and erosion from stormwater, as well as pollutants.

1.2 ABBREVIATIONS AND ACRONYMS

BACT	Best Available Control Technology
BMP	Best Management Practice
CFR	Code of Federal Regulations
CO	Contracting Officer
COR	Contracting Officer's Representative
DOT	Department of Transportation
ECMD	Engineering & Contract Management Division
ECO	Environmental Compliance Officer
ENRD	Environmental and Natural Resources Division
EPA	Environmental Protection Agency
HM	Hazardous Material
HMTA	Hazardous Materials Transportation Act
HW	Hazardous Waste
HWT	Hazardous Waste Technician
HWMS	Hazardous Waste Management Section
ISCP	Installation Spill Contingency Plan
MSDS	Material Safety Data Sheets

NFPA	National Fire Protection Association
NPDES	National Pollutant Discharge Elimination System
NOI	Notice of Intent
OSHA	Occupational Safety and Health Act
PCB	Polychlorinated Biphenyls
PCS	Petroleum Contaminated Soil
PPE	Personnel Protective Equipment
PW	Public Works
PSAPCA	Puget Sound Air Pollution Control Agency
RUL	Restricted Use List
SPCCP	Spill Prevention, Control and Countermeasures Plan
TPCHD	Tacoma Pierce County Health Department
WAC	Washington Administrative Code
WHPA	Well Head Protection Area
WISHA	Washington Industrial Safety and Health Act
YTC	Yakima Training Center

1.3 PROTECTION OF ENVIRONMENTAL RESOURCES

The environmental resources within the project boundaries and those affected outside the limits of 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 drawings and specifications.

1.4 SUBCONTRACTORS

The Contractor shall ensure compliance with this section by all subcontractors.

1.5 LAWS AND REGULATIONS

The Contractor shall comply with all applicable Federal, state, and local environmental, natural and cultural resources, and historic preservation laws and regulations. Specific attention is directed to Fort Lewis Regulation No. 200-1 "Environmental Protection and Enhancement". These specifications supplement these laws and regulations.

1.6 COORDINATION

The Environmental and Natural Resources Division (ENRD) of PW coordinates most environmental concerns at Fort Lewis and its sub-installations. Division, Roads and Sanitation Branch of PW. The Contractor shall make contact with them through PW, Engineering & Contract Management Division.

1.7 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.

The following is a summary of required submittals. Complete details and schedules are described in the rest of the section.

Environmental Protection Plan, GA

The Contractor shall submit an environmental protection plan within 15 days after receipt of the notice to proceed. Approval of the Contractor’s plan will not relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures. The environmental protection plan shall include, but not be limited to, the following:

a. 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.

b. Methods for protection of features to be preserved within authorized work areas like trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archaeological, and cultural resources.

c. Procedures to be implemented to provide the required environmental protection, to comply with the applicable laws and regulations, and to correct pollution due to accident, natural causes, or failure to follow the procedures of the environmental protection plan.

d. Location of the permitted solid waste disposal facility to be used.

e. Drawings showing locations of any proposed temporary material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials.

f. Environmental monitoring plans for the job site, including land, water, air, and noise monitoring.

g. Plan showing the proposed activity in each portion of the work area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas.

h. Applicable environmental training (both formal and on the job) the Contractor's personnel have received prior to the construction period.

Hazardous Materials and Hazardous Wastes, FIO

Hazardous Materials Inventory Form (Initial and ongoing)
Material Safety Data Sheets (MSDS)
Hazardous Waste Profile Sheets
Hazardous Waste Accumulation Log
Hazardous Waste Manifest
PCB Transformer Certification and Information

Asbestos

Permits and any amendments, FIO
Management Plan, GA
Removal Summary, FIO
Bulk Sample Results, FIO
Air Monitoring Sample Results (Pre-abatement, area, clearance, and personnel), FIO
Jobsite Entry Logs, FIO
Waste Shipment Record, FIO
Summary of Asbestos Removed and Remaining, FIO
90 Day Waste Storage Facility Permits
(if applicable), FIO

Lead-Based Paint

Test Results
Summary of Paint Removed and Remaining

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 WORK AREA LIMITS

The Contractor shall confine all activities to areas defined by the design drawings and specifications. Prior to any construction, the Contractor shall mark the areas that will not be disturbed 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. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

3.1.1 Contractor Facilities and Work Areas

The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas designated on the drawings or as directed by the Contracting Officer or their representative. Temporary movement or relocation of Contractor facilities shall be made only when approved by the Contracting Officer or their representative.

3.2 MANAGEMENT OF HAZARDOUS MATERIALS AND HAZARDOUS WASTE

3.2.1 General

3.2.1.1 Definitions

a. Hazardous material (HM): A useful product that requires special management because it has hazardous characteristics (ignitability, corrosivity, reactivity, or toxicity) that could pose dangers to human health or the environment. A HM becomes a Hazardous Waste when it can no longer be used for its intended purpose.

b. Hazardous waste (HW): A discarded material with properties that could pose dangers to human health or the environment. A HW either exhibits a hazardous characteristic (ignitability, corrosivity, reactivity, or toxicity) or is specifically listed as a HW by the EPA or by the State.

c. Material Safety Data Sheet (MSDS): A document containing information that manufacturers are required by law to provide on all products they manufacture and sell. The MSDS is useful in evaluating the product to determine if it has hazardous constituents and the type of medical treatment in case of an accident.

3.2.1.2 Environmental Services (ES)

The Contractor shall contact the HWMS at (253) 967-4786 with any questions pertaining to the storage, use, and disposal of Hazardous Materials and/or Hazardous Waste during the execution of this contract.

3.2.1.3 Restricted Use Materials

Certain chemicals are restricted from use on Fort Lewis. These chemicals are listed on the Restricted Use List (RUL). The RUL is maintained by the Pollution Prevention Office of PW ENRD, and is updated annually. A print out and/or an electronic copy of the entire RUL is available from ENRD, Building 1210. The Contractor shall receive authorization from the Contracting Officer or their representative prior to using any product that contains chemicals listed on the RUL. Only materials necessary for and associated with the execution of this Contract will be allowed on Government property.

3.2.1.4 Contingency Planning and Spill Response

The Contractor shall comply with the provisions of the Fort Lewis Spill Prevention, Control and Countermeasures Plan (SPCCP) and the Installation Spill Contingency Plan (ISCP). The PW ENRD maintains these plans. The Contractor shall also maintain on site a written contingency plan for HW accumulation and HM storage areas if the work associated with this contract generates HW or require storage of HM.

3.2.1.5 Transportation of HM and HW

The Contractor shall comply with all Department of Transportation (DOT) requirements associated with HM/HW, including proper container marking/labeling and vehicle placarding when transporting HM/HW on or off the installation. The Contractor shall obtain Government approval prior to removal of any HW from the installation. Removal shall only be done by an authorized HW transporter having an EPA Identification Number and with the HW recorded on a Uniform Hazardous Waste Manifest (EPA Form 8700-22).

3.2.1.6 HM/HW Personnel and Training Requirements

The Contractor shall appoint an Environmental Compliance Officer (ECO) and a Hazardous Waste Technician (HWT) in writing, if the work associated with this contract causes the Contractor to generate, store, or handle HM/HW. The ECO/HWT shall be responsible for insuring the requirements of this specification are met. The contractor shall appoint a Hazardous Material Technician (HWT), in addition to the HWT and the ECO. The HMT shall handle the storage and management of HM.

The Contractor shall insure that all personnel are trained in accordance with Washington Department of Ecology regulations before being assigned to any position handling HW/HM. This training shall include, but not be limited to:

a. Environmental Compliance Course for ECOs/HWTs. The three-module (Hazardous Material Management (4 hrs), Hazardous Waste Management (4 hrs) and Compliance Inspection HM/HW) course is available weekly from the Fort Lewis Environmental Services (ES) and the Environmental Compliance Inspection Section, and shall be taken prior to the Contractor generating, storing, or handling HM or HW on the installation. The Contractor shall contact Environmental Services at 253.967.4786 to schedule attendance.

b. First Responder Awareness Level as specified in the ISCP.

c. Quarterly contingency plan review and rehearsal.

d. Hazard Communication training as stated in paragraph 3.2.2.5.

e. HAZWOPER (Hazardous Waste Operation and Emergency Response) 40 hours training and annual 8 hours refresher course.

The Contractor shall maintain a record of all required training, and the date conducted, for each individual requiring training and shall make this record available to the Government at all times during the execution of this contract.

3.2.2 Hazardous Materials

3.2.2.1 Notification

The Contractor shall provide an initial inventory and MSDS copies for all HM to be used during the execution of this contract through the Contracting Officer to the Pollution Prevention Office, before bringing any HM onto the installation.. The inventory shall include all HM that will be brought onto the installation. The inventory shall specify the type of HM, proposed storage location and quantity to be stored. The HM inventory shall be updated and submitted quarterly. The Contractor shall use the Hazardous Material Inventory form (HFL Form 953-attached at the end of this specification) or a Contractor-generated form providing the same information. An electronic version of the Hazardous Material Inventory form is available from the PW ENRD in Building 1210.

3.2.2.2 Storage Facilities

Facilities shall meet all fire code requirements and provide adequate ventilation, containment, and protection from the elements. Provide warning signs, limit access to the facility, and lock it when it is unattended. Only HM shall be stored in the facility. Contractor vehicles are not considered a proper storage facility. No HM shall be stored in vehicles overnight or for any length of time.

3.2.2.3 Storage and Use

The Contractor shall store HM according to product labels and MSDS requirements. Non-compatible materials shall not be stored together. All containers shall be properly labeled as to contents and kept in good condition with tight fitting lids. Unopened containers shall be segregated from opened containers. Personal protective equipment (PPE) required by the MSDS or product label shall be available and worn by all personnel who handle the product.

3.2.2.4 Inspections, Record Keeping and Reporting

The Contractor shall perform weekly inspections of their HM storage facilities utilizing the HM Inspection Checklist (HFL Form 951-attached). A current inventory of the HM storage facility shall be maintained on site and a copy forwarded to PW, Engineering & Contract Management Division quarterly using the Hazardous Material Inventory form. Additionally, a current MSDS for each product used or stored shall be present and on file at the site where the product is used or stored.

3.2.2.5 Hazard Communication Program

The Contractor shall have a written Hazard Communication program, which explains how personnel are informed and trained concerning HM in the workplace as required by Federal, state and Fort Lewis

regulations. The written program shall be located at a hazard communication station that is accessible to all Contractor personnel and shall contain the following sections:

a. A current inventory of HM, who is responsible for classifying a product as a HM, and how the inventory is updated.

b. Labels and other forms of warning: This section shall describe the procedure for insuring that each HM container is clearly labeled and has the appropriate warnings. The section also states who is responsible for labeling requirements and how label information is updated.

c. MSDS file: The location of the MSDS file, who maintains the file, and how personnel may access the file, shall be described. This section shall also describe what is done when a product is received without the MSDS and how the MSDS file is updated.

d. Personnel training and information: This section shall describe initial and refresher training provided to personnel concerning the hazards of the HM in the workplace, the training provided, and who conducts the training.

e. Information to non-Contractor personnel: This section shall describe how non-Contractor personnel are informed about possible hazards, where MSDS copies can be obtained, and what PPE is required in the workplace.

3.2.3 Hazardous Waste

3.2.3.1 Identification

The Contractor shall identify all HW generated during the execution of this contract. The Contractor shall completely characterize the waste stream to identify the waste constituents. Each waste stream identity shall be recorded on a Hazardous Waste Profile Sheet (HWPS) and submitted to PW, Engineering & Contract Management Division for approval prior to waste generation. Profile sheets are available from the HWMS or Contractor generated equivalent sheets may be used. The Contractor is responsible for any costs associated with laboratory analysis to verify the waste stream identity if it is not obviously evident.

3.2.3.2 Accumulation

HW Shall Be Accumulated In Waste-Compatible, Sturdy, Leak-Proof, Closed Containers That Are Department Of Transportation (Dot) Approved. If the waste is to be disposed of on Fort Lewis, the Contractor shall accumulate wastes only in Government issued HW containers.

Each HW container shall be clearly labeled with the words HAZARDOUS WASTE, a description of the waste, and the hazard associated description or label. Any container issued by the HWMS at Fort Lewis shall have a Bar-coded label that contains all necessary labeling information. This label can be obtained by contacting the HWMS.

3.2.3.3 Container Management

HW shall be handled in a manner that prevents leaks, spills, fires, and explosions. Container tops and/or bungs shall be serviceable and tightly installed (wrench tight) at all times except when adding material to the container (material should not spill if the container tips over). Containers shall be properly grounded when transferring flammable materials. Containers holding flammable liquids (flash point less than 140 degrees F) shall be grounded. Reactive and ignitable waste containers shall be stored in a manner compatible with NFPA Fire Code requirements. Incompatible wastes shall not be accumulated in the same container or in the same area.

The container accumulation area shall be 50 feet from any other occupied building, shall have overhead cover, and shall be capable of being secured. Access to the area shall be restricted to trained personnel who need to be in and use the area. The site shall be locked when not in use. The container accumulation area shall have a secondary containment system capable of collecting and holding spills and leaks. It shall be sized to hold 110 percent of the volume of the largest container. A minimum of thirty inches of aisle space shall be maintained between container rows. Container markings and labels shall be clearly visible.

3.2.3.4 Inspection, Record Keeping and Reporting

The Contractor shall inspect each accumulation point weekly, utilizing the attached Hazardous Waste Accumulation Areas checklist, (HFL Form 950-attached) to verify compliance with the above requirements. The checklist shall be available on site for inspection.

3.2.3.5 Transportation and Disposal

The Contractor shall be responsible for the transportation and disposal off site of all HW generated from the execution of this contract, unless stated otherwise in this specification.

The Contractor or his representative, who provides services that generate, prepare for shipment or transports hazardous waste or provides hazardous waste clean-up/disposal services, shall be responsible for preparing EPA Form 8700-22, Uniform Hazardous Waste Manifest, for the state to which the material is being transported. The Contractor shall comply with all manifest and record keeping and reporting requirements. Specific manifesting procedures include:

a. The Uniform Hazardous Waste Manifest will only be signed by personnel in the HWMS at Building 1210 on Fort Lewis. At Yakima Training Center, it will be signed by the Director of Environmental and Natural Resources, and at Vancouver Barracks, by the Environmental Compliance Officer.

b. The Contractor shall provide a copy of the Uniform Hazardous Waste Manifest and supporting documentation (i.e., waste profile and land ban as appropriate) no less than 72 hours in advance of the proposed transporter pick up date.

c. The Contractor shall coordinate and schedule transportation pick up dates and times by contacting the HWMS at (253) 967-4786 or 3268. This will ensure qualified individuals are available for the certification/signature of the manifest and other related documentation. A waste profile (land ban when required) must accompany the manifest to verify description of material being transported.

The Contractor shall be responsible for verifying that the shipment is properly identified (profiled), packaged, marked, labeled, and not leaking. The Contractor shall apply appropriate placards to his vehicle while transporting hazardous materials/waste.

The Contractor shall insure that the transporter and disposal facility have a valid Environmental Protection Agency identification number for the applicable hazardous waste services, i.e., transportation, treatment, storage, or disposal.

The Contractor shall ensure that the transporter drivers have current DOT combination licenses. The Contractor shall ensure that the carrier has instructed and trained personnel concerning the applicable Hazardous Materials Transportation Act (HMTA) regulations relevant to their job functions.

The Contractor or his representatives shall take appropriate action (including cleanup) in the event of a release/spill. If a release/spill occurs on Fort Lewis the Contractor shall immediately notify the Fort Lewis Fire Department (Dial 911). Secondary notification shall be made to (253) 967-4786 or 3268.

The Contractor shall ensure the transporter and disposal facility has liability insurance in effect for claims arising out of death or bodily injury and property damage from hazardous material/waste transport, treatment, storage, and disposal, including vehicle liability and legal defense costs in the amount of $1,000,000.00, as evidenced by a certificate of insurance for General, Automobile, and Environmental Liability Coverage.

3.3 POLYCHLORINATED BIPHENYLS (PCB)

3.3.1 Transformers

The Contractor shall notify PW, Engineering & Contract Management Division on the day that any electrical transformer is delivered to Fort Lewis. All transformers brought on to Fort Lewis that are fluid filled must contain less than two parts/million (ppm) PCBs and be accompanied by a letter from the manufacturer that indicates that the level of PCBs in the transformer is below two ppm. Copies of all PCB letters and nameplate information shall be provided to PW, Engineering & Contract Management Division.

3.4 ASBESTOS AND LEAD-BASED PAINT

See specification SECTION 13280 – ASBESTOS ABATEMENT, and Specification Section 02095 - LEAD-BASED PAINT (LBP). OPERATIONAL REQUIREMENTS FOR RENOVATION PROJECTS.

3.4.1 All asbestos permit applications must indicate the building number and street name of the project site. If a permit application has multiple buildings included on it, all the building numbers and street names must be included. The Contractor shall indicate the following address on the permit application under property owner: PUBLIC WORKS, ATTN: AFZH-PWE, MS 17E, BOX 339500, FORT LEWIS, WA, 98433-9500.

3.5 RADIATION SAFETY

All aspects of the job relating to radiation safety, including transportation, use, storage or handling must be addressed by the Contractor through PW, Engineering & Contract Management Division to the Installation Radiation Safety Officer, Installation Safety Office, Building 6069, Fort Lewis, WA, phone: (253) 967-3079/6764.

3.6 DISPOSAL OF SOLID WASTE.

3.6.1 General

The Contractor shall be responsible for the disposal off site of all refuse generated in the course of performance of this contract, to include containers, transport, handling, and dumping fees. All solid wastes shall be placed in containers that are emptied on a regular schedule. The Contractor will not be permitted to deposit refuse in existing garbage cans or refuse dumpsters. No burning of refuse is allowed. All vehicle loads of waste being transported shall be adequately secured to prevent spillage.

3.6.2 Clean Fill Materials

Clean fill materials shall be disposed of on Fort Lewis at a site as directed by PW, Engineering & Contract Management Division. Clean fill shall not contain any items such as vegetative material, asphalt, concrete or metals.

3.6.3 Reporting of Solid Waste Disposal

The Contractor shall report to the Contracting Officer all solid waste taken off the installation. The report shall contain the following information: type of waste, amount disposed off, and name/location of disposal

facility being used. The report shall be submitted quarterly. Recycling of solid waste shall be utilized to the maximum extent possible. See Section 00800, Special Clause SC-23, for guidance on recycling materials.

3.7 PROTECTION OF LAND RESOURCES

Prior to the beginning of any construction, the Contractor shall identify the land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, 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 or their representative. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized.

3.7.1 Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques.

3.7.2 Unprotected Erodible Soils

Earthwork brought to final grade shall be finished as indicated on the design drawings and specifications. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Except in cases where the constructed feature obscures borrow areas, quarries, and waste material areas, these areas shall not initially be totally cleared. Clearing of such areas shall progress in reasonably sized increments as needed to use the developed areas as approved by the Contracting Officer or their representative.

3.7.3 Disturbed Areas

The Contractor shall effectively prevent erosion and control sedimentation through approved methods including, but not limited to, the following:

a. Retardation and control of runoff. Runoff from the construction site or from storms shall be controlled, retarded, and diverted to protected drainage courses by means of diversion ditches, benches, berms, and by any measures required by area wide plans under the Clean Water Act.

b. Erosion and sedimentation control devices. The Contractor shall construct or install temporary and permanent erosion and sedimentation control features as indicated on the drawings. Berms, dikes, drains, sedimentation basins, grassing, and mulching shall be maintained until permanent drainage and erosion control facilities are completed and operative.

c. Sediment basins. Sediment from construction areas shall be trapped in temporary or permanent sediment basins in accordance with the drawings.

The basins shall accommodate the runoff of a local 5 year, 24 hour storm. After each storm, the basins shall be pumped dry and accumulated sediment shall be removed to maintain basin effectiveness. Overflow shall be controlled by paved weirs or by vertical overflow pipes. The collected topsoil sediment shall be reused for fill on the construction site, and/or stockpiled for use at another site. The Contractor shall institute effluent quality monitoring programs as required by State and local environmental agencies.

3.7.4 Tree Protection

The Contractor shall exercise care when excavating trenches in the vicinity of trees. Where roots are 2 inches in diameter or greater, the trench shall be excavated by hand or tunneled. When large roots are exposed, they shall be wrapped with heavy burlap for protection and to prevent drying. Trenches dug by machines adjacent to trees having roots less than two inches in diameter shall have the sides hand trimmed, making a clean cut of the roots. Trenches having exposed tree roots shall be backfilled within 24 hours unless adequately protected by moist burlap or canvas.

3.7.5 Trees Removed During Construction

Logs from trees removed during construction shall be decked for subsequent disposal by the Government. Decks shall be located so as not to interfere with the construction work and shall be located as directed by PW, Engineering & Contract Management Division. Logs shall be sorted by size and placed in separate decks for sawlogs and fuelwood. Trees shall be cut from the stump and limbed to the top before decking. Whenever possible logs shall be left in tree length. If trees are too large to be handled tree length, cut 40-foot logs plus 12 inches trim allowance from the butt. The minimum size for a sawlog is 6 diameter inches on the small end and 16 foot in length. All logs not suitable for sawlogs shall be placed in a fuelwood deck. The minimum size for a fuelwood log is 5 inches diameter on the large end and 8 feet in length.

3.7.6 Restoration of Landscape Damage

All landscape features (vegetation - such as trees, plants, and grass) damaged or destroyed during Contractor operations outside and within the work areas shall be restored by the Contractor to a condition similar to that which existed prior to construction activities unless otherwise indicated on the drawings or in the specifications. All vegetation that was removed or damaged consisting of native species shall be replaced with native species. If the area had been previously landscaped with non-native species then similar plants shall be used for replacement. Landscaping shall be maintained for a minimum of 60 days after planting, to include irrigation. The Contractor shall coordinate with ENRD prior to planting any non-native species.

Trees shall be replaced in kind with a minimum 4-inch caliper nursery stock. Shrubs, vines, and ground cover shall be replaced in kind; the Contracting Officer or their representative shall approve size. All plant material shall meet specifications outlined in ANSI Z60.1 - current publication, "American Standard for Nursery Stock."

Grass areas shall be replaced in kind by sodding or seeding. Sod shall be required in all regularly maintained lawn areas. See specification SECTION 02922 – SODDING.

Plant material damaged or destroyed within the historical district shall be replaced or repaired as directed by the Contracting Officer or their representative.

3.8 PROTECTION OF WATER RESOURCES

3.8.1 General

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. Toxic or hazardous chemicals shall not be applied to soil or vegetation when such application may cause contamination of the fresh water reserve. Monitoring of water areas affected by construction shall be the Contractor's responsibility. The Contractor shall monitor all water areas affected by construction activities. The Contractor shall observe all prescribed setbacks from streams and wetlands as specified in FL REG 200-1.

3.8.2 Cofferdam and Diversion Operations

Construction operations for dewatering, removal of cofferdams, tailrace excavation, and tunnel closure shall

be controlled at all times to limit the impact of water turbidity on the habitat for wildlife and on water quality for downstream use.

3.8.3 Stream Crossings

Stream crossings shall allow movement of materials or equipment without violating water pollution control standards of the Federal, state or local government.

3.8.4 Fish and Wildlife

The Contractor shall minimize interference with, disturbance to, and damage of fish and wildlife. The Contractor prior to beginning of construction operations shall list species that require specific attention along with measures for their protection.

3.8.5 Wellhead Protection Areas

Particular care shall be taken to prevent the introduction of any contaminant to the surface in a designated Wellhead Protection Area (WPA). Certain activities that may pose a danger to groundwater resources are prohibited within WPAs.

3.8.6 Washing and Curing Water

Stormwaters from sites less than 5 acres, directly derived from construction activities shall not be allowed to enter water areas. Stormwaters shall be collected and placed in retention ponds where suspended material can be settled out or the water evaporates to separate pollutants from the water.

3.8.7 Construction Stormwater Permit

The National Pollutant Discharge Elimination System (NPDES), requires general permits, a notice of intent, and a notice of discontinuation for construction sites greater than 5 acres discharging stormwater to any waters of the United States. The Contractor shall file a Notice of Intent with the EPA for coverage under the EPA's general permit for storm water discharges from construction activities. A copy of the NOI shall be submitted to PW, Engineering & Contract Management Division. The Contractor shall be responsible for compliance with the terms of the permit, including the development of a storm water pollution prevention plan.

3.9 PROTECTION OF AIR RESOURCES

3.9.1 General

Dust particles, aerosols, and gaseous byproducts from construction activities, processing, and preparation of materials shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and state allowable limits at all times. The Contractor shall not conceal or mask the emission of an air pollutant which violates air pollution regulations or causes a detriment to the health, safety, or welfare of any person.

An air pollution source shall not emit air pollutants in such quantities and of such characteristics and duration which are likely to be injurious to human health, plant or animal life, property, or which unreasonably interfere with enjoyment of life and property.

3.9.2 Fugitive Dust

Fugitive dust created as a result of construction activities shall be controlled with the BACT such as spraying with water. Contractor vehicles shall not enter public roadways with deposits of mud, dirt, or other

debris or unsecured loads. Fugitive dust shall not be emitted from air pollution generating equipment such as boilers and incinerators.

3.9.3 Painting Operations

Spray painting shall not be conducted except inside a paint booth, which utilizes a dry filter system and is approved by ENRD for use. This requirement does not apply to the use of hand-held aerosol cans, coating of buildings and similar type structures, and painting of other items which ENRD deems can not be sprayed in a paint booth.

3.9.4 Burning Natural Vegetation

All cantonment areas, housing areas and all of North Fort are designated as no burn areas. A burning permit is required for burning natural vegetation in all other areas on Fort Lewis. Burning permits may be obtained from the PW Forestry Section. A copy of the permit shall be submitted to PW, Engineering & Contract Management Division.

3.9.5 Best Available Control Technology (BACT)

The Contractor shall utilize the BACT as determined by the regulatory authority on all air pollution sources. The Contracting Officer or their representative shall be notified for resolution if this requires a change in the design.

3.9.6 Notice of Construction Permits

The Contractor shall be responsible for obtaining any necessary Puget Sound Clean Air Authority (PSCAA) "Notice of Construction" permits for the construction/installation of new air emission sources under this project. The Contractor is responsible for the associated fees.

The following process shall be followed when filing a Notice of Construction and Application for Approval. The Contractor shall complete the application including the Environmental Checklist (the proper forms can be obtained from the PSCAA. The Contractor shall then submit the application and a cashier's check addressed to PSCAA for the associated plan examination fee to PW, Contract & Engineering Management Division. The application and check are to be submitted in a sealed envelope clearly marked with PSCAA Notice of Construction Application and Associated Fee. The Government will review the application. If it is complete and accurate, the Application will be submitted by the Government to PSCAA with check. If it is not complete or accurate, the Contractor will be requested to submit a revised Application. The Contractor shall allow 30 days for review and submission by the Government. After submission, the Contractor shall allow 75 days for review, negotiation, and approval by PSCAA. This process time line applies to standard projects. If the project is a major air pollution source, which requires other environmental documentation and public comment, the process time should be adjusted accordingly.

The Contractor is responsible for assuring all the standards/limits included in the Order of Approval to the Notice of Construction and Application for Approval are implemented or met. This includes developing an Operations and Maintenance plan to assure compliance with all environmental requirements and any testing of the air pollution source, the control equipment, or the monitoring equipment required by the Order of Approval or other regulatory requirement (this may be a supplement to any O&M manuals required elsewhere in the technical specifications).

The address on the Notice of Construction and Application for Approval for the property owner as well as the applicant should be PUBLIC WORKS, ATTN: AFZH-PWE, MS 17E, BOX 339500, FORT LEWIS, WA, 98433-9500.

3.10 PRESERVATION OF HISTORICAL, CULTURAL, AND ARCHEOLOGICAL RESOURCES

If, during construction activities, the Contractor observes items that might have historical or archeological significance, the Contractor shall immediately contact the Contracting Officer or their representative and shall cease all activities that may result in the destruction of these resources and shall prevent its employees from trespassing on, removing, or otherwise damaging such resources.

3.11 PROTECTION OF FISH AND WILDLIFE

The Contractor shall conduct its operations in a manner that will minimize impacts on surrounding fish and wildlife. If, during construction activities, the Contractor observes any Federal or state protected species, the Contractor shall immediately contact the Contracting Officer or their representative and cease all activities at the site.

UNIT/ACTIVITY: _____ **BUILDING NUMBER:** _____ **DATE:** _____

HAZARDOUS WASTE ACCUMULATION AREA CHECKLIST

	GO	NO GO	COMMENTS
1. Are all HW containers within a Fort Lewis approved HW accumulation facility or meet facility requirements listed in Appendix G, FL Reg 200-1?	____	____	_____
2. Are only Fort Lewis or subinstallation issued HW containers used?	____	____	_____
3. Do containers have the Fort Lewis or subinstallation issued bar code label, or meet HW labeling requirements?	____	____	_____
4. Are containers positioned so labels can be easily read?	____	____	_____
5. Are containers free from leaks, excessive rust, damage, or excessive spillage/residue on the outside of the container? Are leaks into secondary containment cleaned up?	____	____	_____
6. Has any HW container exceeded its turn-in date?	____	____	_____
7. Are container lids (bungs) properly installed and (wrench) tight to prevent leakage if the container is overturned?	____	____	_____
8. When stored together, do incompatibles, flammables, corrosives, or oxidizers have physical barriers to prevent mixing?	____	____	_____
9. Are drums containing flammables properly grounded?	____	____	_____
10. Is there a minimum thirty-inch separation between aisles of containers, and are rows of drums no more than two wide?	____	____	_____
11. Is the HW segregated from new material?	____	____	_____
12. Is there a functioning emergency alarm at the facility?	____	____	_____
13. Have HM storage areas been inspected to verify there are no spills, damaged or leaking containers, expired shelf life items, or unsafe storage?	____	____	_____

INSPECTOR: _____ **SIGNATURE:** _____

UNIT/ACTIVITY: _____ **BUILDING NUMBER:** _____ **DATE:** _____

HAZARDOUS MATERIAL INSPECTION CHECKLIST

This checklist will be used for inspecting facilities where hazardous materials (HM) are stored. These locations include supply rooms, motor pools, paint lockers, field sanitation boxes, NBC rooms, communication sections, warehouses, laboratories, shops, or any other sites where HM are stored.

	GO	NO GO	COMMENTS
1. Are HM stored in a Fort Lewis approved facility or meet facility requirements in Appendix F, FL Reg 200-1?	____	____	_____
2. Are incompatible materials segregated, e.g., corrosives and oxidizers segregated from flammable products and stored on ground level? (See storage incompatibility charts in Appendix F, FL Reg 200-1)	____	____	_____
3. Are flammables stored away from sources of heat, ignition, flames, or sparks?	____	____	_____
4. Are inventories of HM recorded and updated as required by AR 710-2?	____	____	_____
5. Are MSDSs available on-site for all HM stored?	____	____	_____
6. Is a spill plan posted, and is a fully stocked spill kit readily available?	____	____	_____
7. Are product containers serviceable? (Not leaking, no dents or excessive rust, and lid(s) tightly closed)	____	____	_____
7. Are container labels legible and clearly identify the name of the material in the container?	____	____	_____
8. Are containers within shelf life expiration dates?	____	____	_____
9. Are new products segregated from “in-use” containers, and are stocks rotated on a “first opened, first used” basis?	____	____	_____
10. Is the paint locker stored inside a heated building?	____	____	_____
11. Are containers stored in an orderly manner, and is the HM storage area free of clutter and debris?	____	____	_____
12. Are gas cylinders properly identified, leak-tight, secured or racked, and stored away from sources of heat, flames, or sparks?	____	____	_____
13. Do opened, “in-use” containers have secondary containment?	____	____	_____

INSPECTOR: _____ **SIGNATURE:** _____

AFZH-DEQ
Procedures for Hazardous Material Inventory

HAZARDOUS MATERIAL INVENTORY

POC: _____ *OFFICE CODE:* _____
UNIT: _____ *PHONE:* _____
DODAC: *UIC:* *BLDG#:* *DATE:* _____
ENRD FILE #

#	MSDS	ITEM NAME	NSN	MANUFACTURER	Container Size/Type			On Hand	Received (+)	Issued (-)	Down Graded to Waste (-)	Balance
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												

Storage Location/Comments:

HFL *FORM* 953, 1 NOV 96

_____
Signature

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SECTION 01415

METRIC MEASUREMENTS

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 380 (1993) Practice for Use of the International System of Units (SI)

ASTM E 621 (1999 el) Practice for Use of Metric (SI) Units in Building Design and Construction

1.2 GENERAL

This project includes metric units of measurements. The metric units used are the International System of Units (SI) developed and maintained by the General Conference on Weights and Measures (CGPM); the name International System of Units and the international abbreviation SI were adopted by the 11th CGPM in 1960. A number of circumstances require that both metric SI units and English inch-pound (I-P) units be included in a section of the specifications. When both metric and I-P measurements are included, the section may contain measurements for products that are manufactured to I-P dimensions and then expressed in mathematically converted metric value (soft metric) or, it may contain measurements for products that are manufactured to an industry recognized rounded metric (hard metric) dimensions but are allowed to be substituted by I-P products to comply with the law. Dual measurements are also included to indicate industry and/or Government standards, test values or other controlling factors, such as the code requirements where I-P values are needed for clarity or to trace back to the referenced standards, test values or codes. For American Society for Testing and Materials (ASTM) references in the technical specifications, the Contractor shall use the metric publication, if one is available (For example: ASTM A 36, use ASTM A 36M). An acceptable substitute to hard Metric SI Concrete Masonry Units (CMU) and Recessed Lighting Fixtures (RLF) is English in-pound (soft metric) CMU and RLF. The Contractor shall be responsible for any adjustments required to accommodate these alternative English in-pound units at no additional cost to the Government.

1.3 USE OF MEASUREMENTS

Measurements shall be either in SI or I-P units as indicated, except for soft metric measurements or as otherwise authorized. The Contractor shall be responsible for all associated labor and materials when authorized to substitute one system of units for another and for the final assembly and performance of the specified work and/or products.

1.3.1 Hard Metric

A hard metric measurement is indicated by an SI value with no expressed correlation to an I-P value, i.e., where an SI value is not an exact mathematical conversion of an I-P value, such as the use of 100 mm in lieu of 4 inches. Hard metric products are required when only metric dimensions are indicated, except for Contractor's options as outlined in paragraph GENERAL above. Hard metric measurements are often used for field data such as distance from one point to another or distance above the floor. Products are considered to be hard metric when they are manufactured to metric dimensions or have an industry recognized metric designation.

1.3.2 Soft Metric

a. A soft metric measurement is indicated by an SI value which is a mathematical conversion of the I-P value shown in parentheses e.g. 38.1 mm (1-1/2 inches). Soft metric measurements are used for measurements pertaining to products, test values, and other situations where the I-P units are the standard for manufacture, verification, or other controlling factor. The I-P value shall govern while the metric measurement is provided for information.

b. A soft metric measurement is also indicated for products that are manufactured in industry designated metric dimensions but are required by law to allow substitute I-P products. These measurements are indicated by a manufacturing hard metric product dimension followed by the substitute I-P equivalent value in parentheses e.g., 190 x 190 x 390 mm (7-5/8 x 7-5/8 x 15-5/8 inches).

1.3.3 Neutral

A neutral measurement is indicated by an identifier which has no expressed relation to either an SI or an I-P value (e.g., American Wire Gage (AWG) which indicates thickness but in itself is neither SI nor I-P).

1.4 COORDINATION

Discrepancies, such as mismatches or product unavailability, arising from use of both metric and non-metric measurements and discrepancies between the measurements in the specifications and the measurements in the drawings shall be brought to the attention of the Contracting Officer for resolution.

1.5 RELATIONSHIP TO SUBMITTALS

Submittals for Government approval or for information only shall cover the SI or I-P products actually being furnished for the project. The Contractor shall submit the required drawings and calculations in the same units used in the contract documents describing the product or requirement unless otherwise instructed or approved. The Contractor shall use ASTM E 380 and ASTM E 621 as the basis for establishing metric measurements required to be used in submittals.

END OF SECTION

SECTION 01451

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(1999b) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1998a) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

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

1.3 LABORATORY VALIDATION

The testing laboratory shall be validated by Corps of Engineers Material Testing Center (MTC) for all tests required by contract. See paragraph 3.7 TESTS.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction" (see section 00700). The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. Design and construction Quality Assurance shall be the responsibility of the Architect of Record (see paragraph 3.2.1). The Contractor's site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 QUALITY CONTROL PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Design work is to begin after the pre-design meeting (see Section 00810). Construction will be permitted to begin only after acceptance of the applicable design documents (see Section 00810) and acceptance of the CQC Plan for the construction phase of the contract, 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.

Quality Control of all architectural or engineering design shall be the responsibility of the Professional Architect or Engineer who will seal all drawings and specifications as the “Architect of Record” (see Section 00810, paragraph Architect of Record). The design quality control system shall require professional architects and engineers, other than the designers preparing the drawings and specifications to review the design documents for quality control using an established design quality review system to ensure that the design meets the requirements of the RFP. It is recommended that the Contractor utilize the Corps of Engineers DrChecks software for managing it’s internal design review comments since the Contractor is required to use that system for managing the Government’s design review comments (see Section 00810, paragraph 1.2.2 (4)).

3.2.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all design and construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including the name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

b. The method of design quality review proposed to assure that the design meets all contract intentions and specific requirements.

c. 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. If the project manager and project superintendent are the same person, the CQC System Manager shall report to someone higher in the Contractor’s organization than the project manager.

d. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. Laboratory facilities will be validated by the Corps of Engineers Material Testing Center and approved by the Contracting Officer.

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of work, unless the Government agrees to accept an interim plan applicable to a particular portion of work. Acceptance is conditional and will be predicated on satisfactory performance during the conduct of work. 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 CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the pre-design meeting, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's proposed quality control system. The CQC Plan shall be submitted for review in accordance with the requirements stated in paragraph 3.2, a minimum of 5 calendar days prior to meeting with the Contractor to discuss proposed 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 onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Design and Construction: Architect of Record

Design and Construction Quality Assurance shall be the responsibility of the Architect who will seal all drawings and specifications as the “Architect of Record” (see Section 00810, paragraph Architect of Record). He shall also be the final approval authority for all construction shop drawings and any other tests and submittals effecting the final design as well as being responsible for the review and approval of all material and equipment submittals during construction. His review and approval of construction shop drawings and material and equipment submittals shall be indicated by way of an “Architect Review Stamp” similar to the Contractor’s (Quality Control Manager’s) Stamp found at the end of Section 01330, Submittal Procedures. Any engineering calculations forwarded as a part of any construction shop drawing or submittal shall be stamped by either the designer or another professional engineer.

3.4.2 Construction: General

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health manager shall receive direction and authority from the CQC System manager and shall serve as a member of the CQC staff. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space , filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, shop drawings submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.3 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 5 years construction experience on construction similar to this contract or a construction person with a minimum of 10 years in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.4 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas: architectural, electrical, mechanical, civil, structural, and submittals. These individuals shall be directly employed by the prime Contractor and be responsible to the CQC System Manager; be physically present at the construction site during work on their areas of responsibility; and have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan.

	Experience Matrix	
	Area	Qualifications
a.	Civil	Graduate Civil Engineer with 2 years experience in the type of work being performed on this project or technician with 5 years related experience
b	Mechanical	Graduate Mechanical Engineer with 2 years experience or person with 5 years related experience
c.	Electrical	Graduate Electrical Engineer with 2 years related experience or person with 5 years related experience
d	Structural	Graduate Structural Engineer with 2 years experience or person with 5 years related experience
e.	Architectural	Graduate Architect with 2 years experience or person with 5 years related experience
f	Submittals	Submittal Clerk with 1 year experience

3.4.4 Additional Requirement

In addition to the above experience education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is periodically offered at AGC offices throughout the state of Washington and Oregon.

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS

The Contractor shall prepare a submittal register and submit it for approval to the Contracting Officer prior to start of construction. This register is to follow the general guidance provided in Section 01330 SUBMITTAL PROCEDURES and shall list all proposed submittals and tests for purchased materials and equipment, and for all subcontracts. The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements. Sample test report form is attached at the end of this specification section. The Contractor may use other forms as approved. The Contractor shall maintain these records at the site and they shall be furnished or made available to the Contracting Officer or his designated representatives when so directed.

3.6 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 shall be keyed to the proposed construction sequence. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.

b. A review of the project design drawings.

c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Architect of Record shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Architect of Record shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements, see Table 1 – Minimum Testing, attached at the end of this specification section. Contractor shall submit all materials test reports on forms standard to industry standards such as ACI, ASTM and AASHTO or with laboratory accreditation forms such as

AALA, NIST or NVLAP. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers validated testing laboratory or establish a testing laboratory at the project site which can be validated by the Corps of Engineers in advance of any and all required testing; and in addition, submit proof of validation for approval. The Contractor shall perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

a. Validation

The testing laboratory shall be validated by the Corps of Engineers Materials Testing Center (MTC) for all tests required by the contract prior to the performance of any such testing. The validation of a laboratory is site specific and cannot be transferred or carried over to a facility at a different location. Any and all costs associated with this Government laboratory validation shall be borne by the laboratory and/or the Contractor. Validation of a laboratory is not granted for the entire laboratory activity, but only for the specific procedures requested by the inspected laboratory. The inspected laboratory has full choice of the procedures to be inspected except that the Quality Assurance portion of ASTM E 329 is mandatory to be inspected.

(1) Validation Procedures

Validation of a laboratory may consist of either an inspection or audit as defined herein. Validation of all material testing laboratories shall be performed by the MTC. Validation may be accomplished by one of the following processes:

(a) Inspection. Inspection shall be performed by the MTC in accordance with American Society for Testing and Materials (ASTM) standards E329 and D3740.

(b) Audit. A laboratory may be validated by auditing if it has been accredited by the Concrete and Cement Reference Laboratory (CCRL) or AASHTO Materials Reference Laboratory (AMRL) within the past two years in accordance with ASTM E329. Audit shall be performed by the MTC. Inspection by MTC may be required after auditing if one or more of the critical testing procedures required in the project specification were not included in the CCRL or AMRL inspection report or if there is any concern that the laboratory may not be able to provide required services.

b. Standards of Acceptability

(1) Aggregate, concrete, bituminous materials, soil, and rock. Laboratories for testing aggregate, concrete, bituminous materials, soil, and rock shall be validated for compliance with ASTM E 329, Engineer Manual (EM) 1110-2-1906, or project specifications, as applicable.

(2) Water, sediment, and other samples. Laboratories engaged in analysis of water, sediment, and other samples for chemical analysis shah be inspected to assure that they have the capability to perform analyses and quality control procedures described in references in Appendix A as appropriate. The use of analytical methods for procedures not addressed in these references will be evaluated by the CQAB for conformance with project or program requirements.

(3) Steel and other construction materials, Laboratories testing steel and other construction materials shall be validated for capabilities to perform tests required by project requirements and for compliance with ASTM E329.

c. Validation Schedule

(1) For all contracted laboratories and project Quality Assurance (QA) laboratories testing aggregate, concrete, bituminous materials, soils, rock, and other construction materials, an initial validation shall be performed prior to performance of testing and at least every two (2) years thereafter.

(2) Laboratories performing water quality, wastewater, sludge, and sediment testing shall be approved at an interval not to exceed eighteen (18) months.

(3) All laboratories shall be revalidated at any time at the discretion of the Corps of Engineers when conditions are judged to differ substantially from the conditions when last validated.

d. Validation Process

If a validated laboratory is unavailable or the Contractor selects to use a laboratory which has not been previously validated, Contractor shall coordinate with Corps of Engineers Material Testing Center (MTC) to obtain validation and pay all associated costs. Point of contact at MTC is Daniel Leavell, telephone (601) 634-2496, fax (601) 634-4656, email daniel.a.leavell@erdc.usace.army.mil, at the following address:

U.S. Army Corps of Engineers
Materials Testing Center
Waterways Experiment Station
3909 Hall Ferry Road
Vicksburg, MS 39180-6199

Procedure for Corps of Engineers validation, including qualifications and inspection/audit request forms are available at the MTC web site:

http://www.wes.army.mil/SL/MTC/mtc.htm

Contractor shall coordinate directly with the MTC to obtain validation. Contractor is cautioned the validation process is complicated and lengthy, may require an onsite inspection by MTC staff, correction of identified deficiencies, and the submittal and approval of significant documentation. Estimate a minimum of 60 days to schedule an inspection/submittal and receive a validation. Cost of onsite inspections is $2500 plus travel time and cost from Vicksburg MS. Cost of audits is $1500. If an onsite inspection is required following an audit, the cost of the inspection shall be $1500 plus travel time and cost. The Contractor will be invoiced for actual travel costs and shall submit payment direct to the MTC made payable to the ERDC Finance and Accounting Officer prior to the scheduling of the inspection and/or audit. The Contractor shall copy the Contracting Officer of all correspondence and submittals to the MTC for purposes of laboratory validation.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Division Laboratory, f.o.b., at the following address:

U.S. Army Corps of Engineers
Materials Testing Center
Waterways Experiment Station
3909 Hall Ferry Road
Vicksburg, MS 39180-6199
Phone: (601) 634-2496 or (601) 634-3261

ATTN: Project _____, Contract Number _____

Coordination for each specific test, exact delivery location and dates will be made through the Area Office. If samples are scheduled to arrive at the laboratory on a weekend (after 1700 Friday through Sunday) notify the laboratory at least 24 hours in advance at (601) 634-2496 to arrange for delivery.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

At the 60% (prior to close-in) and 95% completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager together with the design

team of professional architects, civil, structural, electrical and mechanical engineers shall conduct an inspection of the work and develop a punch list of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, the Architect of Record ,and the Contracting Officer's Representative shall be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals reviewed, with contract reference, by whom, and action taken.

g. Off-site surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 SAMPLE FORMS

Sample forms are attached at the end of this specification section.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

TABLE 1

MINIMUM SAMPLING AND TESTING FREQUENCY

Materials	Test	Minimum Sampling and Testing Frequency
Fills, Embankments, Backfills, Subgrade, Subbase, and Base Course Material		
Fill and Embankment	Field Density 2/12/	Two tests per lift for each increment or fraction of 1,672 square meters (2000 sy) and any time material type changes.
	Lab Density 3/	One test initially per each type of materials or blended material and any time material type changes, and one every 10 field density tests.
	Gradation 1/	One test every 153 cubic meters (200 cubic yards) of fill for each type of materials or blended material and any time material type changes.
Subgrade	Field Density 2/12/	One test per each increment or fraction of 1,672 square meters (2000 s.y.)
	Lab Density 3/	One test every 10 field density tests.
Backfill for Culverts, Trenches, Buildings and Walls, Pavements, and Other Structures	Field Density 2/12/	Culverts: One test per each lift.
		Trenches: One test per lift for each increment or fraction of 152 lineal meters (500 linear feet) for backfill. Under pavements, one test every lift and at every crossing.
		Walls and Buildings Perimeters, Including Footings: One test per lift for each increment or fraction of 61 lineal meters (200 linear feet) of backfill.
		Buildings Slabs on Grade: One test per lift for each increment or faction of 93 square meters (1000 s.f.)

Materials	Test	Minimum Sampling and Testing Frequency
		Areas enclosed by grade beams, compacted with power driven hand operated compactors: One test per lift for each increment or fraction of 46 square meters (500 s.f.) Pavements: Two tests per lift for each increment or fraction of 1,672 square meters (2000 s.y.) Other Structures: One test per lift for each increment or fraction of 61 lineal meters (200 linear feet) of backfill.
	Lab Density3/	One test initially per each type of material or blended material and one every 10 field density tests.
	Gradation1/	One test per each type of material or blended material and one every 10 field density tests.
Subbase and Base	Gradation1/(including .02 mm particles size limits.	1 sample for every 3,345 square meters (4,000 sy.)
	In-Place Density2/ 12/	1 sample every 1,672 square meters (2,000 sy.)
	Moisture-Density Relationship3/	1 initially and every 20 density tests.
	Subgrade, Subbase, and Base for Rigid and Flexible Airfield Pavements and Heliports	
Subgrade and Fill or Embankment	In-Place Density12/	1 every 4,181 square meters (5,000 sy) (subgrade)
		1 every 1,911 cubic meters (2,500 cy) and 1 for each type of material or an apparent change in moisture. (Fill or embankment)
	Moisture-Density Relationship	1 every 20 density tests or if material type changes.
	Gradation1/	1 every moisture-density test.
	Moisture	1 for every density test.
	Atterberg Limit	1 for every moisture-density test.

Materials	Test	Minimum Sampling and Testing Frequency
Subbase and Base Material	In-Place Density[12/]	1 every 1,529 cubic meters (2,000 cy) per lift (1 per day min.). 1 every 2 inplace density tests.
	Gradation (and Fractured Faces if applicable)[1/]	
	Moisture-Density Relationship	1 every 20 density tests.
	Moisture	1 for every density test.
	Asphaltic and Portland Cement Concrete for Airfields	
	(See specifications for testing requirement)	
	Asphaltic Concrete and Pavements	(Non airfield)
Asphaltic concrete	Marshall method Test	1 test per day minimum and 1 per 907,200 kilograms (1,000 tons) thereafter.
	Specific Gravity	per each Marshall Test.
	Extraction	1 test for each Marshall Method.
	Gradation[5/]	1 per each extraction test.
	Fracture faces[5/]	1 per each extraction test.
Cored or sawed specimens	Perform complete test (thickness, in-place density and bulk specific gravity) on each cored or sawed sample.[12/]	Take 1 set of 3 cored sawed specimens for each 836 square meters (1,000 square yards) or fraction thereof. One specimen shall be taken from longitudinal joint or from transverse joint.
	Portland Cement Concrete (Non airfield)	
Coarse and Fine Aggregate[7/]	Moisture, specific gravity and absorption[8/]	1 initially.
	Gradation and fineness modules	1 every 191 cubic meters (250 cy) of concrete.
	Moisture, specific gravity and absorption[8/]	(same as coarse aggregate).

Materials	Test	Minimum Sampling and Testing Frequency
Concrete	Slump	Conduct test every day of placement and for every 19 cubic meters (25 cy) and more frequently if batching appears inconsistent. Conduct with strength tests.
	Entrained Air	Conduct with slump test.
	Ambient and concrete temperatures	Conduct with slump tests.
	Unit weight, yield, and water cement ratio	Conduct with strength tests. Check unit weight and adjust aggregate weights to ensure proper yield.
	Flexural strength and evaluation	When specified for slabs on grade or for concrete pavements, take one set of 6 beams every 76 cubic meters (100 cy) of concrete with a minimum of 1 set per day. Two beams shall be tested at 7 days, two at 28 days, and two at 90 days.
	Compressive strength	One set of 3 cylinders per day and every 76 cubic meters (100 cy) for each class of structural concrete. Test one cylinder at 7 days and two at 28 days. Additional field cure cylinders shall be made when insitu strengths are required to be known.
Vibrators	Frequency and amplitude	Check frequency and amplitude initially and any time vibration is questionable.
	Masonry	
Concrete Masonry Units[9/]	Dry shrinkage[10/]	1 set of 3 per 10,000 units and manufacturers certification and test report.
	Airdry condition[11/]	Same as dry shrinkage.
	Absorption	" " " "
	Compressive strength	" " " "
	Unit Weight	" " " "
Mortar and grout	Compressive Strength	1 set of 3, every 2,000 units (1 test at 7 days and 2 tests at 28 days).

NOTES:

1/All acceptance tests shall be conducted from in-place samples.
2/Additional tests shall be conducted when variations occur due to the contractors operations, weather conditions, site conditions, etc.
3/Classification (ASTM D-2487), moisture contents, Atterberg limits and specific gravity tests shall be conducted for each compaction test if applicable.
4/Materials to be submitted only upon request by the Contracting Officer.
5/Tests can substitute for same tests required under "Aggregates" (from bins or source), although gradations will be required when blending aggregates.
6/Increase quantities by 50 percent for Paving mixes and by 100 percent for Government testing of admixtures. Include standard deviation for similar mixes from the intended batch plant and data from a minimum of 30 tests, if available. Refer to ACI 214.
7/A petrographic report for aggregate is required with the sample for source approval. If the total amount of all types of concrete is less than 153 cubic meters (200 c.y.) service records from three separate structures in similar environments which used the aggregates may substitute for the petrographic report.
8/Aggregate moisture tests are to be conducted in conjunction with concrete strength tests for w/c calculations.
9/For less than 1,000 units, the above test may be waived at the discretion of the Contracting Officer and acceptance based on manufacturers certification and test report.
10/Additional tests shall be performed when changes are made either in the manufacturing processes or in materials used in the production of the masonry units.
11/If adequate storage protection is not provided at the jobsite, additional tests shall be made to determine that the allowable moisture condition has not been exceeded before the blocks can be placed in the structure.
12/The nuclear densometer, if properly calibrated, may be used but only in addition to the required testing frequency and procedures using sandcones. The densometer shall be calibrated and is recommended for use when the time for complete results becomes critical.

(sample of typical Contractor's Daily Report)
DAILY CONSTRUCTION QUALITY CONTROL REPORT

Contract Number: _____ Date: _____ Rpt. No._____

Contract Title: _____ Location: _____

Weather: Clear __ P. Cloudy __ Cloudy __ Rainfall __ (__% of workday)

Temperature during workday: High ____ degrees F. Low ___ degrees F.

1. WORK PERFORMED BY CONTRACTOR/SUBCONTRACTOR(S):

Contractor Name	No. of Workers	Crafts/Hours	Work performed

2. EQUIPMENT DATA:

Type, Size, Etc.	Owned/Rented	Hours Used	Hours Standby

3. QUALITY CONTROL INSPECTIONS AND RESULTS: (Include a description of preparatory, initial, and/or follow up inspections or meetings; check of subcontractors work and materials delivered to the site compared to submittals and/or specifications; comments on the proper storage of materials; include comments on corrective actions to be taken):

_____

_____

_____

_____

4. QUALITY CONTROL TESTING AND RESULTS (comment on tests and attach test reports):

_____

_____

_____

5. DAILY SAFETY INSPECTIONS (Include comments on new hazards to be added to the Hazard Analysis and corrective action of any safety issues):

_____

_____

6. REMARKS (Include conversations with or instructions from the Government representatives; delays of any kind that are impacting the job; conflicts in the contract documents; comments on change orders; environmental considerations; etc.):

_____

_____

_____

_____

_____

CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material, equipment used, and work performed during this reporting period are in compliance with the contract documents except as noted above.

_____
CONTRACTOR QC REPRESENTATIVE

(Sample of Typical Contractor's Test Report)

TEST REPORT

STRUCTURE OR BUILDING _____

CONTRACT NO. _____

DESCRIPTION OF ITEM, SYSTEM, OR PART OF SYSTEM TESTED:
_____

_____

DESCRIPTION OF TEST: _____

_____

_____
NAME AND TITLE OF PERSON IN CHARGE OF PERFORMING TESTS FOR THE CONTRACTOR:

NAME_____

TITLE_____

SIGNATURE_____

I HEREBY CERTIFY THAT THE ABOVE DESCRIBED ITEM, SYSTEM, OR PART OF SYSTEM HAS BEEN TESTED AS INDICATED ABOVE AND FOUND TO BE ENTIRELY SATISFACTORY AS REQUIRED IN THE CONTRACT SPECIFICATIONS.

SIGNATURE OF CONTRACTOR
QUALITY CONTROL INSPECTOR_____

DATE_____

REMARKS _____

_____

_____

END OF SECTION

This page is intentionally left blank.

NOTE: The designer shall edit this specification section in accordance with the proposed design.

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DEPARTMENT OF THE ARMY **CEGS-01452 (November 1999)**
U.S. ARMY CORPS OF ENGINEERS **----------**

GUIDE SPECIFICATION FOR CONSTRUCTION

****

SECTION 01452

SPECIAL INSPECTION FOR SEISMIC-RESISTING SYSTEMS
11/99

****

NOTE: This guide specification covers the requirements for special inspection and testing for seismic-resisting systems when required by paragraph 3.2 of FEMA 302 NEHRP RECOMMENDED PROVISIONS FOR SEISMIC REGULATIONS FOR NEW BUILDINGS AND OTHER STRUCTURES. This specification will apply only to buildings. This guide specification is to be used in the preparation of project specifications in accordance with ER 1110-1-8155.

Comments and suggestions on this guide specification are welcome and should be directed to the proponent of the specification. A listing of proponents, including their organization designation and telephone number, is at URL http://www.hnd.usace.army.mil/techinfo/index.htm, and an electronic feedback page for submission of recommended changes is available at the same address. Use of electronic communication is encouraged.

****

PART 1 GENERAL

****

NOTE: This guide specification will be applicable to both new buildings designed according to TI 809-04 SEISMIC DESIGN FOR BUILDINGS, and existing building seismic rehabilitation designs done according to TI 809-05 SEISMIC EVALUATION AND REHABILITATION FOR BUILDINGS.

In addition to the special inspection and testing specified requirements, the structural designer of the seismic-resisting structural systems must perform "structural observations" during construction when required by paragraph 3.5 of FEMA 302. All observed deficiencies will be immediately reported to the Contracting Officer. The structural designer performing these observations will be a representative of the Engineer of Record (EOR) for the building being constructed. The EOR will be the Chief of Engineering of the USACE office performing the design for in-house designs and will be the principal of the firm in charge of the design for Architect-Engineer (A-E) designs.

The requirements for special inspection, the special inspector, and related testing will be used only where required by Chapter 3 of FEMA 302. When special inspection is required, FEMA 302 also requires that for certain buildings a quality assurance plan is developed.

The extent of the qualifications of the Contractor and subcontractors can vary considerably; hence the extent of the quality control can vary considerably. The quality assurance plan, therefore, is an opportunity to identify those areas of special concern that must be addressed during the construction process. Those areas include, but are not limited to, types of testing, frequency of testing, types of inspections and frequency of inspections.

****

1.1 REFERENCES

****

NOTE: Issue (date) of references included in project specifications need not be more current than provided by the latest change (Notice) to this guide specification.

****

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	(1999) Building Code Requirements for Structural Concrete and Commentary
ACI 318M	(1995) Metric Building Code Requirements for Structural Concrete and Commentary
ACI 530/530.1	(1995) Building Code Requirements for Masonry Structures

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC Pub No. S341	(1997) Seismic Provisions for Structural Steel Buildings
AISC Pub No. S342L	(1993) Load and Resistance Factor Design Specification for Structural Steel Buildings

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 435/A 435M	(1990) Straight-Beam Ultrasonic Examination of Steel Plates
ASTM A 615/A 615M	(1996a) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM A 898/A 898M	(1991) Straight Beam Ultrasonic Examination of Rolled Steel Structural Shapes

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

FEMA 302	(Feb 1998) NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures

1.2 SUBMITTALS

SD-13 Certificates

Special Inspector; GA.

Certification attesting that the Special Inspector is qualified by knowledge and experience to perform the specified Special Inspections. Information, which provides evidence of the knowledge and experience necessary to qualify a person as a Special Inspector for the category of work being certified, will accompany the qualification.

Quality Assurance Plan; GA.

A copy of the Quality Assurance Plan covered by a certificate indicating that the plan meets the content specified in this section.

1.3 SPECIAL INSPECTOR

****

NOTE: The requirements listed in this section have been included in the national model codes for many years. Also it is a premise of FEMA 302 that there will be available an adequate supply of knowledgeable and experienced inspectors to provide the necessary special inspections for the various structural categories of work. Special training may have to be implemented for the nonstructural categories.

****

A Special Inspector shall be used to perform Special Inspections required by this section. The Special Inspector is a person employed by the Contractor and approved by the Government as being qualified by knowledge and experience to perform the Special Inspection for the category of work being constructed. Special Inspectors shall perform their duties independent from the construction quality control staff employed by the Contractor. More than one Special Inspector may be required to provide the varied knowledge and experience necessary to adequately inspect all of the categories of work requiring Special Inspection.

1.4 QUALITY ASSURANCE PLAN

****

NOTE: The designer should retain this paragraph only when paragraph 3.2 of FEMA 302 requires that a Quality Assurance Plan be developed.

****

A quality assurance plan shall be developed containing the following:

a. A list of all items that require quality assurance Special Inspection and testing, including the type, frequency, extent, and duration of the special inspection for each item on this list.

b. A list of all items that require quality assurance testing, including the type and frequency of testing for each item on this list.

c. The content, distribution, and frequency of special inspection reports.

d. The content, distribution, and frequency of testing reports.

e. The procedures, controls, and people used within the Contractor's organization to develop, sign, and distribute Special Inspection and Testing reports along with the position title and pertinent qualifications of all Contractor personnel involved.

1.5 SPECIAL INSPECTION

The Special Inspection for seismic-resisting system components shall be done as specified. Special Inspector personnel shall be in addition to the quality control inspections and inspectors required elsewhere in this section.

1.5.1 Continuous Special Inspection

Continuous special inspection is the full time observation of the work by the Special Inspector present in the work area whenever work is being performed. Continuous special inspection shall be performed where specified for items as shown on the drawings.

1.5.2 Periodic Special Inspection

Periodic special inspection is the intermittent observation of the work by a Special Inspector present in the work area while work is being performed. The intermittent observation periods shall be at times of significant work, shall be recurrent over the complete work period, and shall total at least 25 percent of

the total work time. Periodic special inspection shall be performed where specified for items as shown on the drawings.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PERFORMANCE OF INSPECTIONS

****

NOTE: Include only those requirements applicable to the project and the applicable Seismic Design Category. Add any additional necessary requirements.

The designer must indicate on the drawings all locations and all features for which special inspection is required in Chapter 3 of FEMA 302, including the locations of all structural elements requiring inspection, such as intermediate moment frames, special moment frames, shear walls, etc. The designer must also clearly indicate the components of these elements that require special inspection, such as boundary elements of shear walls. The designer shall determine the items to be shown in brackets.

****

Special Inspections shall be performed for the following where designated on the drawings:

3.1.1 [Piers] [Piles] [Caissons]

a. Continuous special inspection during [driving of piles] [and] [placement of concrete in [piers] [piles] [caissons]].

b. Periodic special inspection during construction of [drilled piles] [piers] [caissons] including the placement of reinforcing steel.

3.1.2 Reinforcing Steel

a. Periodic special inspection during and upon completion of the placement of reinforcing steel in [intermediate moment frames] [special moment frames] [shear walls].

b. Continuous special inspection during the welding of reinforcing steel resisting flexural and axial forces [in intermediate moment frames] [in special moment frames] [in boundary members of concrete shear walls] [and during welding of shear reinforcement].

3.1.3 Structural Concrete

Periodic special inspection during and on completion of the placement of concrete in [intermediate moment frames] [special moment frames] [boundary members of shear walls].

3.1.4 Prestressed Concrete

Periodic special inspection during the placement and after completion of placement of prestressing steel. Continuous special inspection during all stressing and grouting operations and during the placement of concrete.

3.1.5 Structural Masonry

a. Periodic special inspection during the preparation of mortar, the lying of masonry units, and placement of reinforcement and prior to placement of grout.

b. Continuous special inspection during the welding of reinforcement, grouting, consolidation and reconsolidation [and] [placement of bent-bar anchors].

3.1.6 Structural Steel

****

NOTE: The designer must indicate on the drawings all locations where welds are loaded to less than 50% of their design strength, thus requiring only periodic special inspection.

****

a. Continuous special inspection for all structural welding, except that periodic special inspection is permitted for single-pass or resistance welds [and] [welds loaded to less than 50 percent of their design strength] provided the qualifications of the welder and the welding electrodes are inspected at the beginning of the work and all welds are inspected for compliance with the approved construction documents at the completion of welding.

b. Periodic special inspection in accordance with AISC Pub No. S342L for the installation of bolts in [intermediate moment frames] [special moment frames] [special truss moment frames] [special concentrically braced frames] [eccentrically braced frames] except that bolts not required to be fully tensioned need not be inspected for bolt tension, other than to ensure that the plies of the connected elements have been brought into snug contact

3.1.7 Structural Wood

a. Continuous special inspection during all field gluing operations of elements of the seismic-force-resisting system.

b. Periodic special inspections for nailing, bolting, anchoring, and other fastening of components within the seismic-force-resisting system including drag struts braces, and tie-downs.

3.1.8 Cold-Formed Steel Framing

a. Periodic special inspections during all welding operations of elements of the seismic-force-resisting system.

b. Periodic special inspections for screw attachment, bolting, anchoring, and other fastening of components within the seismic-force-resisting system, including struts, braces, and hold-downs.

3.1.9 Architectural Components

****

NOTE: If multiple conditions relative to structure height or cladding or veneer weight exist on a project, the designer should indicate on the drawings where special inspection done according to this specification paragraph is both required and not required, i.e., the structure height is 9 m (30 feet) or less or the cladding or veneer weight is 240 kg/m^2 (5 lb/ft^2) or less.

****

Special inspection of the architectural components shall assure that the methods of anchoring and fastening indicated on the drawings are being complied with at the onset of construction of the components, and that the specified or shown number, spacing, and types of fasteners were actually installed. Special inspection for architectural components shall be as follows:

a. Periodic special inspection during the erection and fastening of [exterior cladding] [interior non-load bearing partition walls] [exterior non-load bearing walls] [masonry veneer].

b. Periodic special inspection during the anchorage of [access floors] [suspended ceilings] [storage racks 2.4 m 8 feet or greater in height].

3.1.10 Mechanical and Electrical Components

****

NOTE: The registered design professional should consider requirements to demonstrate the seismic performance of mechanical and electrical components critical to the post-earthquake life safety of the occupants. Any requirements should be clearly indicated on the construction documents. Any currently accepted technology should be acceptable to demonstrate compliance with the requirements.

****

Special inspection of the mechanical and electrical components shall assure that the methods of anchoring and fastening indicated on the drawings are being complied with at the onset of construction of the component, and that the specified or shown number, spacing, and types of fasteners were actually installed. Special inspection for mechanical and electrical components shall be as follows:

a. Periodic special inspection during the anchorage of electrical equipment for emergency or standby power systems.

b. Periodic special inspection during the installation of anchorage of all other electrical equipment.

c. Periodic special inspection during installation for flammable, combustible, or highly toxic piping systems and their associated mechanical units.

d. Periodic special inspection during the installation of HVAC ductwork that will contain hazardous materials.

3.1.11 Seismic Isolation System

Periodic special inspection during the fabrication and installation of isolator units.

3.1.12 Energy Dissipation System

Periodic special inspection during the fabrication and installation of energy dissipation devices.

3.2 TESTING

****

NOTE: The specified testing of the structural materials follows procedures and tests long established by industry standards. The acceptance criteria for each material to be tested should be included in the construction documents prepared for the project.

The designer must indicate on the drawings all locations and all features for which testing, to be reviewed by the special inspector, is required in Chapter 3 of FEMA 302. This includes indicating the locations of all structural elements requiring testing, such as intermediate moment frames, special moment frames, shear walls, etc. The designer must also clearly indicate the material, etc. in these elements that require testing, such as the flexural reinforcement used in the boundary elements of shear walls.

Designers should note that, before ASTM A 615 reinforcing steel is specified as an optional material used to resist earthquake-induced flexural and axial forces in special moment frames or in boundary elements of shear walls of structures in Seismic Design Categories D, E, and F, they must verify that the requirements of Sec. 21.2.5.1 of ACI 318 have been satisfied. Also, before ASTM A 615 reinforcing steel is used where it must be welded, chemical tests must be performed to verify the ability to weld in accordance with Sec. 3.5.2 of ACI 318.

****

The special inspector shall be responsible for verifying that the testing requirements are performed by an approved testing agency for compliance with the following, where shown on the drawings:

a. Reinforcing and Prestressing Steel: Special testing of reinforcing and prestressing steel shall be as follows:

(1) Examine certified mill test reports for each shipment of reinforcing steel used in reinforced concrete [intermediate frames] [special moment frames] [boundary members of reinforced concrete shear walls] [reinforced masonry shear walls]. The special inspector shall determine conformance with the construction documents.

(2) Examine the reports for chemical tests, done in accordance with Sec. 3.5.2 of ACI 318M ACI 318/318R, which were performed to determine the ability to weld of ASTM A 615/A 615M reinforcing steel.

b. Structural Concrete: Verify that samples of structural concrete obtained at the project site, along with all material components obtained at the batch plant, have been tested in accordance with the requirements of ACI 318M ACI 318/318R and comply with all acceptance provisions contained therein.

c. Structural Masonry: Verify that all quality assurance testing of structural masonry along with all material components is in accordance with the requirements of ACI 530/530.1 and complies with all acceptance provisions contained therein.

d. Structural Steel:

(1) Verify that all quality assurance testing needed to confirm required material properties [contained in Section 05120 STRUCTURAL STEEL] [and] [given in the quality assurance plan] has been done in accordance with applicable provisions in AISC Pub No. S341 and AISC Pub No. S342L and that the test results comply with all acceptance provisions contained therein.

(2) When a flange or a plate of steel member with a base metal thickness greater than 38 mm 1.5 inches, is joined by welding so that the flange or plate is subjected to through-thickness weld shrinkage strains, verify that the required ultrasonic testing for discontinuities behind and adjacent to such welds has been done after joint completion. Further verify that any material discontinuities rejected on the basis of the requirements contained in [Section 05120 STRUCTURAL STEEL] [and] [ASTM A 435/A 435M or ASTM A 898/A 898M, (Level 1 Criteria)] were repaired and tested again after the repairs and found acceptable.

e. Seismically Isolated Structures: Verify that the required system and component tests for seismically isolated structures have been done in accordance with FEMA 302 and comply with all acceptance provisions contained therein.

f. Energy Dissipation Systems: Verify that the required system and component tests for seismic energy dissipation systems have been done in accordance with FEMA 302 and comply with all acceptance provisions contained therein.

3.3 REPORTING AND COMPLIANCE PROCEDURES

****

NOTE: The success of a quality assurance plan depends upon the experience, training, and knowledge of the special inspector and the accuracy and thoroughness of the reports prepared by the special inspector. It should be emphasized that both the special inspector and the Contractor are required to submit to the Government a final certification attesting that the completed work is in conformance with the approved construction documents.

The Contractor, having day-to-day knowledge of the construction of the project, is in the best position to state whether or not all the construction has been completed in accordance with the approved construction documents. To be fully aware however, the Contractor must institute a system of reporting within its organization that enables the Contractor to effectively practice quality control. The

special inspector can only attest to the work personally inspected and, therefore, the special inspector acts more as an auditor or monitor of the quality control program exercised by the Contractor and the testing conducted by the testing agency.

Continuous inspection does not imply that the special inspector has observed all of the work as it is being installed, rather it implies that the special inspector has observed all of the critical conditions of the work to be sufficiently confident that the work was completed in conformance with the construction documents.

****

a. On the first day of each month, the Contractor shall furnish to the Government five copies of the combined progress reports of the special inspector's observations. These progress reports shall list all special inspections of construction or reviews of testing performed during that month, note all uncorrected deficiencies, and describe the corrections made both to these deficiencies and to previously reported deficiencies. All special inspectors who performed special inspections of construction or reviewed testing during that month, regardless of whether they reported any deficiencies shall sign each monthly report. The Contractor shall sign each monthly report.

b. At completion of construction, each special inspector shall prepare and sign a final report attesting that all work they inspected and all testing and test reports they reviewed were completed in accordance with the approved construction documents and that deficiencies identified were satisfactorily corrected. The Contractor shall submit a combined final report containing the signed final reports of all the special inspectors. The Contractor shall sign the combined final report attesting that all final reports of special inspectors that performed work to comply with these construction documents are contained therein, and that the Contractor has reviewed and approved all of the individual inspector's final reports.

SECTION 01501

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1.1 Water

The Government will make available to Contractor, from existing outlets and supplies, reasonable amounts of potable water without charge. Contractor shall reasonably conserve potable water furnished. Contractor, at its own expense, shall install and maintain necessary temporary connections and distribution lines and shall remove the connections and lines prior to final acceptance of construction.

1.1.2 Electricity

Electric power will be made available by the Government, without charge, to the Contractor for performing work at the work area. The Contractor shall carefully conserve electricity furnished. The Contractor, at its own expense and in a workmanlike manner satisfactory to the Contracting Officer, shall extend the existing electrical distribution system (overhead and underground) for temporary electrical service to the worksite, shall install and maintain necessary temporary connections, and shall remove the same prior to final acceptance of the construction.

1.2 SANITARY PROVISIONS

Contractor shall provide sanitary accommodations for the use of employees as may be necessary and shall maintain accommodations approved by the Contracting Officer and shall comply with the requirements and regulations of the State Health Department, County Sanitarian, or other authorities having jurisdiction.

1.3 TEMPORARY ELECTRIC WIRING

1.3.1 Temporary Power and Lighting

The Contractor shall provide construction power facilities in accordance with the safety requirements of the National Electric Code NFPA No. 70 and the SAFETY AND HEALTH REQUIREMENTS MANUAL EM 385-1-1. The Contractor, or its delegated subcontractor, shall enforce the safety requirements of electrical extensions for the work of subcontractors. Work shall be accomplished by journeyman electricians.

1.3.2 Construction Equipment

In addition to the requirements of SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1, temporary wiring conductors installed for operation of construction tools and equipment shall be either Type TW or THW contained in metal raceways, or shall be hard usage or extra hard usage multiconductor cord. Temporary wiring shall be secured above the ground or floor in a workmanlike manner and shall not present an obstacle to persons or equipment. Open wiring may only be used outside of buildings, and then only in accordance with the provisions of the National Electric Code.

1.3.3 Submittals

Submit detailed drawings of temporary power connections. Drawings shall include, but not be limited to, main disconnect, grounding, service drops, service entrance conductors, feeders, GFCI'S, and all site trailer connections.

1.4 FIRE PROTECTION

During the construction period, the Contractor shall provide fire extinguishers in accordance with the safety requirements of the SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1. The Contractor shall remove the fire extinguishers at the completion of construction.

1.5 UTILITY LOCATOR/IDENTIFICATION TAPE

Unless specified otherwise elsewhere in the Contract, all installed utility lines shall have a plastic marker tape (minimum 150 mm wide and 0.125 mm thick, installed 200 mm to 260 mm below grade. The plastic marker tape shall include a metallic wire or metal foil backing for detection purposes, and shall bear a continuous printed inscription describing the type of utility line buried below. All underground exterior gas lines shall be provided with a continuous tracer wire (#12 wire) taped to the pipe. Utility line monument markers (concrete with brass identification plugs) shall be installed every 60 meters along straight runs and at each change of direction. Any existing marker tapes or tracer wires damaged during construction shall be repaired to original condition.

1.6 STAGING AREA

Contractor will be provided adequate open staging area as directed by the Contracting Officer. Area is unsecured, and Contractor shall make provisions for its own security.

Contractor shall be responsible for keeping staging area, and office area clean and free of weeds and uncontrolled vegetation growth. Weeds shall be removed by pulling or cutting to within 1-inch of ground level. Lawn areas shall be mown to keep growth to less than 2-inches. All loose debris and material subject to being moved by prevailing winds in the area shall be picked up or secured at all times.

If the area is not maintained in a safe and clean condition as defined above the Contracting Officer may have the area cleaned by others with the costs being deducted from the Contractor's payment.

1.7 HOUSEKEEPING AND CLEANUP

Pursuant to the requirements of Clause CLEANING UP and Clause ACCIDENT PREVENTION, of the CONTRACT CLAUSES, the Contractor shall assign sufficient personnel to insure compliance. The Contractor shall submit a detailed written plan for implementation of this requirement. The plan will be presented as part of the preconstruction safety plan and will provide for keeping the total construction site, structures, and accessways free of debris and obstructions at all times. Work will not be allowed in those areas that, in the opinion of the Contracting Officer, have unsatisfactory cleanup and housekeeping at the end of the preceding day's normal work shift. At least once each day all areas shall be checked by the Quality Control person of the Contractor and the findings recorded on the Quality Control Daily Report. In addition, the Quality Control person shall take immediate action to insure compliance with this requirement. Housekeeping and cleanup shall be assigned by the Contractor to specific personnel. The name(s) of the personnel shall be available at the project site.

1.8 DIGGING PERMIT

Before performing any onsite excavation, Contractor shall obtain a digging permit. The digging permit can be obtained at Building 4301, room 13, on weekdays between 8 a.m. and 3:30 p.m. Typically it will take a Contractor 3-5 working days to collect all signatures necessary for clearances prior to the permit being issued. Digging permits are valid for 30 to 90 days and shall be renewed as necessary.

1.9 CONSTRUCTION NEAR COMMUNICATIONS CABLES

1.9.1 Excavation Near Communication Cables

Digging within 1 meter (3 feet) of communication cables (including fiber optic cables) shall be performed by hand digging until the cable is exposed. The Contracting Officer shall be notified a minimum 3 days prior to digging within 1 meter (3-foot) area near cable. The cable route will be marked by the Government prior to excavation in the area. A digging permit shall be obtained by the Contractor before performing any excavation. The Contractor shall be held responsible for any damage to the cable by excavation procedures. Once the cable is exposed, mechanical excavation may be used if there is no chance of damage occurring to the cable.

1.9.2 Reburial of Exposed Utilities

When existing utility lines are reburied a tape, detectable by pipe detector systems, shall be installed above the uncovered length of the utility at a depth of 300 mm (12 inches) below grade. Tape shall be a minimum .127 mm (5 mil) plastic tape with metallic tracer, minimum 75 mm (3 inches) wide, lettering on tape to show buried utility, and brightly colored.

1.9.3 Access to Communications Manhole or Handhole

No communications manhole or handhole shall be entered without first obtaining a fiber optic cable briefing. Coordinate through the Contracting Officer with DOIM (Directorate of Information Management), Fort Lewis, Information Services Center, Bldg. 2003.

1.9.4 Cable Cuts or Damage

If a communications cable is cut or damaged the Contractor shall immediately notify the Contracting Officer (CO) and begin gathering personnel and equipment necessary to repair the cut, or damage. Contractor shall begin repairs within one hour of the cut or damage, unless notified otherwise, and continue repairs without interruption until full service is restored.

1.10 PROJECT SIGN

Contractor shall furnish and install 1 project sign in accordance with conditions hereinafter specified and layout shown on drawing No. 49s-40-05-15, Sheets 1 and 2, except Corps of Engineers' castle and Department of Army seal will be Government furnished. All letters shall be block type, upper case. Letters shall be painted as indicated using exterior-type paint. Sign shall be maintained in excellent condition throughout the life of job. Project sign shall be located as directed. Upon completion of project, sign shall be removed and shall remain the property of Contractor.

1.11 ELEVATED WORK AREAS

Workers in elevated work areas in excess of 2 meters (6 feet) above an adjoining surface require special safety attention. In addition to the provisions of SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1, the following safety measures are required to be submitted to the Contracting Officer's Representative. Prior to commencement of work in elevated work areas, the Contractor shall submit

drawings depicting all provisions of his positive fall protection system including, but not limited to, all details of guardrails. Positive protection for workmen engaged in the installation of structural steel and steel joist shall be provided by safety nets, tie-offs, hydraulic man lifts, scaffolds, or other required means. Decking crews must be tied-off or work over nets or platforms not over 2 meters (6 feet) below the work area. Walking on beams and/or girders and the climbing of columns is prohibited without positive protection. Perimeter guardrails shall be installed at floor, roof, or wall openings more than 2 meters (6 feet) above an adjoining surface and on roof perimeters. Rails shall be designed to protect all phases of elevated work including, but not limited to, roofing operations and installation of gutters and flashing. Rails around roofs may not be removed until all work on the roof is complete and all traffic on or across the roof ceases. Rails shall be designed by a licensed engineer to provide adequate stability under any anticipated impact loading. As a minimum, the rails shall consist of a top rail at a height of 1067 mm (42 inches), a mid-rail, and a toe board. Use of tie-offs, hydraulic man lifts, scaffolds, or other means of roof edge protection methods may be utilized on small structures such as family housing, prefabricated metal buildings, etc. If safety belts and harnesses are used, the positive fall protection plan will address fall restraint versus fall arrest. Body belts will ONLY be used for fall restraint, they will not be used for fall arrest.

1.12 TRAFFIC CONTROL

The Contractor shall provide for movement of traffic through and around the construction zone in a manner that is conducive to the safety of motorists, pedestrians, and workers. This shall include placement and maintenance of traffic control devices in accordance with the U.S. Department of Transportation, Federal Highway Administration publication, Manual on Uniform Traffic Control Devices. Streets (except dead end) may be closed to traffic temporarily by approved written request to the Contracting Officer at least 10 working days prior to street closure. Street closures shall at all times allow street access to a building from one direction. Excavations shall not remain open for more than 1 working day without approval.

1.13 UTILITIES NOT SHOWN

The Contractor can expect to encounter, within the construction limits of the entire project, utilities not shown on the drawings and not visible as to the date of this contract. If such utilities will interfere with construction operations, he shall immediately notify the Contracting Officer verbally and then in writing to enable a determination by the Contracting Officer as to the necessity for removal or relocation. If such utilities are removed or relocated as directed, the Contractor shall be entitled to equitable adjustment for any additional work or delay. The types of utilities the Contractor may encounter are waterlines, sewer lines (storm and sanitary), gas lines, fueling lines, steam lines, buried fuel tanks, septic tanks, other buried tanks, communication lines, and power lines. These utilities may be active or abandoned utilities.

1.14 CONCEALED WORK

All items of work to be concealed shall be Government inspected prior to concealment.

1.15 REPAIR OF ROAD CUTS

Asphaltic surface shall be completely in place within 48 hours after placement of base gravel. Between placement of base gravel and pavement, road shall be kept in driveable and passable condition.

1.16 GOVERNMENT WITNESSING AND SCHEDULING OF TESTING

The Contractor shall notify the Contracting Officer, by serial letter, of dates and agenda of all performance testing of the following systems: mechanical (including fire protection and EMCS), and electrical (including fire protection) not later than 10 calendar days prior to start of such testing. In this notification, the Contractor shall certify that all equipment, materials, and personnel necessary to conduct such testing will

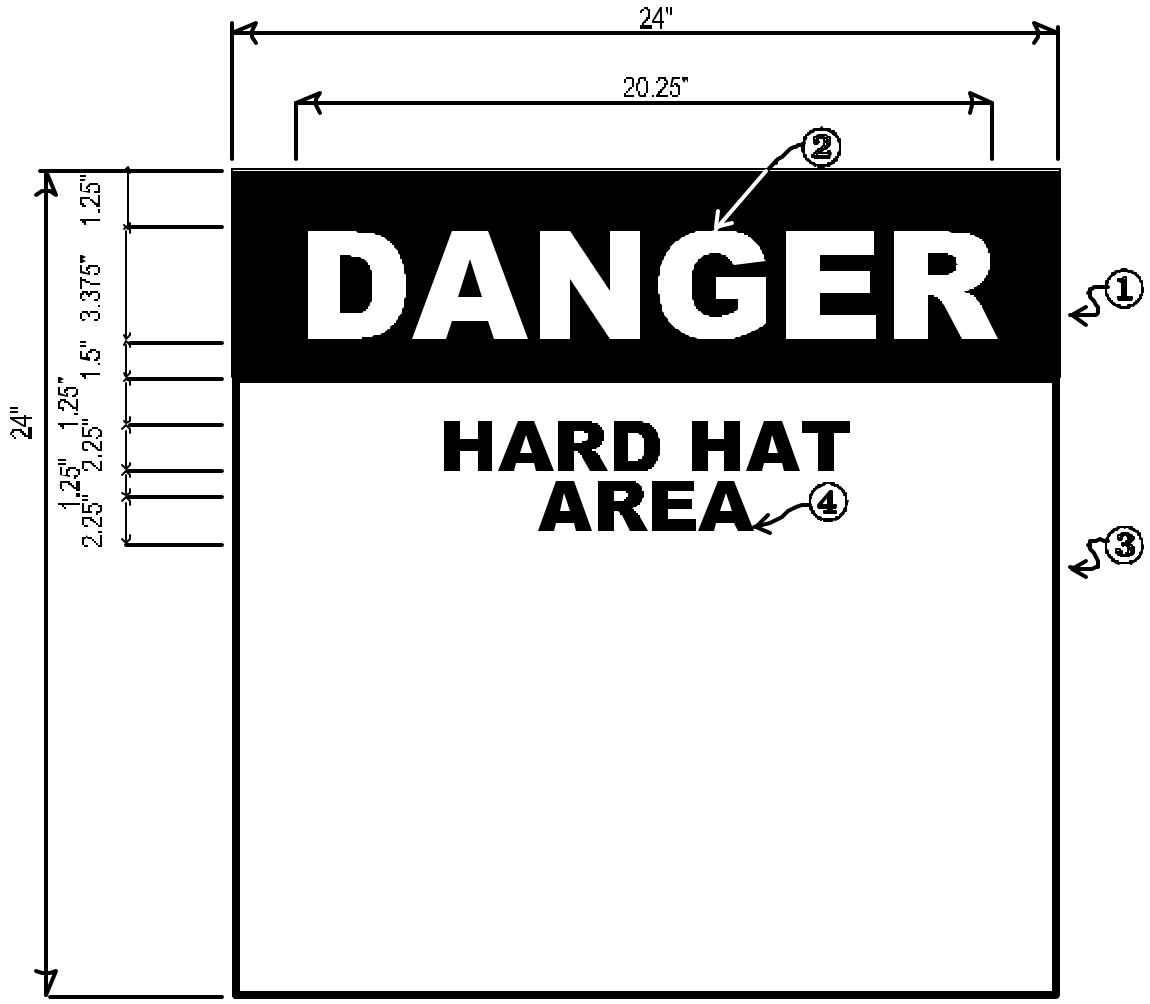
be available on the scheduled date and that the systems have been prechecked by him and are ready for performance and/or acceptance testing. Contractor shall also confirm that all operations and maintenance manuals have been submitted and approved. NO PERFORMANCE AND/OR ACCEPTANCE TESTING WILL BE PERMITTED UNTIL THE OPERATIONS AND MAINTENANCE MANUALS HAVE BEEN APPROVED.

Government personnel, at the option of the Government, will travel to the site to witness testing. If the testing must be postponed or canceled for whatever reason not the fault of the government, the Contractor shall provide the Government not less than 3 working days advance notice (notice may be faxed) of this postponement or cancellation. Should this 3 working day notice not be given , the Contractor shall reimburse the Government for any and all out of pocket expenses incurred for making arrangements to witness such testing including, but not limited to airline, rental car, meal, and lodging expenses. Should testing be conducted, but fail and have to be rescheduled for any reason not the fault of the Government, the Contractor shall similarly reimburse the Government for all expenses incurred.

1.17 HARD HAT SIGNS

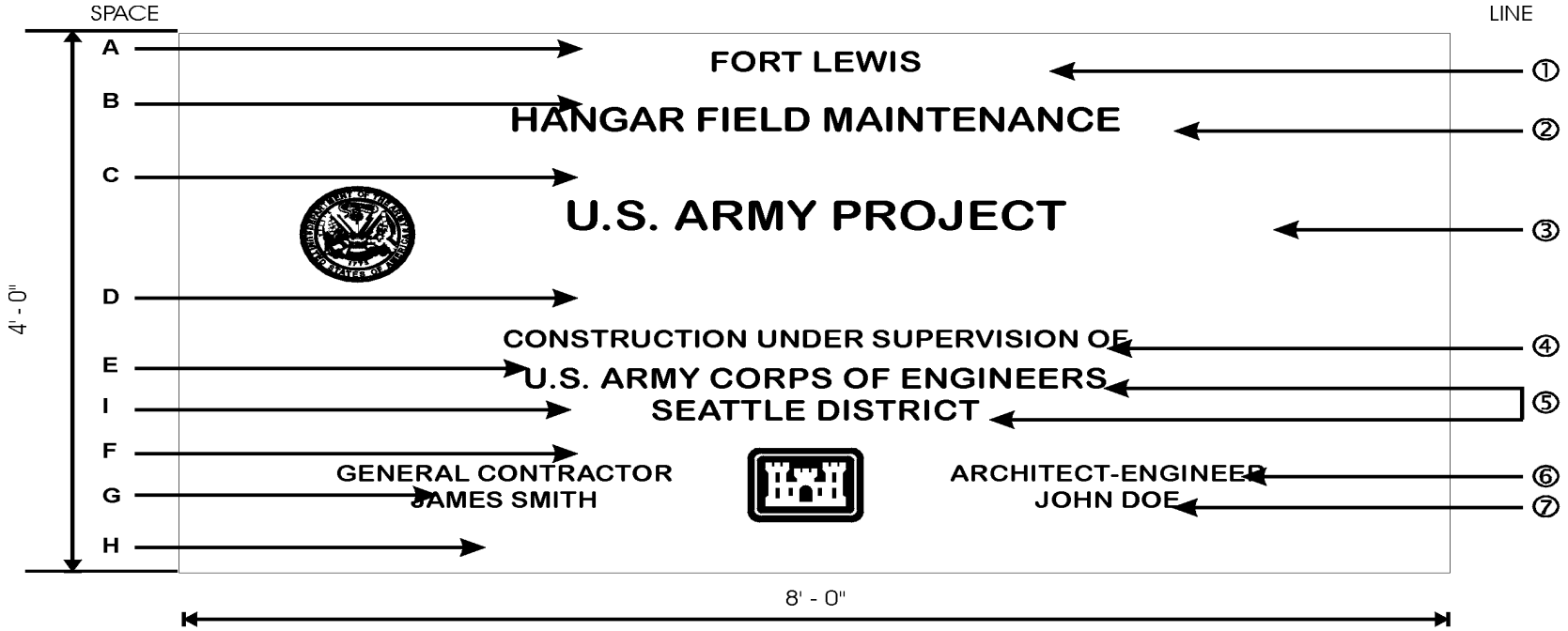
The Contractor shall provide 610 mm by 610 mm (24 by 24 inch) square Hard Hat Area signs at each entry to the project or work area as directed by the Contracting Officer. A minimum of two signs will be required. Signs shall be in accordance with the sketch at the end of this section.

PART 2 PRODUCTS AND PART 3 EXECUTION (NOT APPLICABLE)



?? SIGN SHALL BE FABRICATED FROM .125 THICK 6061-T6 ALUMINUM PANEL
?? COLOR
1. SAFETY RED (SR)
2. WHITE
3. WHITE
4. BLACK

?? LETTERING SHALL BE HELVETICA BOLD TYPOGRAPHY.
?? LETTERS AND BACKGROUND SHALL BE REFLECTIVE SHEETING MATERIAL.
?? SIGNS SHALL BE POSTED AT 6 FEET – 6 INCHES (BOTTOM SIGN TO GRADE) OR AS DIRECTED BY THE CONTRACTING OFFICER.
?? LETTERING TO BE CENTERED ON PANEL.



SAMPLE CONSTRUCTION SIGN FOR MCP PROJECTS

SCHEDULE

SPACE	HT.	LINE	DESCRIPTION	LETTER HT.	STROKE
A	2"	1	LOCATION	2 3/8"	1/4"
B	2 5/8"	2	PROJECT NOMENCLATURE *	2 3/4"	3/8"
C	5 3/4"	3	U.S. ARMY PROJECT	4"	1/2"
D	8"	4	CONSTRUCTION UNDER SUP.	1 1/2"	1/8"
E	4"	5	CONSTRUCTION AGENCY *	2 3/8"	1/4"
F	4"	6	GENERAL CONTRACTOR *	1 3/8"	3/16"
G	1"	7	GENERAL CONTRACTOR*	1 3/8"	3/16"
H	2 7/8"	*	WILL VARY TO SUIT PROJECT REQUIREMENTS		
I	2		SEATTLE DISTRICT		

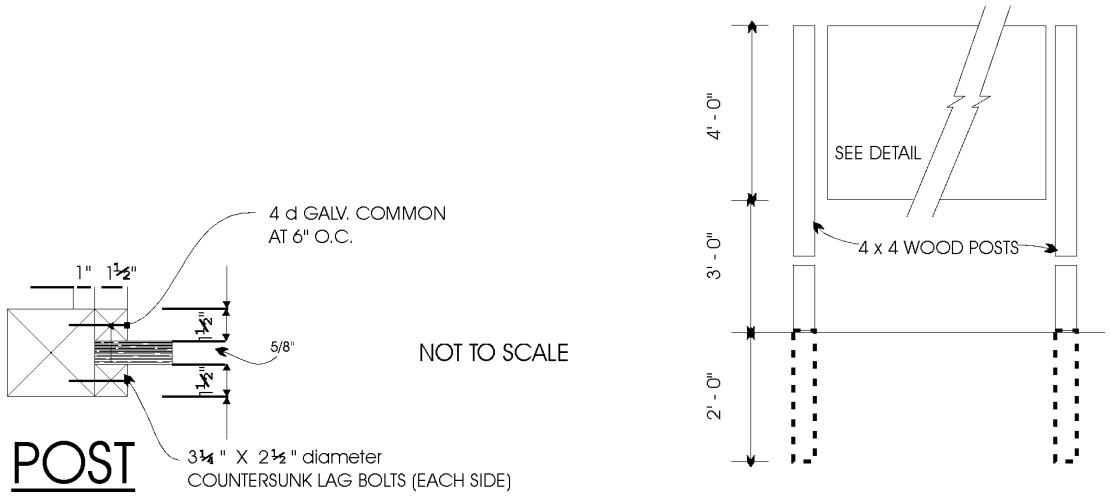
U.S. ARMY

PROJECT
CONSTRUCTION SIGN

Sheet 1 of 2 Scales As shown
U.S. Army Engr. Dist. Seattle, WA.

Dr:	R.L.W.	Transmitted with report
Tr:	R.L.W.	DATED: 20 JUNE 84
Ck:	R.L.W.	File No. 49s/40-05-15

U.S. ARMY PROJECT SIGN



NOTES:

1. Signboard 4 foot x 8 foot x 5/8 inch grade A-C exterior type plywood with medium density overlay on both sides.
2. Paint both sides and edges with one prime coat and two coats of paint, color white exterior type enamel. Lettering shall be as shown on drawing and shall be black gloss exterior type enamel.
3. Lettering shall be Helvetica medium.
4. Acceptable abbreviations may be used for Contractor's name.
5. Department of Army Seal and Corps of Engineers' Castle to be Government furnished.
6. No company logo shall be used.
7. Sign posts and 1½ inches wood trim shall be painted white.
8. Upon completion of work under this contract, the project sign shall be removed from the job site and shall remain the property of the Contractor.

NOTE: The Contractor shall verify the colors to be used with the Contracting Officer prior to constructing the sign.

SHEET 2 OF 2

END OF SECTION

SECTION 01701

OPERATIONS AND MAINTENANCE MANUALS

PART 1 GENERAL

1.1 SUBMITTALS

Submittals shall be in accordance with SECTION 01330: SUBMITTAL PROCEDURES.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall provide Operation and Maintenance (O&M) manuals for the complete project as applicable under this contract, including all Contractor furnished and installed equipment, systems and materials, and all Government furnished-Contractor installed equipment, systems and materials. Included herein are requirements for compiling and submitting the O&M data. Additional O&M data requirements are specified in the individual sections of the technical specifications. O & M Manual requirements shall be coordinated with the requirements as stated in the other technical specification sections and shall include listings for spare parts, framed instructions, etc.

3.1.1 Preparation

Manual preparation shall be under the direction of an individual or organization that has demonstrated expertise and a minimum of 3 years experience in the preparation of comprehensive and complete O&M manuals. Qualifications shall be submitted for Contracting Officer approval.

3.1.2 Format

3.1.2 O&M data shall be separated into distinct systems. O&M manuals for any particular system shall include narrative and technical descriptions of the interrelations with other systems. This narrative shall include a description on how the system works with notable features of the system, including normal and abnormal operating conditions. The explanation of the system is to be short and concise with reference to specific manufacturer's equipment manuals for details (see paragraph CONTENT, subparagraph b). If the quantity of material is such that it will not fit within one binder then it shall be divided into volumes, as required (see paragraph Binders).

3.1.3 Six copies of the complete set of manuals shall be provided for each building (as identified by a building number or building description) for multi-building projects. For those multi-building projects where the work is identical in each building, one copy of the manual is required for each building plus six additional copies. For those projects that do not have work in specific buildings, six copies of the manuals are required for the complete project. Any project may have a combination of these requirements to determine the total number of copies required.

3.1.4 The requirement for six copies of the O&M manual shall supersede and replace any requirements for a lesser amount of manuals which may be indicated in some specifications. Each set of manuals shall be tailored for its respective building or facility.

3.2 PRELIMINARY O&M MANUAL AND DATA SUBMITTAL

To establish and assure uniform O&M manual format, the Contractor shall submit two copies of complete set of O & M data without the binders and receive Contracting Officer approval on one (1) of the sets prior to submission of the final bound manuals. Initial O & M Manual data submittal shall be a minimum of 30 days prior to 90 percent project completion.

The Contractor shall also provide two typewritten pages representing the proposed binder marking format as required under Paragraph: Marking and Binding. One page will represent the front cover/spine and the other page will represent the inside of the front cover.

3.2.1 Data submitted for the manual are to be for the specific equipment furnished, and are in addition to that furnished as shop drawings.

3.2.2 The Contracting Officer will require thirty (30) days for review of submitted O&M manual(s) or data. The Contracting Officer will retain one copy of unacceptable O&M manual submittal and return remainder of copies to the Contractor marked "Returned for Correction." If "Returned for Correction." the Contractor shall resubmit the required number of copies of the manual(s) incorporating all comments, prior to substantial completion and/or use and possession. The Contractor may, at his option, update the copy retained by the Government in lieu of providing the added copy.

3.2.3 For equipment or systems requiring personnel training and/or acceptance testing, the final O&M data shall be approved by the Contracting Officer prior to the scheduling of the training and/or testing. O&M data on equipment or systems not requiring training or testing shall be submitted so all data will be approved and bound in the O&M manuals in the required quantity by the time the project reaches 90 percent completion. Failure to furnish approved, bound manuals in the required quantity by the time the project is 90 percent complete, will be cause for the Contracting Officer to hold or adjust the retained percentage in accordance with CONTRACT CLAUSE, PAYMENTS UNDER FIXED PRICE CONSTRUCTION CONTRACTS.

3.2.4 Three of the six completed copies of the final O&M manuals (for each building) shall contain original manufacturer's data. Data in the remaining manuals may be duplicated copies of original data. All data furnished must be of such quality to reproduce clear, legible copies.

3.3 BINDERS

3.3.1 Construction and Assembly

Manuals shall be sliding posts or screw-type aluminum binding posts (three screws) with spine, but only one type shall be used for all manuals. The manuals shall be hardback plastic-covered, cleanable, not over 76 mm (3 inches) thick and designed for 216 mm by 279 mm (8-1/2 by 11 inch) paper. The hard cover shall be of minimum stiffness equal to 2.03 mm (0.080 inch) display board or double weight illustration board.

3.3.2 Marking and Binding

As appropriate, systems shall be grouped into four separate categories and bound into four volumes as follows: Mechanical, Electrical, Fire Protection/Security, and Architectural/General.

Each binder shall have the following information, as a minimum, inscribed on both the spine and cover using an offset or silk screen printing process; "EQUIPMENT OPERATION, MAINTENANCE, AND REPAIR MANUAL;" BUILDING NAME, IDENTIFICATION NUMBER (Building No.), LOCATION, AND DISCIPLINE (MECHANICAL, ELECTRICAL, FIRE PROTECTION/SECURITY, ARCHITECTURAL/GENERAL).

Contractor's name and address as well as the contract title and contract number shall be printed on the inside of the front cover.

3.3.3 Color

Color of binder and printing shall be the option of the Contractor except that; (a) printing color shall contrast with binder color, and (b) colors shall be the same for all manuals.

3.3.4 Content

The O&M manuals shall be structured to address each of the following topics in order for each system. When the topic does not apply to a particular system the topic name will be included in the manual with the words "DOES NOT APPLY."

a. Warning Page: A warning page shall be provided to warn of potential dangers (if they exist), such as high voltage, toxic chemicals, flammable liquids, explosive materials, carcinogens, or high pressures. The warning page shall be placed inside the front cover, in front of the title page.

b. Index: Each manual shall have a master index at the front identifying all manuals and volumes and subject matter by system name for each. Following the master index, each manual shall have an index of its enclosures listing each volume, tab numbers, etc., as necessary to readily refer to a particular operating or maintenance instruction. Rigid tabbed fly leaf sheets shall be provided for each separate product and/or piece of equipment under each system in the manual. For example, if a system includes Air Handling Units 1 through 5, there shall be tab sheets AHU-1, AHU-2, AHU-3, AHU-4 and AHU-5. When a manual is divided into volumes, each volume shall have a master index at its front, followed by an index for the specific volume listing in detail all enclosed instructions for materials, individual pieces of equipment, and systems. All pages shall be numbered with the referenced number included in the index.

c. Description: Narrative and technical descriptions of the system and of the interrelations with other systems.

d. Check List Prior to Start Up: Precautions and prechecks prior to start up of equipment and/or system, including safety devices, monitoring devices and control sequence shall be provided.

e. Start Up and Operation: Step-by-step sequential procedures for start up and normal operation checks for satisfactory operation shall be provided. Safety precautions and instructions that should be followed during these procedures shall be incorporated into the operating instructions and flagged for the attention of the operator. Procedures shall include test, manual or normal, and automatic modes.

f. Shutdown: Procedures for normal and emergency shutdown of equipment and/or systems shall be provided. The instructions shall include any procedures necessary for placing the equipment and/or system on standby or preparing the equipment and/or system for start up at a later time. Procedures shall include test, manual or normal, and automatic modes.

g. Operator Preventive Maintenance, Major Maintenance, and Adjustments: The instructions shall include recommended operator preventive maintenance which would normally be performed by operating personnel and adjustment procedures necessary for normal operation. Schedules shall be provided indicating time frames or operating hours for initiating operator maintenance and adjustments, and including manufacturer's recommended major maintenance requirements. Emergency adjustments shall be included and flagged for operator's attention; the instructions shall also include procedures for emergency repairs that could be performed by operating personnel. These emergency repairs or "trouble-shooting guides" shall be outlined in three columns with the following headings:

Column 1 - Trouble
Column 2 - Probable Cause(s)
Column 3 - Correction

h. Operator Data: The instructions shall include equipment and/or system layouts showing all piping, wiring, breakers, valves, dampers, controls, etc., complete with diagrams, schematics, isometrics, and data to explain the detailed operation and control of each individual piece of equipment and/or system, including system components. Layouts shall show the location within the facility of controls, valves, switches, dampers, etc., by reference to site location, wing designation, floor, room number, or other clear and concise directions for locating the item. Operator data may be identical to posted data and framed instructions but shall be prepared as part of the O&M manuals. All control systems operations data shall include the following:

(1) A fully labeled control schematic which details all set points, throttling ranges, actions, spans, proportional bands, and any other adjustment.

(2) A fully labeled elementary diagram (ladder diagram).

(3) A sequence of control on the diagrams cross-referenced to the control schematic and elementary diagram.

(4) A generic, functional description of each control component shown on the drawings.

(5) Catalog data of every control device.

i. Electrical Layout Drawings: The Electrical O&M's shall include complete layout drawings and one-line diagrams of exterior and interior electrical with reference to the buildings and site layout. Drawings shall include layout of interior lighting, interior power, intrusion detection systems, communication systems and fire protection systems. Exterior layout drawings shall show where fed from, pad-mount transformer, metering, main distribution panel and communication lines. Layout drawings shall show the location within the facility or reference to the building and the site plan. Layout drawings shall be half size contract as-built drawings and shall be inserted into plastic pockets and installed at the back of the O&M's that pertain to that particular drawing.

j. Maintenance Procedures: Recommended procedures shall indicate preventive maintenance, lubrication, and good housekeeping practices which should be performed by operating personnel as well as more complex maintenance procedures which would normally be performed by trained maintenance personnel only. The procedures shall be presented with a schedule indicating time frames or operating hours for specific maintenance to be accomplished. Safety precautions and instructions that should be followed during these procedures shall be incorporated into the maintenance procedures and flagged for the attention of personnel. The procedures shall include necessary operating instructions for taking equipment off line, putting equipment on line, or putting equipment on standby. The instructions shall include all necessary material, equipment, and system data to perform maintenance work and shall include, but not be limited to, manufacturers/bulletins, catalogs, and descriptive data; certified performance curves, copies of approved test plans, including logs and records of performance acceptance test results, and actual adjustments made during final acceptance and inspection; system layouts, including block diagrams, wiring, control, and isometric diagrams: schematic items within the facility; and interrelationships with other items of system.

k. Repairs: Repair procedures shall be presented with a step-by-step procedure for locating and correcting the trouble. A "shop manual" may be used for this purpose. Repair procedures shall be keyed to a troubleshooting guide outlined in three columns with the following headings:

Column 1 - Trouble
Column 2 - Probable Cause(s)
Column 3 - Correction

The procedures shall clearly indicate a major repair activity which should only be performed in a shop or factory versus normal repair work that may be performed onsite or with equipment online. The procedures shall also clearly indicate the limit of repair work that may be performed by Government personnel during the warranty period without voiding warranty provisions. Safety precautions and instructions that should be followed during these procedures shall be incorporated into the repair procedures and flagged for the attention of personnel.

l. Tools: The Contractor shall provide one of each nonstandard tool, test instrument, and gauge necessary for performing maintenance and repair work. A nonstandard tool, test instrument, or gauge is defined as an item normally supplied by the manufacturer for the equipment operation or maintenance. The Contractor shall prepare a master list of such items for all equipment and systems and shall key maintenance and repair procedures to this list. The above referenced items for performing maintenance and repair work shall be provided for each individual facility of multifacility projects.

m. Parts and Supplies: A complete list of parts and supplies shall be provided with the maintenance instructions. The list shall include all parts and components of individual pieces of equipment, and all parts and components of each system and shall identify such items as description of part, model number, circuit or component identification, etc. Parts and supplies lists shall be included within each volume of maintenance instructions. Further, a master list of spare parts and supplies recommended from each manufacturer for 1 year of operation, including source of supply, shall be sublisted with each instruction.

(1) Availability: The Contractor shall list the sources of supply for all parts and supplies, including name of supplier/manufacturer, address, and telephone number. If the parts and supplies are not normally stocked locally, (within 6 hours travel time, round trip by surface transportation) necessary procurement time shall also be a part of the listing.

(2) Spare Parts: The Contractor shall provide those spare parts and supplies that are specified in the TECHNICAL SPECIFICATIONS and those which are normally provided with the equipment or material item. A separate master list shall be provided for these items upon turnover to the Government of the parts and supplies.

n. Maintenance Schedule: A separate schedule of all required periodic maintenance shall be included. This schedule shall list by frequency of occurrence all lubricants and special adjustments required. The types and amounts of lubrication must be specified. The Contractor shall verify that the furnished maintenance schedule agrees with the published manufacturer's
data.

3.3.4.1 Architectural/General O&M

(1) Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products. Data shall include, but not be limited to, information on carpet, floor tile, vinyl wall finishes, builder's hardware, etc.

(2) Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

(3) Moisture-protection and Weather-exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

(4) Additional Requirements: As specified in individual specifications sections.

3.3.4.2 Warranties

In addition to the general warranty required by the contract, the O&M manuals shall include any specific warranties required by other sections of the TECHNICAL SPECIFICATIONS and other warranties normally provided with the particular piece of equipment or system. Extended warranties normally provided by manufacturers that are beyond the warranty of construction shall be specifically noted. The O&M manuals shall also include a specific warranty section itemizing all standard and extended warranty items. The warranty list shall be as indicated below. Warranties will not begin until the facility is accepted by the Contracting Officer. Copy of warranty shall be included in the manual.

WARRANTY INFORMATION

Project Title
Contract Number

General Contractors Name, Phone Number

ITEM DESCRIPTION	START DATE	END DATE	O & M REFERENCE LOCATION
(in alphabetical order)			
Descriptive Name, Manufactures/ Warrantors Name Address & Phone No.			

3.3.4.3 Installed Equipment Lists

A copy of the completed Equipment in Place forms required in Section 01705 EQUIPMENT-IN-PLACE -LIST shall be included in the manual. The completed forms shall be located at the front of the catalog and O&M data for the equipment listed on the form.

3.3.4.4 Data Layout

(1) Data Identification: Catalog data shall be marked to clearly identify pertinent data by highlighting the data with pointers or crossing out all nonpertinent data.

(2) Drawings: All drawings bound in the manuals shall be of such size that will require only one fold made right to left. All larger size drawings shall be inserted into a separate pocket in the required location in the manual. All drawings shall be of microfilm quality.

(3) Posted Data: The Contractor shall provide posted data for equipment or systems, in addition to O&M manuals, and as required by other Technical Specifications sections. The data shall consist of as-built schematics of all wiring, controls, piping, etc., as necessary for the operation of the equipment or system,

and a condensed typewritten description of the system. The posted data may include approved shop drawings, layout drawings, riser, and block diagrams and shall indicate all necessary interrelation with other equipment and systems. The data may be presented in one or several frames, under glass or sheet acrylic glazing, for clarity and convenience of location. The framed data presentation and outline shall be acceptable to 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.

(4) Framed Instructions: Typewritten instructions, framed under glass or sheet acrylic glazing, explaining equipment or system prestart checkout, startup, operations and shutdown procedures, safety precautions, preventive maintenance procedures, and normal operation checks for satisfactory performance of the equipment of systems shall be posted in conjunction with the posted data. The framed instructions may be presented in one or several frames for clarity and convenience of location. The instruction presentation and outline shall be acceptable to the Contracting Officer prior to posting, and shall be posted at locations designated by the Contracting Officer. All framed instructions shall be posted before personnel training or performance testing acceptance commences for the related item of equipment or system.

3.3.5 Checklist

Contractor shall complete and initial a copy of the O&M Manual Check List which is provided at the end of this section, and forwarded along with ENG form 4025 as part of the O&M Manual submittal to the Contracting Officer for approval.

O&M MANUAL - REVIEW CHECKLIST

___ Does the manual cover all equipment furnished under the contract? (Review against equipment schedules on the drawings and/or equipment submittals.)

___ Does the manual clearly highlight all relevant portions or cross out all irrelevant portions of catalog data?

___ Does the manual contain operations data for the equipment? (Step-by-step operating instructions, start up procedures, sequences of operation, precautions.)

___ Does the manual contain maintenance and repair data for the equipment? (Lubrication, dismantling, assembly, adjustment, troubleshooting.)

___ Does the manual contain a separate maintenance schedule listed by frequency of occurrence?

___ Does the manual contain parts lists or parts catalogs for the equipment? Parts catalog or list shall contain identification, part numbers, recommended parts to be stocked, and local source of parts.

Does the manual contain electrical connection diagrams?

____Does the manual contain control and interlock system diagrams where applicable?

__ Is every page in the manual numbered and an index provided for ready reference to the data?

__ Is the cover hard (nonflexible) with the facility name, identification number, location, and system embossed on both the spine and cover? Is the Contractor's name and address, and the contract title and contract number embossed on the inside of the manual cover?

Is the binding screw posts or sliding post?

___ Is any of the data in the manual under the binding where it cannot be seen?

___ Do three sets of manuals contain all original data sheets and are others clearly legible?

Are system layout drawings provided? (Simplified diagrams for the system as installed.)

___ Are all drawings in the manual of such a size that requires one fold right to left, or if a larger size drawing, then inserted into a pocket in the manual?

Note that the above are common requirements to all contracts. Check the specific contract for additional information.

END OF SECTION

SECTION 01702

AS BUILT RECORDS AND DRAWINGS

PART 1 GENERAL

1.1 SUBMITTALS

Data listed in PART 3 of this section shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES. Due dates shall be as indicated in applicable paragraphs and all submittals shall be completed before final payment will be made.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 AS-BUILT FIELD DATA

3.1.1 General

The Contractor shall keep at the construction site two complete sets of full size blueline prints of the contract drawings, reproduced at Contractor expense, one for the Contractor's use, one for the Government. During construction, both sets of prints shall be marked to show all deviations in actual construction from the contract drawings. The color red shall be used to indicate all additions and green to indicate all deletions. The drawings shall show the following information but not be limited thereto:

a. The locations and description of any utility lines and other installations of any kind or description known to exist within the construction area. The location includes dimensions and/or survey coordinates to permanent features.

b. The locations and dimension of any changes within the building or structure, and the accurate location and dimension of all underground utilities and facilities.

c. Correct grade or alignment of roads, structures, and utilities if any changes were made from contract plans.

d. Correct elevations if changes were made in site grading from the contract plans.

e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including, but not limited to, fabrication erection, installation, and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

f. The topography and grades of all drainage installed or affected as part of the project construction.

g. All changes or modifications from the original design and from the final inspection.

h. Where contract drawings or specifications allow options, only the option actually used in the construction shall be shown on the as-built drawings. The option not used shall be deleted.

These deviations shall be shown in the same general detail utilized in the contract drawings. Marking of the prints shall be pursued continuously during construction to keep them up to date. In addition, the

Contractor shall maintain full size marked-up drawings, survey notes, sketches, nameplate data, pricing information, description, and serial numbers of all installed equipment. This information shall be maintained in a current condition at all times until the completion of the work. The resulting field-marked prints and data shall be referred to and marked as "As-Built Field Data," and shall be used for no other purpose. They shall be made available for inspection by the Contracting Officer's representative whenever requested during construction and shall be jointly inspected for accuracy and completeness by the Contracting Officer's representative and a responsible representative of the Contractor prior to submission of each monthly pay estimate. Failure to keep the As-Built Field Data (including Equipment-in-Place lists) current shall be sufficient justification to withhold a retained percentage from the monthly pay estimate.

3.1.2 Submittal of the As-Built Field Data

Two sets of the As-Built Field Data shall be submitted to the Contracting Officer for review and approval a minimum of 20 calendar days prior to the date of final inspection. If review of the preliminary as-built drawings reveals errors and/or omissions, the drawings will be returned to the Contractor for corrections. The Contractor shall make all corrections and return the drawings for backcheck to the Contracting Officer within 10 calendar days of receipt. When submitted drawings are accepted, one set of marked drawings will be returned to the Contractor for the completion of the as-built drawings.

3.2 AS-BUILT ELECTRONIC FILE DRAWINGS

3.2.1 No later than 30 days after final acceptance a complete set of as-built drawings shall be submitted in electronic file format. The electronic file format, leveling standards and submittal requirements are specified in paragraphs below. The Contractor shall also incorporate all the written modifications to the contract drawings which were issued by amendment or contract modification. All revisions and changes shall be incorporated, i.e. items marked "deleted" shall be deleted, clouds around new items shall be removed, etc. The as-built drawings shall be done in a quality equal to that of the originals. Line work, line weights, lettering, and use of symbols shall be the same as the original line work, line weights, lettering, and symbols. If additional drawings are required they shall be prepared in electronic file format under the same guidance. When final revisions have been completed, each drawing shall be identified with the words "AS-BUILT" in block letters at least 3/8-inch high placed above the title block if space permits, or if not, 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 revision notation.

3.2.2 Electronic File Submittal Requirements

3.2.2.1 The electronic drawing file(s) deliverable shall be submitted in AutoCAD release 14 'DWG' binary format. All support files required to display or plot the file(s) in the same manner as they were developed shall be delivered along with the files. These files include but are not limited to Font files, Menu files, Plotter Setup, and Referenced files. It is the Contractor's responsibility to translate the design Microstation files to AutoCAD files for as-built drawings. The AutoCAD files shall be "bound" (merged).

3.2.2.2 Leveling shall remain as provided in the electronic files. An explanatory list of which levels are used in each drawing, including any additional levels needed to complete incorporation of the As-Built data, shall be provided with each submittal.

3.2.2.3 Electronic File Deliverable Media: All electronic files shall be submitted on ISO 9660 format CD-ROM (CD). ZIP drive disks shall not be provided. Two complete sets of CD(s) shall be submitted along with one complete set of prints and one complete set of mylars, taken from the CD(s). The prints and mylars are to be submitted only after corrections are made, if any. See paragraph 3.2.4 below. Each CD shall have a clearly marked label stating the Contractor's firm name, project name and location, submittal type (AS-BUILT), and date the CD was made. Each submittal shall be accompanied by a hard copy transmittal sheet

that contains the above information along with tabulated information about all files submitted, as shown below:

Electronic File Name	Plate Number	Drawing Title

Electronic version of the table shall be included with each submittal set of disks.

3.2.3 Submittal of the Final As-Built Drawings

The final as-built record drawings shall be completed and returned together with the approved preliminary as-built drawings to the COE, Seattle District Office, Technical Branch, Records and Information Section, within 30 calendar days of final acceptance. All drawings from the original contract drawing set shall be included, including the drawings where no changes were made. The Government will review all final as-built record drawings for accuracy and conformance to the drafting standards and other requirements contained in DIVISION 1 GENERAL REQUIREMENTS. The drawings will be returned to the Contractor if corrections are necessary. The Contractor shall make all corrections and shall return the drawings to the same office within 7 calendar days of receipt.

3.3 All costs incurred by the Contractor in the preparation and furnishing of as-built drawings in electronic file format shall be included in the contract price. See Bid Schedule for details. Approval and acceptance of the final as-built record drawings shall be accomplished before final payment is made to the Contractor.

3.4 One set of marked-up as-built blueline prints shall be furnished at the time of system acceptance testing. These as-built blueline prints shall be in addition to the submittals of marked-up as-built blueline prints specified elsewhere in the contract.

END OF SECTION

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SECTION 01703

WARRANTY OF CONSTRUCTION

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

Warranty Management Plan;

One set of the warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. The Contractor shall furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

Warranty Tags;

Two record copies of the warranty tags showing the layout and design.

1.2 WARRANTY MANAGEMENT

1.2.1 Warranty Management Plan

The Contractor shall develop a warranty management plan which shall contain information relevant to the clause Warranty of Construction in SECTION 00700, CONTRACT CLAUSES. At least 30 days before the planned pre-warranty conference, the Contractor shall submit the warranty management plan for Government approval. The warranty management plan shall include all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below shall include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase shall be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Approved information shall be assembled in a binder and shall be turned over to the Government upon acceptance of the work. The construction warranty period shall begin on the date of project acceptance and shall continue for the full product warranty period. A joint 4 month and 9 month warranty inspection shall be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative. Information contained in the warranty management plan shall include, but shall not be limited to, the following:

a. Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.

b. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.

c. A list for each warranted equipment, item, feature of construction or system indicating:

1. Name of item.
2. Model and serial numbers.
3. Location where installed.
4. Name and phone numbers of manufacturers or suppliers.
5. Names, addresses and telephone numbers of sources of spare parts.
6. Warranties and terms of warranty. This shall include one-year overall warranty of construction. Items which have extended warranties shall be indicated with separate warranty expiration dates.
7. Cross-reference to warranty certificates as applicable.
8. Starting point and duration of warranty period.
9. Summary of maintenance procedures required to continue the warranty in force.
10. Cross-reference to specific pertinent Operation and Maintenance manuals.
11. Organization, names and phone numbers of persons to call for warranty service.
12. Typical response time and repair time expected for various warranted equipment.

d. The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

e. Procedure and status of tagging of all equipment covered by extended warranties.

f. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

1.2.2 Performance Bond

The Contractor's Performance Bond shall remain effective throughout the construction period.

a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.

c. Following oral or written notification of required construction warranty repair work, the Contractor shall respond in a timely manner. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor.

1.2.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. Communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor shall furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact will be located within the local service

area of the warranted construction, shall be continuously available, and shall be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

1.2.4 Contractor's Response to Construction Warranty Service Requirements

Following oral or written notification by the Contracting Officer, the Contractor shall respond to construction warranty service requirements in accordance with the "Construction Warranty Service Priority List" and the three categories of priorities listed below. The Contractor shall submit a report on any warranty item that has been repaired during the warranty period. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframes specified, the Government will perform the work and backcharge the construction warranty payment item established.

a. First Priority Code 1. Perform onsite inspection to evaluate situation, and determine course of action within 4 hours, initiate work within 6 hours and work continuously to completion or relief.

b. Second Priority Code 2. Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.

c. Third Priority Code 3. All other work to be initiated within 3 work days and work continuously to completion or relief.

d. The "Construction Warranty Service Priority List" is as follows:

Code 1-Air Conditioning Systems
(1) Recreational support.
(2) Air conditioning leak in part of building, if causing damage.
(3) Air conditioning system not cooling properly.

Code 1-Doors
(1) Overhead doors not operational, causing a security, fire, or safety problem.
(2) Interior, exterior personnel doors or hardware, not functioning properly, causing a security, fire, or safety problem.

Code 3-Doors
(1) Overhead doors not operational.
(2) Interior/exterior personnel doors or hardware not functioning properly.

Code 1-Electrical
(1) Power failure (entire area or any building operational after 1600 hours).
(2) Security lights
(3) Smoke detectors

Code 2-Electrical
(1) Power failure (no power to a room or part of building).
(2) Receptacle and lights (in a room or part of building).

Code 3-Electrical
Street lights.

Code 1-Gas
(1) Leaks and breaks.
(2) No gas to family housing unit or cantonment area.

Code 1-Heat
(1). Area power failure affecting heat.
(2). Heater in unit not working.

Code 2-Kitchen Equipment
(1) Dishwasher not operating properly.
(2) All other equipment hampering preparation of a meal.

Code 1-Plumbing
(1) Hot water heater failure.
(2) Leaking water supply pipes.

Code 2-Plumbing
(1) Flush valves not operating properly.
(2) Fixture drain, supply line to commode, or any water pipe leaking.
(3) Commode leaking at base.

Code 3 -Plumbing
Leaky faucets.

Code 3-Interior
(1) Floors damaged.
(2) Paint chipping or peeling.
(3) Casework.

Code 1-Roof Leaks
Temporary repairs will be made where major damage to property is occurring.

Code 2-Roof Leaks
Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

Code 2-Water (Exterior)
No water to facility.

Code 2-Water (Hot)
No hot water in portion of building listed.

Code 3-All other work not listed above.

1.2.5 Warranty Tags

At the time of installation, each warranted item shall be tagged with a durable, oil and water resistant tag approved by the Contracting Officer. Each tag shall be attached with a copper wire and shall be sprayed with a silicone waterproof coating. The date of acceptance and the QC signature shall remain blank until project is accepted for beneficial occupancy. The tag shall show the following information.

a. Type of product/material_____.

b. Model number_____.

c. Serial number_____.

d. Contract number_____.

e. Warranty period_____from_____to_____.

f. Inspector's signature_____.

g. Construction Contractor_____.

Address_____.

Telephone number_____.

h. Warranty contact_____.

Address_____.

Telephone number_____.

i. Warranty response time priority code_____.

j. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

END OF SECTION

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SECTION 01704

FORM 1354 CHECKLIST

PART 1 GENERAL

1.1 Procedures

The form which is a part of this specification section shall be completed for any project having revisions to real property. The following page contains the basic instructions applicable to the form.

1.2 Submittal

This form shall be submitted initially at the completion of design (see Section 00810, paragraph 2.4 (4), Section 01704 Form 1354 Checklist). The Contractor shall update applicable portions of the form as various parts of the construction are completed and submit them to the Contracting Officer for approval. Final approval for the Form 1354 Checklist shall be obtained a minimum of 30 days before final inspection of the project. Failure to have this form completed and approved in time for the final inspection will result in delay of the inspection until the checklist is completed.

PARTS 2 AND 3 NOT USED

INSTRUCTIONS FOR DD FORM 1354 CHECKLIST

The following checklist is only a guide to describe various parts of new and modified construction. Alter this form as necessary or create your own document to give complete accounting of the real property added or deleted for this contract. All items added, deleted, replaced, or relocated within the building 1.5 meter, or on site 1.5 meters beyond the building perimeter must be accounted for completely. Only a few of the most common items beyond the 1.5 meter line are included on the checklist under UTILITIES/SURFACE CONSTRUCTION, add additional items as required by the construction accomplished. Attach a continuation sheet and use the checklist format to describe other work related to this particular project. Listed on the last page are additional items with units of measure and descriptive terms.

Costs for each item must include material, tax, installation, overhead and profit, bond and insurance costs. This form should be filled out as each item is installed or each phase of work is completed.

TOTAL FOR ALL ITEMS INCLUDING CONTRACT MODIFICATION COSTS ADDED TOGETHER SHOULD EQUAL THE TOTAL CONTRACT PRICE.

NOTE: USE METRIC UNITS OF MEASURE INSTEAD OF ENGLISH UNITS SHOWN.

KEY TO ABBREVIATIONS

AC - Acres
BL - Barrels, Capacity
BTU - British Thermal Unit
CY - Cubic Yards
EA - Each
GA - Gallons, Capacity
HD - Head
KV - Kilovolt-Amperes, Capacity (KVA)
KW - Kilowatts, Capacity
SE - Seats
SF - Square Feet
SY - Square Yard
MB - Million British Thermal Units
MI - Miles
LF - Linear Feet
KG - Thousand Gallons Per Day, Capacity
TN - Ton
- Number; How Many

DD FORM 1354 CHECKLIST
Transfer of Real Property

CONTRACT NUMBER:_____

CONTRACT TITLE:_____

LOCATION:_____

1. DEMOLITION (Describe each item removed and the cost of removal.)*

2. RELOCATION (Describe each item relocated and the cost of relocation.)*

3. REPLACEMENTS (Describe each item replaced and replacement cost.)*

*Use a continuation sheet if more space is required. Items should be described by quantity and the correct unit of measure.

4. NEW CONSTRUCTION OVERVIEW: BUILDING(S)/ADDITION(S) TO A BUILDING - Use a separate checklist for each building and/or addition.

(1) Outside Dimensions: Length x Width

(a) Main Building_____
(b) Offsets_____
(c) Wings_____
(d) Basement_____
(e) Attic_____

(2) Number of Usable Floors: _____

(3) Construction: Exterior Materials Used

(a) Foundation (such as concrete)_____
(b) Floors (such as wood, concrete)_____
(c) Walls (such as wood siding, metal, CMU)_____
(d) Roof (such as metal, comp., built-up)_____

(4) Utilities ENTERING Building: Measure lineal meters (LF) from Bldg entry to next larger size of pipe

(a) Water (size & type of pipe; number of lineal meters (LF)_____
(b) Gas (size & type of pipe; number of lineal meters (LF)_____
(c) Sewer (size & type of pipe; number of lineal meters (LF)_____
(d) Electric (phase, voltage, size & type of wire, connected load in amps_____

(5) Air Conditioning:

(a) Type_____
(b) Capacity Kilograms (TONS)_____
(c) SQ METERS (SQ YDS) covered by system_____

(6) Heating:

(a) Source_____
(b) Fuel_____

(7) Hot Water Facilities:

(a) Capacity Liters (GAL)_____
(b) Temperature Rise_____

BUILDING COST:_____

5. BUILDING SYSTEMS (INTERIOR)

A. FIRE PROTECTION:
Property Code
(1) (880 50/880-211) CLOSED HEAD AUTO SPRINKLERS - Square Meters (SF) & HD (wet or dry pipe; # of Lineal Meters (LF) of service pipe; type of pipe & # of heads; # of Square Meters (SF) covered by system)
DESCRIPTION:
_____
_____
_____
COST: _____

(2) (880 50/880-212) OPEN HEAD DELUGE SYSTEM - Square Meters (SF) & HD (# of Lineal Meters (LF) of service pipe; type of pipe; # of heads; # of Square Meters (SF) covered)
DESCRIPTION:
_____
_____
_____
COST: _____

(3) (880 10/880-221) AUTO FIRE DETECTION SYSTEM - Square Meters (SF) & EA (# of alarms-horns, bells, etc.; # of smoke detectors; # of heat detectors; # of fire alarm panels;
# of radio transmitters/antennae)
DESCRIPTION:
_____
_____
_____
COST: _____

(4) (880 20/880-222) MANUAL FIRE ALARM SYSTEM - EA (# of pull stations; # of alarm horns; # of fire extinguisher cabinets)
DESCRIPTION:
_____
_____
_____
COST: _____

(5) (880 60/880-231) CO2 FIRE SYSTEM (# of bottles & size of bottles in kilograms (lbs))
DESCRIPTION:
_____
_____
_____
COST: _____

(6) (880 60/880-232) FOAM FIRE SYSTEM - EA (# of tanks - capacity in kilograms (lbs))
DESCRIPTION:
_____
_____
_____
COST: _____

(7) (880 60/880-233) OTHER FIRE SYSTEM - EA
DESCRIPTION:
_____
_____
_____
COST: _____

(8) (880 60/880-234) HALON 1301 FIRE SYSTEM - EA (# of bottles & size of bottles in kilograms (lbs))
DESCRIPTION:
_____
_____
_____
COST: _____

B. SECURITY:

(1) (880 40/872-841) SECURITY ALARM SYSTEM - EA (name of system installed)
DESCRIPTION:
_____
_____
_____
COST: _____

C. HEATING/COOLING SYSTEMS

(1) (826 10/890-126) A/C WINDOW UNITS - kilograms (TN) & Square Meters (SF)-(# of units installed; amount of Square Meters (SF) covered per unit; size & capacity of each unit)
DESCRIPTION:
_____
_____
_____
COST: _____

(2) (826 14/890-125) A/C PLT LESS THAN 4,536 kilograms (5 TN) - kilograms (TN) & square meters (SF)-(# of kilograms (TN); # of square meters (SF) covered)
DESCRIPTION:
_____
_____
COST: _____

(3) (826 13/890-121) A/C PLT 4,536 to 22,680 kilograms (5 TO 25 TN) - kilograms (TN)-(# of kilograms (TN); # of square meters (SF) covered)
DESCRIPTION:
_____
_____

_____
COST: _____

(4) (826 12/826-122) A/C PLT 22,680 to 2,267,962 kilograms (25 TO 100 TN) - kilograms (TN)-(# of kilograms (TN); # of square meters (SF) covered)
DESCRIPTION:
_____
_____
_____
COST: _____

(5) (826 11/826-123) A/C PLT OVER 2,267,962 kilograms (100 TN) - kilograms (TN)-(# of kilograms (TN); # of square meters (SF) covered)
DESCRIPTION:
_____
_____
_____
COST: _____

(6) (821 33/821-115) HEATING PLT 220/1026 W (750/3500 MB) - W (MB)-(# of kW (MBH); type of heating system - Ex: Warm air furnace, central)
DESCRIPTION:
_____
_____
_____
COST: _____

(7) (821 32/821-116) HEATING PLT OVER 1026 W (3500 MB) - W(MB)-(# of kW (MBH); type of heating system)
DESCRIPTION:
_____
_____
COST: _____

(8) (811 60/811-147) ELEC EMERGENCY POWER GENERATOR-KW-(size of engine; rating of generator in kilowatts & voltage)
DESCRIPTION:
_____
_____
_____
COST: _____

(9) (81190 or 82320-gas) STORAGE TANK FOR HEATING or GENERATOR FUEL-Liters (GA); TYPE; FUEL-(Size, type of tank, kind of fuel & # of liters (gallons))
DESCRIPTION:
_____
_____
_____
COST: _____

SITE WORK

6. UTILITIES/SURFACE CONSTRUCTION:

(1) (812 41/812-223) PRIM DISTR LINE OH-Lineal Meters (LF)-(# Lineal Meters (LF) of wire; size & type of wire; # of poles; voltage)
DESCRIPTION:
_____
_____
_____
COST: _____

(2) (812/81360) TRANSFORMERS-KVA
POWER POLES-Lineal Meters (LF)
(# poles; # transformers - pad or pole mounted; KVA of wire; # Lineal Meters (LF) of wire)
DESCRIPTION:
_____
_____
_____
COST: _____

(3) (812 40/812-224) SEC DISTR LINE OH-Lineal Meters (LF)-(voltage; size & type of wire; # transformers; KVA; # Lineal Meters (LF) of wire; # of service drops; # poles)
DESCRIPTION:
_____
_____
_____
COST: _____

(4) (812 42/812-225) PRIM DISTR LINE UG-Lineal Meters (LF)-(KVA; voltage; type of conduit & size(encased or direct burial); size & kind of wire inside conduit; Lineal Meters (LF) of wire & conduit)
DESCRIPTION:
_____
_____
_____
COST: _____

(5) (812 42/812-226) SEC DISTR LINE UG-Lineal Meters (LF)-(type of conduit & size; type & size of wires in conduit; Lineal Meters (LF) of conduit & wire inside conduit; voltage)
DESCRIPTION:
_____
_____
_____
COST: _____

(6) (812 30/812-926) EXTERIOR LIGHTING-EA-(streets or parking area lights) (# & type of lights; whether pole mounted or not; # Lineal Meters (LF) of connecting wire if pole mounted)
DESCRIPTION:
_____
_____
_____
COST: _____

(7) (824 10/824-464) GAS MAINS-Lineal Meters (LF) (size, type, & # of Lineal Meters (LF) of pipe)
DESCRIPTION:
_____
_____
_____
COST: _____

(8) (831 90/831-169) SEWAGE SEPTIC TANK-thousand liters (KG)-(size, kind of material, & capacity)
DESCRIPTION:
_____
_____
_____
COST: _____

(9) (832 10/832-266) SANITARY SEWER-Lineal Meters (LF)-(sizes & types of pipes - # of Lineal Meters (LF) of each; # of cleanouts; # & size of manholes)
DESCRIPTION:
_____
_____
_____
COST: _____

(10) (842 10/842-245) WATER DISTR MAINS (POTABLE)-Lineal Meters (LF)-(# Lineal Meters (LF) & size, type of pipe)
DESCRIPTION:
_____

_____
_____
COST: _____

(11) (843 11/843-315) FIRE HYDRANTS-EA-(#; size & type)
DESCRIPTION:
_____
_____
_____
COST: _____

(12) (851 90/851-143) CURBS & GUTTERS-Lineal Meters (LF)-(# Lineal Meters (LF); material; width & height)
DESCRIPTION: (Is curb extruded or standard?)_
_____
_____
_____
COST: _____

(13) (851 90/851-145) DRIVEWAY-Square Meters (SY)-Square Meters (SY); material used; thickness)
DESCRIPTION:
_____
_____
_____
COST: _____

(14) (851 10/12/851-147) ROAD-Square Meters (SY) & Lineal Meters (LF)-Square Meters (SY); material used; thickness; Lineal Meters (LF))
DESCRIPTION:
_____
_____
_____
COST: _____

(15) (85210/11 /852-262) VEHICLE PARKING-Square Meters (SY)-Square Meters (SY); material used; thickness; # of bollards; # of wheel stops; # of regular parking spaces; # of handicap spaces)
DESCRIPTION:
_____
_____
_____
COST: _____

(16) (852 20/852-289) SIDEWALKS-Square Meters (SY) & Lineal Meters (LF)-(# Square Meters (SF) & Lineal Meters (LF); dimensions of each section & location; thickness; material used)
DESCRIPTION:
_____
_____
_____
COST: _____

(17) (871 10/871-183) STORM DRAIN DISPOSAL-Lineal Meters (LF)-(# Lineal Meters (LF) of pipe; sizes & types of pipe; # of catch basins & manholes & sizes of each)
DESCRIPTION:
_____
_____
_____
COST: _____

(18) (872 15/872-247) FENCE, SECURITY (ARMS)-Lineal Meters (LF)-(# of Lineal Meters (LF); fence material; # & type of gate(s); # strands of barbed wire on top)
DESCRIPTION:
_____
_____
_____
COST: _____

(19) (87210/12/872-248) FENCE, INTERIOR-Lineal Meters (LF)-(# of Lineal Meters (LF); fence material; # & kind of gate(s)
DESCRIPTION:
_____
_____
_____
COST: _____

(20) (890 70/890-187) UTILITY VAULT(4 or more transformers)- Square Meters (SF) (# Square Meters (SF); dimensions of vault; # of transformers)
DESCRIPTION:
_____
_____
_____
COST: _____

(21) (135 10/135-583) TEL DUCT FACILITY-Lineal Meters (LF)-(# of Lineal Meters (LF); size & type of conduit; type of wire)
DESCRIPTION:
_____
_____
_____
COST: _____

(22) (135 10/135-586) TEL POLE FACILITY-Lineal Meters (LF)-(# Lineal Meters (LF) & type of wire; # of poles)

DESCRIPTION:

_____
_____
_____

COST: _____

7. INSTALLED EQUIPMENT: Furnish an Equipment-In-Place List. Any price related to equipment should already be included in this checklist.

8. SYSTEMS NOT PREVIOUSLY LISTED: Attach a separate sheet and use the same format to describe the system(s). Example: CATV system, intercom system, or other utilities and surface construction not described on this checklist.

9. ASBESTOS REMOVAL: Furnish a description by building of the number of Lineal Meters (LF) of asbestos removed, number of Lineal Meters (LF) of reinsulation, number of Square Meters (SF) of soil encapsulation, and number and size of tanks, etc., where asbestos was removed. Also, identify buildings by their numbers and use.

10. MAINTENANCE/RENOVATIONS: List by building number and describe all additions and deletions by quantity and the correct unit of measure. Furnish a cost per building.

UTILITIES/SURFACE CONSTRUCTION - Listed below are some additional items which may or may not apply to your contract. EACH item installed on site should be listed and priced separately even if not included on this checklist.

(1) IRRIGATION SYSTEM(-Lineal Meters (LF) of pipe; size & type of pipe; number and type of heads)
(2) UNDERGROUND/ABOVEGROUND STORAGE TANKS(-Liters (GA), type of tank; material stored)
(3) (833-354) DUMPSTER ENCLOSURE(-Square Meters (SF) & dimensions)
(4) (890-152) UNLOADING PAD(-Square Meters (SY); material)
(5) SIGNAGE-(Dimensions; material)
(6) (12580) CATHODIC PROTECTION(kilometers; Lineal Feet) (MI; LF)
(7) (87270 LIGHTNING PROTECTION-Lineal Feet (LF)
(8) (81290) POLE DUCT RISER(-Lineal Feet (LF, type of material)
(9) RAMPS-Square Meters (SF), material; Cubic Meters (CY) if concrete-use code for sidewalk if concrete)
(10) (89080/890-158) LOAD AND UNLOAD PLATFORM-Square Meters (SF)
(11) (83240/832-255) INDUSTRIAL WASTE MAIN-Lineal Meters (LF)
(12) WHEEL STOPS-(EA; size & material)
(13) (81350) OUTDOOR INTEGRAL DISTR CTR-(KVA)
(14) (45110) OUTDOOR STORAGE AREA-Square Meters (SF)
(15) (73055/730-275) BUS/WAIT SHELTER-Square Meters (SF)
(16) (690-432) FLAGPOLE-(EA; dimensions)
(17) (93210) SITE IMPROVEMENT-(JOB)
(18) (93220) LANDSCAPE PLANTING (Hectare (Acre); EA; Square Meters (SF))
(19) (93230) LANDSCAPE BERMS/MOUNDS-Square Meters (SY)
(20) (93410) CUT AND FILL-Cubic Meters (CY)
(21) (843-315) FIRE HYDRANTS-(EA; Type)
(22) (14970) LOADING AND UNLOADING DOCKS AND RAMPS (not connected to a Bldg)-Square Meters (SF) (23) BICYCLE RACK-(EA)
(24) (85140/812-928) TRAFFIC SIGNALS-(EA)
(25) (87210) FENCING OR WALLS-Lineal Meters (LF)
(26) (15432) RIPRAP-Lineal Meters & Square Meters (LF & SY)
(27) (75061) GRANDSTAND OR BLEACHERS-(EA; SE)
(28) 87150/871-187) RETAINING WALLS-Lineal Meters; Square Meters (LF; SY); material

NOTE: 5 Digit Codes-Army; 6 Digit Codes-Air Force

END OF SECTION

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SECTION 01705

EQUIPMENT-IN-PLACE LIST

PART 1 GENERAL

1.1 SUBMITTALS

Data listed in PART 3 of this section shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES. Due dates shall be as indicated in applicable paragraphs and all submittals shall be completed before final payment will be made.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 SUBMITTAL

The final equipment-in-place list shall be completed and returned to the Contracting Officer within 30 calendar days of the final inspection. The Contracting Officer will review all final Equipment-In-Place Lists for accuracy and conformance to the requirements contained in DIVISION 1 GENERAL REQUIREMENTS. The lists shall be returned to the Contractor if corrections are necessary. The Contractor shall make all corrections and shall return the lists to the Contracting Officer within 7 calendar days of receipt.

3.2 EQUIPMENT-IN-PLACE LIST

Contractor shall submit for approval, at the completion of construction, a list of equipment-in-place. This list shall be updated and kept current throughout construction, and shall be jointly inspected for accuracy and completeness by the Contracting Officer's representative and a responsible representative of the Contractor prior to submission of each monthly pay estimate. A sample form showing minimum data required is provided at the end of this section. The EQUIPMENT-IN-PLACE LIST shall be comprised of all equipment falling under one or more of the following classifications:

a. Each piece of equipment listed on the mechanical equipment schedules.

b. Each electrical panel, switchboard, and MCC panel.

c. Each transformer.

d. Each piece of equipment or furniture designed to be movable.

e. Each piece of equipment that contains a manufacturer's serial number on the name plate.

f. All Government furnished, Contractor installed equipment per a. through e. (price data excluded)

EQUIPMENT-IN-PLACE LIST

CONTRACT NO.: _____

Specification Section: _____ Paragraph No. _____

ITEM DESCRIPTION: _____

Item Name: _____

Serial Number: _____

Model Number: _____

Capacity: _____Replacement Cost _____

ITEM LOCATION:

Building Number: _____ Room Number: _____

or Column Location: _____

MANUFACTURER INFORMATION:

Manufacturer Name: _____

Trade Name (if different from item name): _____

Manufacturer's Address: _____

_____

Telephone Number: _____

WARRANTY PERIOD: _____

CHECKED BY: _____

END OF SECTION

SECTION 15516

RADIANT FLOOR HEATING SYSTEM

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designations only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 53	(1990b) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
ASTM A 105	(1992) Forgings, Carbon Steel, for Piping Components
ASTM A 106	(1991) Seamless Carbon Steel Pipe for High-Temperature Service
ASTM A 193	(1992) Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service
ASTM A 234	(1992a) Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures
ASTM A 366	(1991) Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality
ASTM A 515	(1990) Pressure Vessel Plates, Carbon Steel, for Intermediate- and Higher-Temperature Service
ASTM A 516	(1990) Pressure Vessel Plates, Carbon Steel, for Moderate- and Lower-Temperature Service
ASTM A 525	(1991b) General Requirement for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
ASTM A 527	(1990) Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Lock-Forming Quality
ASTM A 528	(1990) Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Drawing Quality
ASTM A 569	(1991a) Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality
ASTM A 642	(1990) Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Drawing Quality, Special Killed

ASTM A 733	(1989) Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples
ASTM B 32	(1993) Solder Metal
ASTM B 62	(1993) Composition Bronze or Ounce Metal Castings
ASTM B 75	(1992a) Seamless Copper Tube
ASTM B 88	(1993) Seamless Copper Water Tube
ASTM B 395	(1993) U-Bend Seamless Copper and Copper Alloy Heat Exchanger and Condenser Tubes
ASTM B 687	(1988) Brass, Copper, and Chromium-Plated Pipe Nipples
ASTM D 1384	(1987) Corrosion Test for Engine Coolants in Glassware
ASTM D 3308	(1991a) PTFE Resin Skived Tape

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B1.20.1	(1983; R 1992) Pipe Threads, General Purpose (Inch)
ASME B16.1	(1989) Cast Iron Pipe Flanges and Flanged Fittings
ASME B16.3	(1992) Malleable Iron Threaded Fittings, Classes 150 and 300
ASME B16.4	(1992) Cast Iron Threaded Fittings Classes 125 and 250
ASME B16.5	(1988; Errata; B16.5a) Pipe Flanges and Flanged Fittings
ASME B16.9	(1993) Factory-Made Wrought Steel Buttwelding Fittings
ASME B16.11	(1991) Forged Fittings, Socket-Welding and Threaded
ASME B16.18	(1984) Cast Copper Alloy Solder Joint Pressure Fittings
ASME B16.21	(1992) Nonmetallic Flat Gaskets for Pipe Flanges
ASME B16.22	(1989) Wrought Copper and Copper Alloy Solder Joint Pressure Fittings

ASME B16.26	(1988) Cast Copper Alloy Fittings for Flared Copper Tubes
ASME B31.1	(1992; B31.1a; B31.1b) Power Piping
ASME B40.1	(1991) Gauges - Pressure Indicating Dial Type - Elastic Element
ASME BPV VIII Div 1	(1992; Addenda Dec 1992, Dec 1993) Boiler and Pressure Vessel Code; Section VIII, Pressure Vessels Division 1 - Basic Coverage
ASME BPV IX	(1992; Addenda Dec 1992, Dec 1993) Boiler and Pressure Vessel Code; Section IX, Welding and Brazing Qualifications
FEDERAL SPECIFICATIONS (FS)	
FS QQ-B-654	(Rev A; Am 1; Notice 1) Brazing Alloys, Silver
FS WW-U-516	(Rev B; Notice 1) Unions, Brass or Bronze, Threaded Pipe Connections and Solder-Joint Tube Connections
FS WW-U-531	(Rev F) Unions, Pipe, Steel or Malleable Iron: Threaded Connection, 150 Lb, 250 Lb and 300 Lb WSP
MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY (MSS)	
MSS SP-25	(1993) Standard Marking System for Valves, Fittings, Flanges and Unions
MSS SP-58	(1988) Pipe Hangers and Supports - Materials, Design and Manufacture
MSS SP-69	(1991) Pipe Hangers and Supports - Selection and Application
MSS SP-70	(1990) Cast Iron Gate Valves, Flanged and Threaded Ends
MSS SP-71	(1990) Cast Iron Swing Check Valves, Flanges and Threaded Ends
MSS SP-80	(1987) Bronze Gate, Globe, Angle and Check Valves
MSS SP-85	(1985) Cast Iron Globe & Angle Valves Flanged and Threaded Ends

NATIONAL ASSOCIATION OF PLUMBING-HEATING-COOLING CONTRACTORS (NAPHCC)

NAPHCC-01	(1993) National Standard Plumbing Code (Non-Illustrated Edition

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 01300 SUBMITTALS:

Data

Spare Parts; FIO.

Spare parts data for each different item of material and equipment specified, after approval of the related submittals and not later than two months prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply.

Welding Procedures and Qualifications; FIO.

Six copies of qualified procedures and list of names and identification symbols of qualified welders and welding operators, prior to welding operations.

Drawings

Heating System; GA.

Detail drawings consisting of a complete list of equipment and material, including manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and installation instructions. Drawings shall also contain complete wiring and schematic diagrams and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Drawings shall show proposed layout and anchorage of piping, radiant floor tubing, equipment and appurtenances and equipment relationship to other parts of the work including clearances for maintenance and operation.

Instructions

Framed Instructions; GA.

Proposed diagrams, instructions, and other sheets, prior to posting. The instructions shall show wiring and control diagrams and complete layout of the entire system. The instructions shall include, in typed form, condensed operating instructions explaining preventive maintenance procedures, methods of checking the system for normal safe operation and procedures for safely starting and stopping the system.

Reports

Performance Tests; FIO.

Performance test reports in booklet form showing all field tests performed to adjust each component and all field tests performed to prove compliance with the specified performance criteria, upon completion and testing of the installed system. Each test report shall indicate the final position of controls.

Certificates

Bolts; FIO.

Written certification that the bolts furnished comply with the requirements of this specification, provided by the bolt manufacturer. 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.

Operation and Maintenance Manuals

Heating System; GA.

Six copies of operation and six copies of maintenance manuals for the equipment furnished. One complete set, prior to performance testing and the remainder upon acceptance. Operating manuals shall detail the step-by-step procedures required for system startup, operation, and shutdown. Operating manuals shall include the manufacturer's name, model number, parts list, and brief description of all equipment and their basic operating features. Maintenance manuals shall list routine maintenance procedures, water treatment procedures, possible breakdowns and repairs, and troubleshooting guides. Maintenance manuals shall include piping and equipment layout and simplified wiring and control diagrams of the system as installed. Manuals shall be provided prior to the field training course.

1.3 QUALIFICATIONS

Procedures and welders shall be qualified in accordance with the code under which the welding is specified to be accomplished.

1.4 DELIVERY AND STORAGE

All equipment delivered and placed in storage shall be stored with protection from the weather, excessive humidity and excessive temperature variation; and dirt, dust, or other contaminants.

1.5 FIELD MEASUREMENTS

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.

PART 2 PRODUCTS

2.1 GENERAL MATERIAL AND EQUIPMENT REQUIREMENTS

2.1.1 Standard Products

Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of such products and shall essentially duplicate items that have been in satisfactory use for at least 5 years prior to bid opening. Equipment shall be supported by a service organization that is, in the opinion of the Contracting Officer, reasonably convenient to the site.

2.1.2 Nameplates

Each major item of equipment shall have the manufacturer's name, address, type or style, model or serial number, and catalog number on a plate secured to the item of equipment.

2.1.3 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 in accordance with OSHA requirements. High temperature equipment and piping exposed to contact by personnel or where it creates a potential fire hazard shall be properly guarded or covered with insulation of a type specified.

2.1.4 Asbestos Prohibition

Asbestos and asbestos-containing products shall not be used.

2.1.5 Electrical Work

Electrical motor driven equipment specified shall be provided complete with motors, motor starters, and controls. Electric equipment (including motor efficiencies), and wiring shall be in accordance with Section 16415 ELECTRICAL WORK, INTERIOR. High efficiency motors shall be used. Electrical characteristics shall be as specified or indicated. Motor starters shall be provided complete with thermal overload protection and other appurtenances necessary for the motor control specified. Each motor shall be of sufficient size to drive the equipment at the specified capacity without exceeding the nameplate rating of the motor. Manual or automatic control and protective or signal devices required for the operation specified, and any control wiring, conduit, and connection to power required for controls and devices but not shown shall be provided.

2.2 PIPING, TUBING, AND FITTINGS

2.2.1 General

Piping, tubing, and fittings shall be as follows:

a. Low temperature aboveground water piping shall be copper tubing with solder-joint fittings.

b. Vent piping shall be black steel, Schedule 40, with black malleable iron fittings.

2.2.2 Steel Pipe

Pipe shall conform to ASTM A 53 or ASTM A 106, Grade A or B, black steel, Schedule 40, unless otherwise specified. Steel pipe to be bent shall be ASTM A 53, Grade A, standard, or Grade B, extra strong weight.

2.2.3 Gauge Piping

Piping shall be copper tubing for low temperature water.

2.2.4 Copper Tubing

Tubing shall conform to ASTM B 88, Type K or L.

2.2.5 Radiant Floor Tubing

Radiant floor tubing shall be a rubber hose designed for hydronic underfloor heating applications and rated for working temperatures between –37 and 82 degrees C (-35 and 180 degrees F) at 690 kPa (100 psi). Burst pressure shall not be less than 5,514 kPa (800 psi) at 21 degrees C (70 degrees F). Tubing shall be capable of withstanding temperatures between –37 and 149 degrees C (-35 and 300 degrees F) at 690 kPa

(100 psi) intermittently without delamination or transfer of expansive forces to surrounding concrete. Tubing shall be crush-proof, recovering its original cross-sectional area and shape without assistance after intermittent flattening due to construction, installation or site abuse. Tubing shall remain flexible to temperatures as low as –37 degrees C (-35 degrees F). Tubing shall not support the spread of fire and shall be self-extinguishing. Tubing shall have been tested for the above properties in accordance with nationally recognized standards such as ASTM or UL (Underwriters Laboratories).

2.2.6 Malleable Iron Pipe Fittings

Fittings shall conform to ASME B16.3, type required to match adjacent piping.

2.2.7 Cast Iron Pipe Fittings

Fittings shall conform to ASME B16.1 or ASME B16.4 type required to match adjacent piping.

2.2.8 Steel Pipe Fittings

Fittings shall have the manufacturer's trademark affixed in accordance with MSS SP-25 so as to permanently identify the manufacturer.

2.2.8.1 Welded Fittings

Welded fittings shall conform to ASTM A 234 with WPA marking. Butt-welded fittings shall conform to ASME B16.9, and socket welded fittings shall conform to ASME B16.11.

2.2.9 Fittings for Copper Tubing

Wrought copper and bronze fittings shall conform to ASME B16.22 and ASTM B 75. Cast copper alloy fittings shall conform to ASME B16.18. Flared fittings shall conform to ASME B16.26 and ASTM B 62. Adapters may be used for connecting tubing to flanges and threaded ends of valves and equipment. Extracted brazed tee joints produced with an acceptable tool and installed as recommended by the manufacturer may be used.

2.2.10 Steel Flanges

Flanged fittings including flanges, bolts, nuts, bolt patterns., etc. shall be in accordance with ASME B16.5 class 150 and shall have the manufacturers trademark affixed in accordance with MSS SP-25. Flange material shall conform to ASTM A 105. Blind flange material shall conform to ASTM A 516 cold service and ASTM A 515 for hot service. Bolts shall be high strength or intermediate strength with material conforming to ASTM A 193.

2.2.11 Pipe Threads

Pipe threads shall conform to ASME B1.20.1.

2.2.12 Nipples

Nipples shall conform to ASTM A 733 or ASTM B 687, standard weight.

2.2.13 Unions

Unions shall conform to FS WW-U-531 or FS WW-U-516, type to match adjacent piping.

2.2.14 Adapters

Adapters for copper tubing shall be brass or bronze for soldered fittings.

2.2.15 Dielectric Unions

Unions shall conform to the tensile strength and dimensional requirements specified in FS WW-U-531. Unions shall have metal connections on both ends to match adjacent piping. Metal parts of dielectric unions shall be separated so that the electrical current is below 1 percent of the galvanic current which would exist upon metal-to-metal contact.

2.2.16 Flexible Pipe Connectors

Flexible pipe connectors shall be designed for 862 kPa (125 psi) or 1,034 kPa (150 psi) service as appropriate for the static head plus the system head, and 121 degrees C (250 degrees F). Connectors shall be installed where indicated. The flexible section shall be constructed of rubber, tetrafluoroethylene resin, or corrosion-resisting steel, bronze, monel, or galvanized steel. Materials used and the configuration shall be suitable for the pressure, vacuum, temperature, and circulating medium. The flexible section may have threaded, welded, soldered, flanged, grooved, or socket ends. Flanged assemblies shall be equipped with limit bolts to restrict maximum travel to the manufacturer's standard limits. Unless otherwise indicated, the length of the flexible connectors shall be as recommended by the manufacturer for the service intended. Internal sleeves or liners, compatible with circulating medium, shall be provided when recommended by the manufacturer. Covers to protect the bellows shall be provided where indicated.

2.3 MATERIALS AND ACCESSORIES

2.3.1 Iron and Steel Sheets

2.3.1.1 Galvanized Iron and Steel

Galvanized iron and steel shall conform to ASTM A 527, ASTM A 528, or ASTM A 642, with general requirements conforming to ASTM A 525. Gauge numbers specified are Manufacturer's Standard Gauge.

2.3.1.2 Uncoated (Black) Steel

Uncoated (black) steel shall conform to ASTM A 366 or ASTM A 569, composition, condition, and finish best suited to the intended use. Gauge numbers specified refer to Manufacturer's Standard Gauge.

2.3.2 Solder

Solder shall conform to ASTM B 32. Solder and flux shall be lead free.

2.3.3 Solder, Silver

Silver solder shall conform to FS QQ-B-654.

2.3.4 Thermometers

Thermometers shall be industrial dial type, not liquid filled mercury scale type, and shall be mounted in thermowells with conducting grease.

2.3.5 Gauges

Gauges shall conform to ASME B40.1.

2.3.6 Gaskets for Flanges

Composition gaskets shall conform to ASME B16.21. Gaskets shall be nonasbestos compressed material in accordance with ASME B16.21, 1.6 mm (1/16 inch) thickness, full face or self-centering flat ring type. Gaskets shall contain aramid fibers bonded with styrene butadiene rubber (SBR) or nitrile butadiene rubber (NBR). NBR binder shall be used for hydrocarbon service. Gaskets shall be suitable for pressure and temperatures of piping system.

2.3.7 Pipe Hangers, Inserts, and Supports

Pipe hangers, inserts, and supports shall conform to MSS SP-58 and MSS SP-69.

2.4 VALVES FOR LOW TEMPERATURE WATER HEATING SYSTEMS

2.4.1 Check Valves

Sizes 64 mm (2-1/2 inches) and less, bronze shall conform to MSS SP-80, Type 3 or 4, Class 125. Sizes 76 mm (3 inches) through 610 mm (24 inches), cast iron shall conform to MSS SP-71, Type III or IV, Class 125.

2.4.2 Globe Valves

Sizes 64 mm (2-1/2 inches) and less, bronze shall conform to MSS SP-80, Type 1, 2 or 3, Class 125. Sizes 76 mm (3 inches) through 305 (12 inches), cast iron shall conform to MSS SP-85, Type III, Class 125.

2.4.3 Angle Valves

Sizes 64 mm (2-1/2 inches) and less, bronze shall conform to MSS SP-80, Type 1, 2 or 3, Class 125. Sizes 76 mm (3 inches) through 305 mm (12 inches), cast iron shall conform to MSS SP-85, Type III, Class 125.

2.4.4 Gate Valves

Sizes 64 mm (2-1/2 inches) and less, bronze shall conform to MSS SP-80, Type 1 or 2, Class 125. Sizes 76 mm (3 inches) through 1219 mm (48 inches), cast iron shall conform to MSS SP-70, Type I, Class 125, Design OT or OF (OS&Y), bronze trim.

2.4.5 Air Vents

Air vents shall be provided at all piping high points in water systems, with block valve in inlet and internal check valve to allow air vent to be isolated for cleaning and inspection. Outlet connection shall be piped to nearest open site or suitable drain, or terminated 305 mm (12 inches) above finished grade. Pressure rating of air vent shall match pressure rating of piping system. Body and cover shall be cast iron or semi-steel with stainless steel or copper float and stainless steel or bronze internal parts. Air vents installed in piping in chase walls or other inaccessible places shall be provided with an access panel.

2.4.6 Balancing Valves

Balancing valves shall have meter connections with positive shutoff valves. An integral pointer shall register degree of valve opening. Valves shall be calibrated so that flow in gallons per minute (gpm) can be determined when valve opening in degrees and pressure differential across valve is known. Each balancing valve shall be constructed with internal seals to prevent leakage and shall be supplied with preformed insulation. Valves shall be suitable for 121 degrees C (250 degrees F) temperature and working pressure of the pipe in which installed. Valve bodies shall be provided with tapped openings and pipe extensions with shutoff valves outside of pipe insulation. The pipe extensions shall be provided with quick connecting hose fittings for a portable meter to measure the pressure differential. One portable differential meter shall be furnished. The meter suitable for the operating pressure specified shall be complete with hoses, vent, and shutoff valves and carrying case. In lieu of the balancing valve with integral metering connections, a ball valve or plug valve with a separately installed orifice plate or venturi tube may be used for balancing.

2.5 RADIANT FLOOR ZONE MANIFOLDS

Manifolds shall be provided as the transition between the aboveground piping and belowground radiant floor tubing. Manifolds shall be installed in 18 gage stainless steel access. Manifolds shall be copper or brass with copper or brass barb fittings. Stainless steel screw type hose clamps shall be used to secure the distribution hose to the manifold barbs. Provide Y-type strainer at the inlet to the supply manifold.

2.5.1 Circuit Balancing

Manifolds shall be provided with balancing valves for balancing each individual circuit. Additional requirements are indicated on the in-floor radiant heat schedule.

2.6 SYSTEM EQUIPMENT AND ACCESSORIES

2.6.1 Circulating Pumps

Pumps for hot water shall be of the single-stage centrifugal type, electrically driven. Pumps shall be supported on a concrete foundation or by the piping on which installed as indicated. Pumps shall be either integrally mounted with the motor or direct-connected by means of a flexible-shaft coupling on a cast iron, or steel sub-base. Pump housing shall be of close grained cast iron. Shaft shall be carbon or alloy steel, turned and ground. Shaft seal shall be mechanical-seal or stuffing-box type. Impeller, impeller wearing rings, glands, casing wear rings, and shaft sleeve shall be bronze. Bearings shall be ball-, roller-, or oil-lubricated, bronze-sleeve type, and shall be sealed or isolated to prevent loss of oil or entrance of dirt or water. Motor shall be of a type approved by the manufacturer of the pump.

2.6.2 Pressure Gauges and Thermometers

Gauges shall be provided as indicated. A thermometer and pressure gauge shall be provided on the water supply and return mains. In addition, pressure test plugs shall be provided for each in-floor radiant circuit. Thermowells shall be provided on the return of each in-floor radiant circuit.

2.6.4 Drains

A drain connection with 19 mm (3/4 inch) hose bib shall be installed at the lowest point in the low temperature water return main. In addition, threaded drain connections with threaded cap or plug shall be installed wherever required for thorough draining of the low temperature water system.

2.6.5 Strainers

Basket or Y-type strainer-body connections shall be the same size as the pipe lines in which the connections are installed. The bodies shall have arrows clearly cast on the sides to indicate the direction of flow. Each strainer shall be equipped with an easily removable cover and sediment basket. The body or bottom opening shall be equipped with nipple and gate valve for blowdown.

2.7 INSULATION

Shop and field applied insulation shall be as specified in Section 15250 THERMAL INSULATION FOR MECHANICAL SYSTEMS.

2.8 FACTORY PAINTED EXPOSED SPACE HEATING EQUIPMENT

All exposed heating equipment shall be painted at the factory with the manufacturer's standard primer and enamel finish.

PART 3 EXECUTION

3.1 INSTALLATION

All work shall be installed as indicated and in accordance with the manufacturer's diagrams and recommendations.

3.2 FIELD PAINTING

Field painting of exposed pipe shall be as specified in Section 09900 PAINTING, GENERAL. Field painting of factory primed equipment shall be as specified in Section 09900 PAINTING, GENERAL.

3.3 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 practical. The welder or welding operator shall apply his assigned symbol near each weld he makes as a permanent record. Structural members shall be welded in accordance with Section 05055 WELDING, STRUCTURAL.

3.4 PIPING

Unless otherwise specified, pipe and fittings installation shall conform to the requirements of ASME B31.1. Pipe shall be cut accurately to measurements established at the job site and worked into place without springing or forcing, completely clearing all windows, doors, and other openings. Cuttings or other weakening of the building structure to facilitate piping installation will not be permitted without written approval. Pipe or tubing shall be cut square, shall have burrs removed by reaming, and shall be so installed as to permit free expansion and contraction without causing damage to building structure, pipe, joints, or hangers. Changes in direction shall be made with factory made fittings, except that bending of pipe up to 102 mm (4 inches) will be permitted, provided a pipe bender is used and wide sweep bends are formed. The center line radius of bends shall not be less than six diameters of the pipe. Bent pipe showing kinks, wrinkles, flattening, or other malformations will not be accepted. Horizontal mains shall pitch up or down in the direction of flow as indicated. The grade shall be not less than 0.2%. Reducing fittings shall be used for changes in pipe sizes. Open ends of pipelines and equipment shall be capped or plugged during installation

to keep dirt or other foreign materials out of the systems. Pipe not otherwise specified shall be uncoated. Unions and other components for copper pipe or tubing shall be brass or bronze. Connections between ferrous and copper piping shall be electrically isolated using dielectric unions.

3.4.1 Joints

Except as otherwise specified, joints used on steel pipe shall be threaded for fittings 25 mm (1 inch) and smaller; threaded or welded for 38 mm (1-1/4 inches) up through 64 mm (2-1/2 inches); and flanged or welded for 76 mm (3 inches) and larger. Joints between sections of copper tubing or copper pipe shall be flared or sweated. Pipe and fittings 32 mm (1-1/4 inches) and larger installed in inaccessible conduits or trenches beneath concrete floor slabs shall be welded. Unless otherwise specified, connections to equipment shall be made with black malleable iron unions for pipe 64 mm (2-1/2 inches) or smaller in diameter, and with flanges for pipe 76 mm (3 inches) or larger in diameter.

3.4.2 Low Temperature Systems

Piping may have threaded, flanged or sweated joints as applicable and as specified. Reducing fittings shall be used for changes in pipe sizes. In horizontal lines, reducing fittings shall be the eccentric type to maintain the top of the adjoining pipes at the same level.

3.4.3 Radiant Floor Tubing

Tubing shall be installed in strict accordance with the manufacturer’s installation instructions. Prior to installation, areas and conditions in which the radiant floor tubing is to be installed shall be carefully examined. Installation shall not proceed until unsatisfactory conditions have been corrected. Each circuit shall be installed with one continuous tube; no splices or fittings shall be allowed in radiant floor tubing. Contractor shall coordinate installation with area drains, trench drains, catch basins, waste piping, under slab ductwork, ground rods, pits and other items within the floor slab system.

3.4.4 Threaded Joints

Threaded joints shall be made with tapered threads properly cut, and shall be made tight with PTFE tape complying with ASTM D 3308, or equivalent thread joint compound applied to the male threads only, and in no case to the fittings.

3.4.5 Flanged Joints or Unions

Flanged joints or unions shall be provided in each line immediately preceding the connection to each piece of equipment or material requiring maintenance such as coils, pumps, control valves, and similar items. Flanged joints shall be faced true, provided with gaskets, and made square and tight. Full-faced gaskets shall be used with cast iron flanges.

3.4.6 Flared and Sweated Pipe and Tubing

Pipe and tubing shall be cut square and burrs shall be removed. Both inside of fittings and outside of tubing shall be cleaned with an abrasive before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connection. Installation shall be made in accordance with the manufacturer's recommendations. Changes in direction of piping shall be made with flared or soldered fittings only. Solder and flux shall be lead free. Joints for soldered fittings shall be made with silver solder or 95:5 tin-antimony solder. Cored solder shall not be used. Joints for flared fittings shall be of the compression pattern. Swing joints or offsets shall be provided on all branch connections, mains, and risers to provide for expansion and contraction forces without undue stress to the fittings or to short lengths of pipe or tubing.

3.4.7 Mechanical Tee Joint

An extracted mechanical tee joint may be made in copper tube. Joint shall be produced with an appropriate tool by drilling a pilot hole and drawing out the tube surface to form a collar having a minimum height of three times the thickness of the tube wall. To prevent the branch tube from being inserted beyond the depth of the extracted joint, dimpled depth stops shall be provided. The branch tube shall be notched for proper penetration into fitting to assure a free flow joint. Joints shall be brazed in accordance with NAPHCC-01. Soldered joints will not be permitted.

3.5 CONNECTIONS TO EQUIPMENT

Unless otherwise indicated, the size of the supply and return pipes to each piece of equipment shall be not smaller than the connections on the equipment. No bushed connections shall be permitted. Change in sizes shall be made with reducers or increasers only.

3.5.1 Low Temperature Water Return Connections

Connections, unless otherwise indicated, shall be made with malleable iron unions for piping 76 mm (3 inches) or less in diameter and with flanges for pipe 76 mm (3 inches) or more in diameter.

3.5.2 Medium Temperature Water Connections

Connections shall be made with 2000 pound black malleable iron unions for pipe 19 mm (3/4 inches) or less in diameter and with flanges for pipe 25 mm (1 inch) and larger in diameter.

3.6 BRANCH CONNECTIONS

Branches shall pitch up or down, unless otherwise specified. Connection shall be made to insure unrestricted circulation, eliminate air pockets, and permit drainage of the system.

3.6.1 Low Temperature Water Branches

Branches taken from mains shall pitch with a grade of not less than 1.0%.

3.7 RISERS

The Contractor shall locate risers, subject to approval.

3.8 SUPPORTS

3.8.1 General

Hangers used to support piping 50 mm (2 inches) and larger shall be fabricated to permit adequate adjustment after erection while 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. All 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.

3.8.1.1 Seismic Requirements for Pipe Supports, Standard Bracing

All piping and attached valves shall be supported and braced to resist seismic loads as specified under Section 13080 SEISMIC PROTECTION FOR MECHANICAL AND ELECTRICAL EQUIPMENT and as shown on the drawings. Structural steel required for reinforcement to properly support piping, headers, and

equipment but not shown shall be provided under this section. Material used for supports shall be as specified under Section 05120 STRUCTURAL STEEL.

3.8.1.2 Structural Attachments

Structural steel brackets required to support piping, headers, and equipment, but not shown, shall be provided under this section. Material and installation shall be as specified under Section 05120 STRUCTURAL STEEL. Pipe hanger loads suspended from steel joist panel points shall not exceed 20 kg (50 pounds). Loads exceeding 20 kg (50 pounds) shall be suspended from panel points.

3.8.1.3 Multiple Pipe Runs

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 any individual pipe in the multiple pipe run.

3.8.2 Pipe Hangers, Inserts, and Supports

Pipe hangers, inserts and supports shall conform to MSS SP-58 and MSS SP-69, except as specified as follows:

a. Types 5, 12, and 26 shall not be used.

b. Type 3 shall not be used on insulated pipe which has a vapor barrier. Type 3 may be used on insulated pipe that does not have a vapor barrier if clamped directly to the pipe and if the clamp bottom does not extend through the insulation and the top clamp attachment does not contact the insulation during pipe movement.

c. Type 18 inserts shall be secured to concrete forms before concrete is placed. Continuous inserts which allow more adjustment may be used if they otherwise meet the requirements for Type 18 inserts.

d. Type 19 and 23 C-clamps shall be torqued per MSS SP-69 and have both locknuts and retaining devices, furnished by the manufacturer. Field-fabricated C-clamp bodies or retaining devices are not acceptable.

e. Type 20 attachments used on angles and channels shall be furnished with an added malleable iron heel plate or adapter.

f. Type 24 may be used only on trapeze hanger systems or on fabricated frames.

g. Where Type 39 saddle or Type 40 shield are permitted for a particular pipe attachment application, the Type 39 saddle shall be used on all pipe 102 mm (4 inches) and larger.

h. 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 1.5 meters (5 feet) apart at valves.

i. Vertical pipe shall be supported at each floor, except at slab-on-grade, and at intervals of not more than 4.5 meters (15 feet), except that pipe shall be supported not more than 2.4 meters (8 feet) from end of risers, and at vent terminations.

j. Type 35 guides using steel, reinforced PTFE or graphite slides shall be provided where required to allow longitudinal pipe movement. Lateral restraints shall be provided as required. Slide materials shall be suitable for the system operating temperatures, atmospheric conditions and bearing loads encountered. Where steel slides do not require provision for restraint or lateral movement, an alternate guide method may be used. On steel piping 102 mm (4 inches) and larger, a Type 39 saddle may be welded to the pipe and freely rest on a steel plate. On piping under 102 mm (4 inches), a Type 40 protection shield may be attached to the pipe or insulation and freely rest on a steel slide plate. Where there are high system temperatures and welding to piping is not desirable, then the Type 35 guide shall include a pipe cradle, welded to the guide structure and strapped securely to the pipe. The pipe shall be separated from the slide material by at least 102 mm (4 inches), or by an amount adequate for the insulation, which ever is greater.

k. Except for Type 3, pipe hangers on horizontal insulated pipe shall be the size of the outside diameter of the insulation.

3.9 PIPE SLEEVES

3.9.1 Pipe Passing Through Concrete or Masonry

Pipe passing through concrete or masonry walls or concrete floors shall be provided with pipe sleeves fitted into place at the time of construction. Sleeves shall not be installed in structural members except where indicated or approved. Rectangular and square openings shall be as detailed. Each sleeve shall extend through its respective wall or floor, and shall be cut flush with each surface. Unless otherwise indicated, sleeves shall provide a minimum of 6 mm (1/4 inch) annular space between bare pipe or insulation surface and sleeves. Sleeves in bearing walls, waterproofing membrane floors, and wet areas shall be steel pipe or cast iron pipe. Sleeves in nonbearing walls, floors, or ceilings may be steel pipe, cast iron pipe, or galvanized sheet metal with lock-type longitudinal seam and of the metal thickness indicated. Except in pipe chases or interior walls, the annular space between pipe and sleeve or between jacket over insulation and sleeve in nonfire rated walls and floors shall be sealed as indicated and specified in Section 07920 JOINT SEALING. Penetrations in fire walls and floors shall be sealed in accordance with Section 07270 FIRESTOPPING.

3.9.2 Pipes Passing Through Waterproofing Membranes

Pipes passing through waterproofing membranes shall be installed through a 4 pound lead-flashing sleeve, a 16 ounce copper sleeve, or a 0.8 mm thick aluminum sleeve, each having an integral skirt or flange. Flashing sleeve shall be suitably formed, and the skirt or flange shall extend 203 mm (8 inches) or more from the pipe and shall be set over the floor membrane in a troweled coating of bituminous cement. The flashing sleeve shall extend up the pipe a minimum of 51 mm (2 inches) above the highest flood level, or 254 mm (10 inches) above the floor. The annular space between the flashing sleeve and the bare pipe or between the flashing sleeve and the metal-jacket-covered insulation shall be sealed as indicated. At the Contractor's option, pipes up to and including 254 mm (10 inches) in diameter passing through floor waterproofing membrane may be installed through a cast iron sleeve with caulking recess, anchor lugs, flashing clamp device, and pressure ring with brass bolts. Waterproofing membrane shall be clamped into place and sealant shall be placed in the caulking recess. Penetrations shall not be permitted through the roof.

3.9.3 Mechanical Seal Assembly

In lieu of a waterproofing clamping flange and caulking and sealing of annular space between pipe and sleeve or conduit and sleeve, a modular mechanical type sealing assembly may be installed. The seals shall consist of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe/conduit and sleeve with corrosion protected carbon steel bolts, nuts, and pressure plates. The links shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with a pressure plate

under each bolt head and each nut. After the seal assembly is properly positioned in the sleeve, tightening of the bolts shall cause the rubber sealing elements to expand and provide a watertight seal between the pipe/conduit and the sleeve. Each seal assembly shall be sized as recommended by the manufacturer to fit the pipe/conduit and sleeve involved. The Contractor electing to use the modular mechanical type seals shall provide sleeves of the proper diameters.

3.9.4 Waterproofing Clamping Flange

Pipe passing through wall waterproofing membrane shall be sleeved as specified. In addition, a waterproofing clamping flange shall be installed.

3.9.5 Fire Seal

Where pipes pass through fire walls, fire partitions, fire rated pipe chase walls or floors above grade, a fire seal shall be provided as specified in Section 07270 FIRESTOPPING.

3.9.6 Escutcheons

Escutcheons shall be provided at all finished surfaces where exposed piping, bare or covered, passes through floors, walls, or ceilings, except in boiler, utility, or equipment rooms. Escutcheons shall be fastened securely to pipe sleeves or to extensions of sleeves without any part of sleeves being visible. Where sleeves project slightly from floors, special deep-type escutcheons shall be used. Escutcheons shall be chromium-plated iron or chromium-plated brass, either one-piece or split pattern, held in place by internal spring tension or set-screw.

3.10 ANCHORS

Anchors shall be provided where necessary to localize expansion or prevent undue strain on piping. Anchors shall consist of heavy steel collars with lugs and bolts for clamping and attaching anchor braces, unless otherwise indicated. Anchor braces shall be installed using turnbuckles where required. Supports, anchors, or stays shall not be attached in places where construction will be damaged by installation operations or by the weight or expansion of the pipeline.

3.11 PIPE EXPANSION

The expansion of supply and return pipes shall be provided for by changes in the direction of the run of pipe, by expansion loops.

3.11.1 Expansion Loops

Expansion loops shall provide adequate expansion of the main straight runs of the system within the stress limits specified in ASME B31.1.

3.12 VALVES AND EQUIPMENT ACCESSORIES

3.12.1 Valves and Equipment

Valves shall be installed at the locations shown or specified, and where required for the proper functioning of the system as directed. Gate valves shall be used unless otherwise indicated, specified, or directed. Valves shall be installed with their stems horizontal to or above the main body of the valve. Valves used with ferrous piping shall have threaded or flanged ends and sweat-type connections for copper tubing.

3.12.2 Temperature Gauge

A temperature gauge shall be provided in each return line for each circuit in multicircuit systems.

3.12.3 Air Vents

Vents shall be installed where indicated, and on all high points and piping offsets where air can collect or pocket.

3.13 INSULATION

Thickness of insulation materials for piping and equipment and application shall be in accordance with Section 15250 THERMAL INSULATION FOR MECHANICAL SYSTEMS.

3.14 TESTING AND CLEANING

3.14.1 Pressure Testing

The Contractor shall notify the Contracting Officer 14 days before the tests are to be conducted. The tests shall be performed in the presence of the Contracting Officer. The Contractor shall furnish all instruments and personnel required for the tests. Electricity and water will be furnished by the Government. All test results shall be accepted before thermal insulation is installed. The entire low temperature heating system shall be hydrostatically tested and proved tight under a pressure of 310 kPa (45 psig) for a period of four hours. The radiant floor tubing shall be pressure tested between 345 and 690 kPa (50 and 100 psig) for a minimum of twenty-four (24) hours prior to and during installation, and for twenty-four (24) hours after installation.

3.14.2 Cleaning

After the hydrostatic tests have been made and prior to the operating tests, the piping shall be thoroughly cleaned by filling the system with a solution of 0.54 kg (1 pound) of caustic soda or 0.54 kg (1 pound) of trisodium phosphate per 188 liters (50 gallons) of water. Observe the proper safety precautions in the handling and use of these chemicals. The water shall be heated to approximately 66 degrees C (150 degrees F), and the solution circulated in the system for a period of 48 hours, then drained and the system thoroughly flushed out with fresh water. Equipment shall be wiped clean, with all traces of oil, dust, dirt, or paint spots removed. The Contractor shall be responsible for maintaining the system in a clean condition until final acceptance. Bearings shall be lubricated with oil or grease as recommended by the manufacturer.

3.15 TESTING, ADJUSTING AND BALANCING

Except as specified herein, testing, adjusting, and balancing shall be in accordance with Section 15990 TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS.

3.16 MANUFACTURER'S SERVICES

Services of a manufacturer's representative who is experienced in the installation, adjustment, and operation of the equipment specified shall be provided. The representative shall supervise the installation, adjustment, and testing of the equipment.

3.17 FRAMED INSTRUCTIONS

Framed instructions containing wiring and control diagrams under glass or in laminated plastic shall be posted where directed. Condensed operating instructions, prepared in typed form, shall be framed as

specified above and posted beside the diagrams. The framed instructions shall be posted before acceptance testing of the system.

3.18 FIELD TRAINING

A field training course shall be provided for designated operating and maintenance staff members. Training shall be provided for a total period of 8 hours of normal working time and shall start after the system is functionally complete but prior to final acceptance tests. Field training shall cover all of the items contained in the operating and maintenance manuals.

END OF SECTION

NOTE: THIS SECTION IS ADDED IN ITS ENTIRETY BY AMENDMENT 0003.

SECTION 15910

DIRECT DIGITAL CONTROL SYSTEMS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AIR MOVEMENT AND CONTROL ASSOCIATION, INC. (AMCA)

AMCA 500	(1991) Louvers, Dampers and Shutters

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI C12.10	(1997) Electromechanical Watt-hour Meters
ANSI C57.13	(1978; R 1987) Instrument Transformers

AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC. (ASHRAE)

ASHRAE 3	(1998) Reducing Emission of Fully Halogenated Refrigerants in Refrigeration and Air-Conditioning Equipment and Systems
ASHRAE SSPC 135	(1995) The Building Automation and Control Network (BACnet) Standard

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME/ANSI B16.5	(1996) Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24
ANSI B16.18	(1984; R 1994) Cast Copper Alloy Solder Joint Pressure Fittings
ASME/ANSI B16.22	(1995) Wrought Copper and Copper Alloy Solder Joint Pressure Fittings
ASME/ANSI B16.26	(1988) Cast Copper Alloy Fittings for Flared Copper Tubes
ASME/ANSI B16.34	(1996) Valves - Flanged, Threaded, and Welding End
ASME B31.1	(1995) Power Piping
ANSI/ASME B40.1	(1991; Special Notice 1992) Gauges - Pressure Indicating Dial Type - Elastic Element

ASME BPVC SEC VIII	(1995; Addenda 1995) Boiler and Pressure Vessel Codes: Section VIII Pressure Vessels

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 126	(1995) Gray Iron Castings
ASTM B 32	91996) Solder Metal
ASTM B 75	(1995; Rev. A) Seamless Copper Tube
ASTM B 88M	(1996) Seamless Copper Water Tube (Metric)
ASTM B 88	(1996) Seamless Copper Water Tube
ASTM D 638	(1995) Tensile Properties of Plastics
ASTM D 792	(1991) Density and Specific Gravity (Relative Density) of Plastics by Displacement
ASTM D 1238	(1995) Flow Rates of Thermoplastics by Extrusion Plastometer
ASTM D 1693	(1995) Environmental Stress-Cracking of Ethylene Plastics

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(1996) National Electrical Code
NFPA 90A	(1993) Installation of Air Conditioning and Ventilating Systems

SHEET METAL & AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC. (SMACNA)

SMACNA DCS	(1995; Addendum 1997) HVAC Duct Construction Standards - Metal and Flexible
SMACNA HVACTAB	(1993) HVAC Systems Testing, Adjusting and Balancing

UNDERWRITERS LABORATORIES INC. (UL)

UL 506	(1994; R 1994, Bul. 1994, 1995, and 1996) Specialty Transformers
UL 916	(1994; Bul. 1994 and 1996, R 1996) Energy Management Equipment
UL 1449	(1985; Errata 1986, Bul. 1993, 1994, and 1995) Transient Voltage Surge Suppressors

1.2 DEFINITIONS

1.2.1 Digital Controller

1.2.1.1 Interoperable Digital Controller (IDC)

A control module which is microprocessor based Interoperable LonMark™ or LonWorks. HVAC control is accomplished using LonMark™ based devices where the application has a LonMark™ profile defined. Where LonMark™ devices are not available, devices based on LonWorks are acceptable providing that an XIF file is provided for the device. An IDC is programmable by the user, has integral input/output within the module or on network connected modules, and performs stand-alone operations.

1.2.1.2 Interoperable BACnet Controller (IBC)

A control module which is microprocessor based Interoperable BACnet Controller in accordance with ANSI/ASHRAE Standard 135-1995. IBC's must be provided with product interoperability compliance statement documents that demonstrate the compliance level to the ANSI/ASHRAE Standard 135-1995.

1.2.2 Direct Digital Control (DDC)

Digital controls, as defined in this specification, performing control logic. The controller directly senses building environment and makes control decisions based on user defined, controller resident programs. The controller outputs control signals that directly operate valves, dampers, and motor controllers. No conventional control devices, pneumatic or electronic, such as receiver-controllers, thermostats, and logic units are present within or interface with a direct digital control loop. Actuators are electric or pneumatic, and the controller output is converted to the appropriate type of signal.

1.2.3 DDC System

A system made up of one or more interoperable digital controllers which communicate on a network.

1.2.4 Distributed Control

The intent of distributed control is to install the controllers near their respective controlled equipment. The control system consists of stand-alone controllers, with the total number of input and output points limited to 48 or less per controller. Failure of any single controller will not cause the loss of more then 48 control points.

1.2.5 Dynamic Control

A process that optimizes energy efficiency of HVAC systems (air handling units, converters, chillers, and boilers) by increasing and decreasing setpoints or starting and stopping equipment in response to heating and cooling needs of the facility. A requirement of dynamic control is knowing the heating/cooling demand status of the process. Therefore dynamic control requires controllers connected in a communications network.

1.2.6 Firmware

Firmware is software programmed into read only memory (ROM) and erasable programmable read only memory (EPROM) chips. Software may not be changed without physically altering the chip.

1.2.7 Graphic User Interface Software (GUI)

Graphic user interface software shall run on Microsoft Windows NT Workstation 4.0 service Pack 4, or later. The GUI employs browser like functionality that includes a tree view (similar to Windows Explorer) for quick viewing of, and access to, the hierarchical structure of the database. Pull down menus and toolbars employ buttons, commands and navigation that permit the operator to perform tasks with a minimum knowledge of the HVAC Control System and basic computing skills. These include, but are not limited to, forward/backward buttons, home button, and a context sensitive locator line (similar to a URL line), that displays the location and the selected object definition.

1.2.8 Hand-Held Terminal

A hand-held terminal is a manufacturer specific device connected directly to a communications port on a controller, through which the controller is accessed and, in some cases, programmed.

1.2.9 Input/Output (I/O) Points

I/O points refer to analog inputs (AI), digital inputs (DI), analog outputs (AO), and digital outputs (DO) in a digital controller. Another term for digital inputs and outputs is binary inputs and outputs. Inputs are from analog sensors (temperature, pressure, humidity, flow) and digital sensors (motor status, flow switches, switch position, and pulse output devices). Outputs operate modulating and on/off control devices.

1.2.10 I/O Expansion Unit

An I/O expansion unit provides additional point capacity to a digital controller and communicates with the stand-alone digital controller on a LAN. An I/O unit is not stand-alone because the control program does not reside in the I/O unit. An I/O expander which connects directly to a stand alone controller through a multi-line microprocessor bus is restricted to reside within 3 feet of the stand alone controller and is considered part of the stand alone controller.

1.2.11 Local Area Network (LAN)

a. A communications bus that interconnects digital controllers for peer-to-peer (see "peer-to-peer" below) communications. Different levels of LANs are possible within a single DDC system. In this case, a digital controller on a higher level LAN acts as a network controller to the controllers on the lower level LAN. The network controller, then, has at least two LAN communications ports. One port supports peer-to-peer communications with other digital controllers on the higher level LAN. The other port supports communications with the digital controllers on the lower level LAN.

b. LANs permit sharing global information. This allows building and site wide control strategies such as peak demand limiting, dynamic control strategies, coordinated response to alarm conditions, and remote monitoring and programming of digital controllers.

1.2.12 Microprocessor

A microprocessor refers to the central processing unit (CPU) that contains all registers and logic circuitry that allow digital controllers to function.

1.2.13 Network Area Controller (NAC)

A network area controller (NAC) provides the interface between a higher level LAN or WAN and the interoperable digital controllers, providing global supervisory control functions. NAC's provide multiple user access at varying levels through password protection.

1.2.13 Output Signal Conversion

Output signal conversion refers to changing one kind of control output into a proportionally related signal appropriate for direct actuation of the controlled device. An example is converting a 4 to 20 mA or 0 to 10 VDC signal to a proportional 20 to 103 kPa (3 to 15 psig) signal to operate a pneumatic actuator.

1.2.14 Optimum Start

Optimum start is a method of starting HVAC equipment prior to scheduled occupancy in order to have the building at setpoint when occupied. Optimum start is based on the zone temperatures, zone setpoints, and outdoor temperature.

1.2.15 Peer-to-Peer

Peer-to-peer refers to controllers connected on a communications LAN that act independently, as equals, and communicate with each other to pass information.

1.2.16 Performance Verification Test

The performance verification test (PVT) is the formal commissioning of the DDC system performed after successful contractor field testing and prior to the second phase of DDC training. It is used as a means for final acceptance of the control system.

1.2.17 PID

PID refers to proportional, integral, and derivative control; the three types of action that are used in controlling modulating equipment.

1.2.18 Resolution

Refers to the number of possible states an input value or output value can take and is a function of the digital controller I/O circuitry; the A/D converter for input and the D/A converter for output. Ten bit resolution has 1024 possible states.

1.2.19 Stand-Alone Control

Refers to the digital controller performing required climate control, and energy management functions without connection to another digital controller or computer. Requirements for stand-alone control are a time clock, a microprocessor, resident control programs, PID control, and I/O. All stand-alone controllers have a communication port and firmware for direct connection and interrogation with a laptop computer or similar hand-held device. This interrogation includes parameter changes and program downloads.

1.2.20 Terminal Control Unit (TCU)

An off-the-shelf, stand-alone digital controller equipped for communication on a lower level LAN. TCUs may deviate from stand-alone only in receiving energy management and time information from a stand alone digital controller. A TCU is commonly application specific and is used for distributed control of specific HVAC subsystems. A TCU communicates with other digital controllers. Typically, a TCU communicates on a lower level LAN. Examples where TCUs are used include small air handling units (AHUs), variable air volume (VAV) boxes, fan coil units, and heat pumps.

1.4 TEMPERATURE CONTROL AND FACILITY MANAGEMENT AND CONTROL SYSTEM

The entire Temperature Control System (TCS) shall be comprised of a network of interoperable, stand-alone digital controllers communicating via LonMark/LonTalk and/or BACnet communication protocols to a Network Area Controller (NAC).

The NAC shall connect to the owner's local or wide area network, depending on configuration. Access to the system, either locally in each building, or remotely from a central site or sites, shall be accomplished through standard Web browsers, via the Internet and/or local area network.

The Facility Management and Control System (FMCS) shall be comprised of a network of interoperable, stand-alone digital controllers communicating on an open protocol communication network to a host computer within the facility (when specified) using graphical user interface software and communicating via the Public Works intranet to a host computer in a remote location. The FMCS shall communicate to third party systems such as chillers, boilers, air handling systems, energy metering systems, other energy management systems, access control systems, fire-life safety systems and other building management related devices with open, interoperable communication capabilities.

Provide a new TC and FMCS including associated equipment and accessories. Manufacturer's products, including design, materials, fabrication, assembly, erection, examination, inspection, and testing shall be in accordance with ASME B31.1 and NFPA 70, except as modified herein or indicated otherwise.

The TC systems shall maintain stable temperature control and all other conditions as indicated. The end-to-end accuracy of the system, including temperature sensor error, wiring error, A/D conversion, and display, shall be .5 degree C (1 degree F) or less.

1.4 DDC SYSTEM DESCRIPTION

1.4.1 Design Requirements

1.4.1.1 Control System Schematic

Provide control system schematic that includes the following:

a. Location of each input and output device

b. Flow diagram of each HVAC component, for instance flow through coils, fans, dampers

c. Name or symbol for each component such as V-1, DM-2, and T-1 for a valve, damper motor, and temperature sensor, respectively

d. Setpoints

e. Sensor range

f. Actuator range

g. Valve and damper schedules and normal position

h. Switch points on input switches

i. Written sequence of operation for each schematic

j. Schedule identifying each sensor and controlled device with the following information:

(1) LAN and Software point name with send and receive address if applicable

(2) Point type (AO, AI, DO, DI)

(3) Point range

(4) Digital controller number for each point

1.4.1.2 Electrical Equipment Ladder Diagrams

Submit diagrams showing electrical equipment interlocks, including voltages and currents.

1.4.1.3 Component Wiring Diagrams

Submit a wiring diagram for each type of input device and each type of output device. Diagram shall show how the device is wired and powered; showing typical connections at the digital controller and each power supply, as well as at the device itself. Show for all field connected devices, including, but not limited to, control relays, motor starters, electric or electronic actuators, and temperature, pressure, flow, proof, and humidity sensors and transmitters.

1.4.1.4 Terminal Strip Diagrams

Submit a diagram of each terminal strip, including digital controller base terminal strips (digital controllers shall not be directly wired for ease of removal and replacement), terminal strip location, termination numbers and the associated point names.

1.4.1.5 Communication Architecture Schematic

Submit a schematic showing communication networks used for all DDC system controllers, workstations, and field interface devices. Schematic shall show hierarchical topology. The supplied system must incorporate the ability to access all data using Java enabled browsers without requiring proprietary operator interface and configuration programs. An Open DataBase Connectivity (ODBC) or Structured Query Language (SQL) compliant server database is required for all system database parameter storage. This data shall reside on a supplier-installed server for all database access. Systems requiring proprietary database and user interface programs shall not be acceptable.

1.5 SUBMITTALS

Submit manufacturers' specification sheets for each type of equipment to show compliance with the project specification. For each type of equipment highlight each compliance item and reference each item to the relevant specification paragraph number. Submit sufficient manufacturers' information to allow verification of compliance by the reviewing authority. Equipment and software for which specification compliance data shall be submitted includes but is not limited to the following:

SD-01 Preconstruction Submittals

List of Drawings

List of Symbols and Abbreviations Used on Drawings

List of I/O Points

Equipment Components List

AC Power Table

SD-02 Shop Drawings

Drawings shall be on A1 (841 by 594 mm) 34 by 22 inch sheets in the form and arrangement shown. The drawings shall use the same abbreviations, symbols, nomenclature and identifiers shown. Each control system element on a drawing shall have a unique identifier as shown. The HVAC Control System Drawings shall be delivered together as a complete submittal. Deviations must be approved by the Contracting Officer. Drawings shall be submitted along with Submittal SD-01, Data.

a. HVAC Control System Drawings shall include the following:

Sheet One: Drawing Index, HVAC Control System Legend.

Sheet Two: Valve Schedule, Damper Schedule.

Sheet Three: Compressed Air Station Schematic (if applicable).

Sheet Four: Control System Schematic and Equipment Schedule.

Sheet Five: Sequence of Operation and Data Terminal Strip Layout.

Sheet Six: Control Loop Wiring Diagrams and Ladder Diagrams

Sheet Seven: Motor Starter and Relay Wiring Diagram.

Sheet Eight: Communication Network Architecture and Block Diagram.

Sheet Nine: DDC Panel Installation and Block Diagram.

(Repeat Sheets Four through Seven for each AHU System.)

b. The HVAC Control System Drawing Index shall show the name and number of the building and military site. The Drawing Index shall list HVAC Control System Drawings, including the drawing number, sheet number, drawing title, and computer filename when used. The HVAC Control System Legend shall show generic symbols and the name of devices shown on the HVAC Control System Drawings.

c. The valve schedule shall include each valve's unique identifier, size, flow coefficient Kv (Cv), pressure drop at specified flow rate, spring range, positive positioner range, actuator size, close-off pressure data, dimensions, and access and clearance requirements data. Valve schedules may be submitted in advance but shall be included in the complete submittal.

d. The damper schedule shall contain each damper's and each actuator's identifier, nominal and actual sizes, orientation of axis and frame, direction of blade rotation, spring ranges, operation rate, positive positioner ranges, locations of actuators and damper end switches, arrangement of sections in multi-section dampers, and methods of connecting

dampers, actuators, and linkages. The Damper Schedule shall include the maximum leakage rate at the operating static-pressure differential. The Damper Schedule shall contain actuator selection data supported by calculations of the torque required to move and seal the dampers, access and clearance requirements. Damper schedules may be submitted in advance but shall be included in the complete submittal.

e. The compressed air station schematic diagram shall show all equipment, including: compressor with motor horsepower and voltage; starter; isolators; manual bypasses; tubing sizes; drain piping and drain traps; reducing valves; dryer; and data on manufacturer's names and model numbers, mounting, access, and clearance requirements. Air Compressor and air dryer data shall include calculations of the air consumption of all current-to-pneumatic transducers and of any other control system devices to be connected to the compressed air station, and the compressed air supply dewpoint temperature at 140 kPa (20 psig). Compressed air station schematic drawings shall be submitted for each compressed air station.

f. The HVAC control system schematics shall show all control and mechanical devices associated with the HVAC system. A system schematic drawing shall be submitted for each HVAC system.

g. The HVAC control system equipment Schedule shall be developed. All devices shall have unique identifiers and shall be referenced in the equipment schedule. Information to be included in the equipment schedule shall be the control loop, device unique identifier, device function, setpoint, input range, and additional important parameters (i.e., output range). An equipment schedule shall be submitted for each HVAC system.

h. The HVAC control system sequence of operation shall reflect the language and format of this specification, and shall refer to the devices by their unique identifiers as shown. No operational deviations from specified sequences will be permitted without prior written approval of the Contracting Officer. Sequences of operation shall be submitted for each HVAC control system including each type of terminal unit control system.

i. The HVAC control system wiring diagrams shall be functional wiring diagrams which show the interconnection of conductors and cables to HVAC control panel terminal blocks and to the identified terminals of devices, starters and package equipment. The wiring diagrams shall show necessary jumpers and ground connections. The wiring diagrams shall show the labels of all conductors. Sources of power required for HVAC control systems and for packaged equipment control systems shall be identified back to the panel board circuit breaker number, HVAC system control panel, magnetic starter, or packaged equipment control circuit. Each power supply and transformer not integral to a controller, starter, or packaged equipment shall be shown. The connected volt-ampere load and the power supply volt-ampere rating shall be shown. Wiring diagrams shall be submitted for each HVAC control system.

SD-03 Product Data

DDC hardware

DDC capabilities

Variable frequency drive hardware

Workstation software

Input devices

Output devices

Surge and transient protection

Notebook computer

Hand-held terminal

Smoke detectors

Pneumatic tubing

SD-06 Test Reports

Field tests

Commissioning Report

Three copies of the HVAC control system commissioning procedures, in booklet form and indexed, 60 days prior to the scheduled start of commissioning. Commissioning procedures shall be provided for each HVAC control system, and for each type of terminal unit control system. The Commissioning procedures shall reflect the format and language of this specification, and refer to devices by their unique identifiers as provided by the contractor, or if applicable, as shown. The Commissioning procedures shall be specific for each HVAC system, and shall give detailed step-by-step procedures for commissioning of the system.

a. The Commissioning procedures shall include detailed, product specific set-up procedures, configuration procedures, adjustment procedures, and calibration procedures for each device. Where the detailed product specific commissioning procedures are included in manufacturer supplied manuals, reference may be made in the HVAC control system commissioning procedures to the manuals.

b. An HVAC control system commissioning procedures equipment list shall be included that lists the equipment to be used to accomplish commissioning. The list shall include manufacturer name, model number, equipment function, the date of the latest calibration, and the results of the latest calibration.

Performance verification tests

Three copies of the HVAC Control System Performance Verification Test Procedures, in booklet form and indexed, 60 days before the Contractor's scheduled test dates. The performance verification test procedures shall refer to the devices by their unique identifiers as shown, shall explain, step-by-step, the actions and expected results that will demonstrate that the HVAC control system performs in accordance with the sequences of operation, and other contract documents. An HVAC control system performance verification test equipment list shall be included that lists the equipment to be used during performance verification testing. The list shall include manufacturer name, model number, equipment function, the date of the latest calibration, and the results of the latest calibration.

Training

Three copies of an outline for the HVAC control system training course with a proposed time schedule. Approval of the planned training schedule shall be obtained from the Government at least 60 days prior to the start of the training. Six copies of HVAC control

system training course material 30 days prior to the scheduled start of the training course. The training course material shall include the operation manual, maintenance and repair manual, and paper copies of overheads used in the course.

SD-07 Certificates

Contractors' Qualifications

Training

Pressure Tank Certification

SD-10 Operation and Maintenance Data

Controls and HVAC System Operators Manual

Provide three copies of a Control and HVAC Systems Operators Manual. Provide in a 3 ring binder with a minimum of the following 7 sections. Use tabs to divide each section.

a. Description of HVAC Systems: Provide a description of the HVAC system components and control system. Include sequence of operation and a complete points list.

b. Controls Drawings: Provide drawings as specified in submittal paragraph.

c. Control Program Listings: Provide listing of all control programs, including terminal equipment controller setup pages if used.

d. Current Operating Parameters: Provide printouts of input and output setup information, (database setups). This section provides information such as point addresses, slopes and offsets for all points, database of points, etc.

e. Design Information: Provide tab, but leave this section blank.

f. Control Equipment Technical Data Sheets: Provide technical data sheets for all controller hardware and accessories.

g. Backup of Control Program: Provide backup copies of the control program and ACAD control drawings on 3.5 inch disks, CD-ROM, and 100MB Zip Disks.

DDC Manufacturer's Hardware and Software Manuals

Provide three copies of the following manuals.

a. Installation and Technical Manuals for all digital controller hardware.

b. Installation and Technical Manuals for workstation.

c. Operator Manuals for all digital controllers.

d. Operator Manuals for all workstation software.

e. Programming Manuals for all digital controllers.

f. Programming Manuals for workstation software.

SD-11 Closeout Submittals

Posted operating instructions:

Air compressors

Refrigerated air dryer

Provide administrative and closeout submittals:

Training course documentation

Service organizations

Contractor certification

1.6 OPERATING ENVIRONMENT

Protect components from humidity and temperature variations, dust, and other contaminants, within limits published by the manufacturer.

1.7 QUALITY ASSURANCE

1.7.1 Standard Products

a. Material and equipment shall be standard products of manufacturer regularly engaged in the manufacturing of such product, using similar materials, design and workmanship. The standard products shall have been in commercial or industrial use for 2 years prior to bid opening. The 2-year use shall include applications of similarly sized equipment and materials used under similar circumstances and sold on the commercial market through advertisements, manufacturers' catalogs, or brochures.

b. Products are supported by a local service organization.

1.7.2 Nameplates and Tags

a. Nameplates and tags bearing device unique identifiers shall be engraved or stamped. Permanently attach nameplates to HVAC control panel doors and back plates.

b. For each field mounted piece of equipment attach a plastic or metal tag with equipment name and point identifier.

1.7.3 Verification of Dimensions

The contractor shall verify all dimensions in the field, and shall advise the Contracting Officer of any discrepancy before performing work.

1.7.4 Drawings

Because of the small scale of the drawings, it is not possible to indicate all offsets, fittings, and accessories that may be required. The Contractor shall carefully investigate the mechanical, electrical,

and finish conditions that could affect the work, and shall furnish all work necessary to meet such conditions.

1.7.5 Contractors Qualifications

a. The Contractor or subcontractor performing the work shall have completed at least three DDC systems installations of a similar design and have successfully operated a similar sequence of operation for at least three years.

1.7.6 Pressure Tank Certification

Provide certification stating pressure tanks are constructed and labeled in accordance with ASME BPVC SEC VIII for a minimum of 125 psig working pressure.

1.7.7 Training Course Documentation

Training course documentation shall include a manual for each trainee plus two additional copies and two copies of audiovisual training aids, if used. Documentation shall include an agenda, defined objectives for each lesson and detailed description of the subject matter of each lesson.

1.7.8 Service Organizations

Qualified service organization list that shall include the names and telephone numbers of organizations qualified to service the HVAC control systems.

1.7.9 Contractor Certification

Provide certification that the installation of the control system is complete and meets the technical requirements of this section.

1.7.10 Modification of References

The advisory provision in ASME B31.1 and NFPA 70 are mandatory. Substitute the word "shall" for "should" wherever it appears and interpret all references to the "authority having jurisdiction" and "owner" to mean the Contracting Officer.

1.8 WARRANTY

1.8.1 Year 2000 (Y2K) Compliance Warranty

For each product, component and system specified in this section as a "computer controlled facility component" provide a statement of Y2K compliance warranty. The contractor warrants that each hardware, software, and firmware product delivered under this contract is able to accurately process date and time data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, including years 1999 and 2000 and leap year calculations. The duration of this warranty and the remedies available to the Government for breach of this warranty shall be defined in, and subject to, the terms and limitations of the contractor's standard commercial warranty or warranties contained in this contract. Nothing in this warranty shall be construed to limit any rights or remedies the Government may otherwise have under this contract, with respect to defects other that Year 2000 performance.

PART 2 PRODUCTS

2.1 DDC SYSTEM

a. Provide a DDC system as a distributed control system. The system shall have stand-alone Interoperable LonMark™ or LonWorks, or BACnet digital controllers, a communications Network, and a separate workstation computer with workstation software.

b. Provide an operator programmable system to perform closed-loop, modulating control of building equipment. Connect all digital controllers through the communication network to share common data and report to workstation computers. Provide workstation DDC software capable of programming and monitoring the digital controllers. The control system shall be capable of downloading programs between the workstation and digital controllers.

c. Provide the quantity of digital controllers as required to perform the sequences of operation, or where shown, as indicated on the drawings to perform required climate control, energy management, and alarm functions. The quantity of controllers shall be no less than that required to perform the sequences of operation within the parameters indicated in these specifications. All material used shall be currently in production.

2.1.1 Interoperable Direct Digital Controllers

DDC hardware shall be UL 916 rated. Interoperable controllers (IDC's) shall be LonMark™ or LonWorks bearing the applicable LonMark™ interoperability logo. Where LonMark™ devices are not available, devices based on LonWorks are acceptable providing that an XIF file is provided for the device. Controllers shall be programmable by the user, have integral input/output within the module or on network connected modules, and perform stand-alone operations. Interoperable BACnet Controllers (IBC's)shall be in accordance with ANSI/ASHRAE Standard 135-1995. IBC's must be provided with product interoperability compliance statement documents that demonstrate the compliance level to the ANSI/ASHRAE Standard 135-1995.

2.1.1.1 Distributed Control

Apply digital controllers in a distributed control manner.

2.1.1.2 I/O Point Limitation

Total number of I/O hardware points, including those communicated over a LAN, used by a single stand-alone digital controller, including I/O expansion units shall not exceed 48.

2.1.1.3 Environmental Operating Limits

Provide digital controllers that operate in environmental conditions between 32 and 120 degrees F.

2.1.1.4 Stand-Alone Control

Provide stand-alone digital controllers.

2.1.1.5 Internal Clock

Provide a clock with each stand-alone controller. Each controller shall have its clock backed up by a battery or capacitor with sufficient capacity to maintain clock operation for a minimum of 72 hours during power outage.

2.1.1.6 Memory

a. Provide sufficient memory for each controller to support required control, communication, trends, alarms, and messages

b. Memory Protection: Programs residing in memory shall be protected either by using EEPROM, flash memory, or by an uninterruptible power source (battery or uninterruptible power supply (UPS)). The backup power source shall have sufficient capacity to maintain volatile memory during an AC power failure. Where the uninterruptible power source is rechargeable (a rechargeable battery), provide sufficient back-up capacity for a minimum of seventy-two hours. The rechargeable power source shall be constantly charged while the controller is operating under normal line power. Where a non-rechargeable power source is used, provide sufficient capacity for a minimum of two years accumulated power failure. Batteries shall be replaceable without soldering.

2.1.1.7 Inputs

Provide input function integral to the direct digital controller. Provide input type(s) as required by the DDC design. For each type of input used on high-level controllers, provide at least one similar spare input point per controller.

a. Analog Inputs: Allowable input types are 100 ohm (or higher) platinum RTDs, thermistors, 4 to 20 mA, and 0-10 VDC. Thermistor and direct RTD inputs must have appropriate conversion curves stored in controller software or firmware. Analog to digital (A/D) conversion shall have 10-bit minimum resolution.

b. Digital Inputs: Digital inputs shall sense open/close, on/off, or other two state indications.

2.1.1.8 Outputs

Provide output function integral to the direct digital controller. Provide output type(s) as required by the DDC design. For each type of output used on high-level controllers, provide at least one similar spare output point per controller.

a. Analog Outputs: Provide controllers with a minimum output resolution of 10 bits. Output shall be 4 to 20 mA, 0 to 10 VDC, or 0 to 20 psig. Each pneumatic output shall have feedback for monitoring of the actual pneumatic signal.

b. Digital Outputs: Provide contact closure with contacts rated at a minimum of 1 ampere at 24 volts.

2.1.1.9 PID Control

Provide controllers with proportional integral, and derivative control capability. Terminal controllers are not required to have the derivative component.

2.1.1.10 Digital Controller Networking Capabilities

The intent of this specification is to provide a peer-to-peer networked, stand-alone, distributed control system with the capability to integrate both the ANSI/ASHRAE Standard 135-1995 BACnet and LonWorks technology communication protocols in one open, interoperable system. The upper level digital controllers shall be capable of networking with other similar

upper level controllers. Upper level controllers shall also be capable of communicating over a network between buildings.

2.1.1.10.1 LonMark™ IDC Networking Capabilities

The contractor shall run the LonWorks network trunk to the nearest Network Area Controller (NAC). Coordinate locations of the NAC to ensure that maximum network wiring distances, as specified by the LonWorks wiring guidelines, are not exceeded. A maximum of 126 devices may occupy any one LonWorks trunk and must be installed using the appropriate trunk termination device. All LonWorks and LonMark devices must be supplied using FTT-10A LonWorks communications transceivers. The IDCs shall communicate with the NAC at a baud rate of not less than 78.8K baud. The IDC shall provide LED indication of communication and controller performance to the technician, without cover removal.

2.1.1.10.2 IBC Networking Capabilities

The system supplier must provide a PICS document showing the installed systems compliance level to the ANSI/ASHRAE Standard 135-1995, to the Division 17 contractor. Minimum compliance is Level 3.

Physical connection of BACnet devices shall be via Ethernet.

The IBC Sensor shall connect directly to the IBC and shall not utilize any of the I/O points of the controller. The IBC Sensor shall provide a two-wire connection to the controller that is polarity and wire type insensitive. The IBC Sensor shall provide a communications jack for connection to the BACnet communication trunk to which the IBC controller is connected. The IBC Sensor, the connected controller, and all other devices on the BACnet bus shall be accessible by the portable operators terminal (POT).

2.1.1.11 Communications Ports

a. Controller-to-Controller LAN Communications Ports: Controllers in the building DDC system shall be connected in a communications network. Controllers shall have controller to controller communication ports to both peer controller (upper level controllers) and terminal controllers (lower level controllers). Network may consist of more than one level of local area network and one level may have multiple drops. Communications network shall permit sharing information between controllers, allowing execution of dynamic control strategies, and coordinated response to alarm conditions. Minimum baud rate for the lowest level LAN shall be 9600 Baud. Minimum baud rate for the highest level LAN shall be 9600 Baud. Minimum baud rate for a DDC system consisting of a single LAN shall be 9600 Baud.

b. On-Site Interface Ports: Provide a RS-232, RS-485, or RJ-11 communications port for each digital controller that allows direct connection of a computer or hand held terminal and through which the controller may be fully accessed. Controller access shall not be limited to access through another controller. On-site interface communication ports shall be in addition to the communications port(s) supporting controller to controller communications. Communication rate shall be 9600-Baud minimum. Every controller on the highest level LAN shall have a communications port supporting direct connection of a computer; a hand held terminal port is not sufficient. By connecting a computer to this port, every controller in the direct digital control system shall be able to be fully accessed and programmed. The following operations shall be available: downloading and uploading control programs, modifying programs and program data base, and retrieving or accepting trend reports, status reports, messages, and alarms.

c. Remote Work Station Interface Port: Provide one additional direct connect computer port in each DDC system for permanent connection of a remote operator's work station, unless the workstation is a node on the LAN. All operations possible by directly connecting a computer to a controller at the highest level LAN shall be available through this port.

d. Telecommunications Interface Port: Provide one additional telecommunications port in each DDC system permitting remote communications via telephone. All operations possible by directly connecting a computer to a controller at the highest level LAN shall be available through the telecommunications port. A telecommunications port provided on a digital controller shall be in addition to the port required for directly connecting a computer to the controller. Telecommunication baud rate shall be 28000 minimum.

2.1.1.12 Y2K Compliant

Provide computer controlled facility components, specified in this section, that are Year 2000 compliant (Y2K). Computer controlled facility components refers to software driven technology and embedded microchip technology. This includes, but in not limited to, computers, telecommunications switches, meters, HVAC controllers, utility monitoring and control systems, fire detection instruments, alarms, security systems, and other facilities control systems utilizing microcomputer, minicomputer, or programmable logic controllers

2.1.1.13 Modem

Provide two modems per DDC system to communicate between the digital control system and the computer workstation. Minimum modem baud rate is 56 Kbaud with v.90 communication standard.

2.1.1.14 Digital Controller Cabinet

Each indoor digital controller cabinet shall protect the controller from dust and shall be rated NEMA 1, unless specified otherwise. Each outdoor digital controller cabinet shall protect the controller from all outside conditions and shall be rated NEMA 4. Cabinets for high level controllers shall be hinged door, lockable, and have offset removable metal back plate.

2.1.1.15 Main Power Switch

Each controller on the highest level LAN or each control cabinet shall have a main external power switch for isolation of the controller from AC power. The switch shall be located in the DDC cabinet.

2.1.2 Terminal Control Units

a. The same company as the digital controllers shall manufacture TCUs.

b. TCUs shall automatically start-up on return of power after a failure, and previous operating parameters shall exist or shall be automatically downloaded from a digital controller on a higher level LAN.

c. TCUs do not require an internal clock, if they get time information from a higher level digital controller.

2.1.3 DDC Software

The Contracting Officers representative shall sign a copy of the manufacturer's standard software and firmware licensing agreement as a condition of this contract. Such license shall grant use of all programs and application software to Ft. Lewis as defined by the

manufacturer's license agreement, but shall protect manufacturer's rights to disclosure of trade secrets contained within such software. The supplied computer software shall employ object-oriented technology (OOT) for representation of all data and control devices within the system. In addition, adherence to industry standards including ANSI / ASHRAE™ Standard 135-1995, BACnet and LonMark to assure interoperability between all system components is required. For each LonWorks device that does not have LonMark certification, the device supplier must provide an XIF file for the device. For each BACnet device, the device supplier must provide a PICS document showing the installed device's compliance level. Minimum compliance is Level 3; with the ability to support data read and write functionality.

2.1.3.1 Sequence of Control

Provide, in the digital controllers, software to execute the sequence of control. Provide one registered copy of all software used to program control sequences in direct digital controllers, LAN controllers and field configurable smart controllers on the stationary (notebook) workstation. Provide any access keys which restrict programming language software functions or the ability to compile or prepare programming for download to controllers. Provide final copy of each program used in the system in both compiled and editable formats. Where specially programmed factory configured smart controllers are used in the system, provide the minimum factory programming tools and specialized controller programs ready for download to replacement controllers. At minimum, controllers must be capable of performing programming functions outlined in the following "Parameter Modification" section.

2.1.3.2 Parameter Modification

Provide software to modify control parameters. Parameter modification shall be accomplished for all controllers (high level and low level application specific) through the main workstation computer and with laptop computer or keypad terminal directly at each controller. The supplied computer software shall employ object-oriented technology (OOT) for representation of all data and control devices within the system. Modifications shall be accomplished without having to make changes directly in line-by-line programming. When the control program is of the line-by-line type, database parameters in the following list that take real number values shall require assignment of variable names so parameters can be changed without modifying programming. Alternatively, block programming languages shall provide for modification of these database parameters in fill-in-the-blank screens. Parameters of like type, including those in different high level and low level controllers, may be grouped together for a single, global change. For example, an operator may group all second floor space temperature setpoints into a group and raise the setpoint by two degrees with a single command. The following parameters shall be modifiable in this way:

a. Setpoints

b. Dead band limits and spans

c. Reset schedules

d. Switchover points

e. PID gains and time between control output changes

f. Time

g. Timed local override time

h. Occupancy schedules

i. Holidays

j. Alarm points, alarm limits, and alarm messages

k. Point definition database

l. Point enable, disable, and override

m. Trend points, trend intervals, trend reports

n. Analog input default values

o. Passwords

p. Communications parameters including network and telephone communications setups

2.1.3.3 Differential

Where setpoint is in response to some analog input such as temperature, pressure, or humidity, include a setpoint differential for the control loop to prevent short cycling of control devices.

2.1.3.4 Motor and Flow Status Delay

Provide an adjustable delay between when a motor is commanded on or off and when the control program looks to the motor or flow status input for confirmation of successful command execution.

2.1.3.5 Runtime Accumulation

Provide resettable run time accumulation for each controlled digital output.

2.1.3.6 Timed Local Override

Provide user definable adjustable run time for each push of a momentary contact timed local override. Pushes shall be cumulative with each push designating the same length of time. Provide a user definable limit on the number of contact closures summed, such as 6, before the contact closures are ignored. Timed local overrides are disabled during occupancy periods.

2.1.3.7 Time Programs

Provide programs to automatically adjust for leap years, and make daylight savings time and standard time adjustments.

2.1.3.8 Scheduling

a. Individual controlled equipment shall be schedulable with schedule based on time of day, day of week, and day of year. Equipment may be associated into groups. Each group may be associated with a different schedule. Changing the schedule of a group shall change the schedule of all equipment in the group. Groups may be modified, created and deleted by the operator.

b. Provide capability that will allow current schedules to be viewed and modified in a seven-day week format. When control program does not automatically compute holidays, provide capability to enter holiday schedules one full year at a time.

2.1.3.9 Point Override

I/O and virtual points shall accept software overrides to any possible value.

2.1.3.10 Alarming

I/O points and software points shall be alarmable. Alarms may be enabled and disabled for every point. Alarm limits shall be adjustable on analog points. Controllers connected to an external communications device such as a printer, terminal, or computer, shall download alarm and alarm message when alarm occurs. When a computer workstation is connected to a DDC system with a modem, operator selected alarm conditions will initiate a call and report to the computer or an alphanumeric pager. Otherwise alarms will be stored and automatically downloaded when a communications link occurs. The following conditions shall generate alarms:

a. Motor is commanded on or off but the motor status input indicates no change

b. Temperature, humidity, or pressure strays outside selectable limits

c. An analog input takes a value indicating sensor failure

d. A module is not communicating on the LAN

e. A power outage occurs

2.1.3.11 Messages

Messages shall be operator defined and assigned to alarm or status conditions. Messages shall be displayed on the workstation or printer when these conditions occur.

2.1.3.12 Trending

DDC system shall have the capability to trend all I/O and virtual points. Points may be associated into groups. A trend report may be set up for each group. The period between logging consecutive trend values shall range from one minute to 60 minutes at a minimum The minimum number of consecutive trend values stored at one time shall be 30 per variable. When trend memory is full, the most recent data shall overwrite the oldest data. Trend data shall be capable of being uploaded to computer. Trend data shall be available on a real time basis; trend data shall appear numerically and graphically on a connected computer's screen as the data is processed from the DDC system. Trend reports shall be capable of uploading to computer for storage.

2.1.3.13 Status Display

Current status of I/O and virtual points shall be displayed on command. Points shall be associated into functional groups, such as all the I/O and virtual points associated with control of a single air handling unit, and displayed as a group, so the status of a single mechanical system can be readily checked. A group shall be selectable from a menu of groups having meaningful names; such as AHU-4, Second Floor, Chiller System, and other such names.

2.1.3.14 Diagnostics

Each controller shall perform self-diagnostic routines and provide messages to an operator when errors are detected. The DDC system shall be capable of recognizing a non-responsive module on a LAN. The remaining, responsive modules on a LAN shall not operate in a degraded mode.

2.1.3.15 Power Loss

During a power outage, each controller shall assume a disabled status and outputs shall go to a user definable state. Upon restoration of power, DDC system shall perform an orderly restart, with sequencing of outputs.

2.1.3.16 Program Transfer

Provide software for download of control programs and database from a computer to controllers and upload of same to computer from controllers. Every digital controller in the DDC system shall be capable of being downloaded and uploaded to through a single controller on the highest level LAN.

2.1.3.17 Password Protection

Provide at least three levels of password protection to the DDC system permitting different levels of access to the system. The lowest level allows monitoring only. The highest level allows full control of all functions, including setting new passwords.

2.1.4 Workstation

a. Provide a central workstation computer with installed software to provide an interface for monitoring, troubleshooting, and making adjustments to the program or operating parameters of all DDC controllers, including TCUs. The workstation shall also be capable of programming all controllers, including TCUs.

b. DDC system shall routinely operate continuously without connection to the workstation. Information at the workstation is not required for day to day operations of the direct digital controllers.

2.1.4.1 Hardware

The DDC system manufacturer shall recommend all workstation computer equipment and peripherals. The workstation shall be configured to operate according to the DDC system manufacturer's specifications. Workstation hardware shall be configured to allow operation of software, uploading and downloading of programs, and creation of graphics. At a minimum the workstation hardware shall consist of:

a. Computer; computer shall use Microsoft Windows 98 or NT, and shall not have less than Intel Pentium II processor, running at 350 megahertz speed, 12 gigabyte hard disc, 128 megabyte RAM, 2 serial and 1 parallel port, 17 inch monitor with 740 x 1024 and 0.28 dpi minimum resolution, 101 character keyboard, a 1.4 megabyte 3 1/2 inch floppy drive, 48X internal CD ROM drive, internal 100MB Zip drive with 2 Zip disks.

b. Mouse

c. Printer; printer resolution shall be inkjet laser quality.

d. 120-volt terminal strip UL 1449 6-outlet with surge protection.

2.1.4.2 Software

Workstation software shall be recommended and supported by the DDC system manufacturer and configured to operate according to the DDC system manufacturer's specifications. Software shall be

resident in the workstation computer and permit monitoring and troubleshooting of the DDC system. Workstation software permits modification of controller parameters and control for all controllers, both high level and low level application specific. Operations shall be menu selected. Menu selections shall be made with a mouse.

a. Menu System: Menu system shall allow an operator to select a particular function or access a particular screen through successive menu penetration.

b. Controller Parameter Modification: The workstation software shall be an interface for performance specified in paragraph entitled "Parameter Modification" and available through direct connection of a computer to a digital controller. Parameter modification shall require only that an operator "fill in the blank" for a parameter on a screen requesting the information in plain language. Parameter modifications shall download to the appropriate controllers at operator request.

c. Program modification: For systems using a line-by-line programming language, provide an off-line text editor, similar to a BASIC program editor, permitting modification of controller resident control programs. For systems using block programming languages provide a capability for linking blocks together to create new programs or modify existing programs. Program modifications shall download to appropriate controllers at operator request.

2.1.4.3 Graphic-Based Software

The workstation shall use graphic-based software to provide a user-friendly interface to the DDC system. Graphic-based software shall provide graphical representation of the building, the buildings mechanical systems, and the DDC system. The current value and point name of every I/O point shall be shown on at least one graphic and in its appropriate physical location relative to building and mechanical systems.

a. Graphics shall closely follow the style of the control drawings in representing mechanical systems, sensors, controlled devices, and point names.

b. Graphic Title: Graphics shall have an identifying title visible when the graphic is being viewed.

c. Dynamic Update: When the workstation is on-line with the control system, point data shall update dynamically on the graphic images.

d. Graphic Penetration: Provide graphic penetration when the capability exists. For systems without graphic penetration, provide menu penetration for selection of individual graphics to give the same hierarchical affect provided by graphic penetration.

e. Graphic Types: Graphic-based software shall have graphics of the building exterior, building section, floor plans, and mechanical systems. Provide the following graphics:

(1) Building Exterior Graphic: Show exterior architecture, major landmarks, and building number.

(2) Building Section Graphic: Show floors in section graphic with appropriate floor name on each floor.

(3) Floor Plan Graphics: Provide a single graphic for each floor, unless the graphic will contain more information than can reasonably be shown on a single graphic. Each heating or cooling zone within a floor plan shall have a zone name and its current temperature

displayed within the zone outline. Show each controlled variable in the zone. Provide visual warning for each point in alarm.

(4) Mechanical System Graphics: Provide two-dimensional drawings to symbolize mechanical equipment; do not use line drawings. Show controlled or sensed mechanical equipment. Each graphic shall consist of a single mechanical system; examples are a graphic for an air handling unit, a graphic for a VAV box, a graphic for a heating water system, and a graphic for a chiller system. Place sensors and controlled devices associated with mechanical equipment in their appropriate locations. Place point name and point value adjacent to sensor or controlled device. Provide visual warning of each point in alarm. Condition, such as zone temperature, associated with the mechanical system shall be shown on the graphic. Point values shall update dynamically on the graphic.

f. Graphic Editing: Full capacity as provided by a draw software package shall be included for operator editing of graphics. Graphics may be created, deleted, modified, and text added. Provide capability to store graphic symbols in a symbol directory and import these symbols into graphics. A minimum of 256 colors shall be available.

g. Dynamic Point Editing: Provide full editing capability for deleting, adding, and modifying dynamic points on graphics.

h. Trending: Trend data shall be displayed graphically, with control variable and process variable plotted as functions of time on the same chart. Graphic display of trend data shall be internal to the workstation software and not resulting from download of trend data into a third-party spreadsheet program such as Excel, unless such transfer is automatic and transparent to the operator, and the third-party software is included with the workstation software package. At the operator's discretion, trend data shall be plotted real time.

2.1.5 Maintenance Personnel Interface Tools

Provide a notebook computer for field communication with the digital controllers. In addition to changing setpoints, and making operational changes, field personnel shall be able to download programs with the notebook computer.

2.1.5.1 Notebook Computer

a. Provide notebook computer, necessary software, and direct connection cable to communicate with all digital controllers and smart thermostats when directly connected.

b. Provide notebook computer with the following features as a minimum:

(1) Pentium II 350 MHz with active matrix color screen

(2) Internal hard disk; minimum 6 Gigabytes

(3) Internal battery operation; for a minimum of 3 hours of operation.

(4) RAM; minimum 64 Megabytes

(5) 24X CD ROM and 3.5 inch 1.44 MB floppy drive

(6) Serial interface port to communicate with the digital controller. Parallel port to communicate with a printer.

(7) Software: Digital control manufacturer's graphic DDC software, and all other required programs installed. Windows 98 operating system installed. Include all documentation and original media.

2.2 SENSORS AND INPUT HARDWARE

2.2.1 Field Installed Temperature Sensors

2.2.1.1 Thermistors

Precision thermistors may be used in temperature sensing applications below 200 degrees F. Sensor accuracy over the application range shall be 0.36 degree F or less between the range of 0 to 66 degrees C (32 to 150 degrees F). Stability error of the thermistor over five years shall not exceed 0.14 degrees C (0.25 degree F) cumulative. Sensor element and leads shall be encapsulated. Bead thermistors are not allowed. A/D conversion resolution error shall be kept to 0.06 degree C (0.1 degree F). Total error for a thermistor circuit shall not exceed 0.28 degree C (0.5 degree F), which includes sensor error and digital controller A/D conversion resolution error. Provi de 18 gage twisted and shielded cable for thermistors.

2.2.1.2 Resistance Temperature Detectors (RTDs)

Provide RTD sensors with 1000 ohm, or higher, platinum elements that are compatible with the digital controllers. Sensors shall be encapsulated in epoxy, series 300 stainless steel, anodized aluminum, or copper. Temperature sensor accuracy shall be 0.1 percent (1 ohm) of expected ohms (1000 ohms) at 0 degrees C (32 degrees F). Temperature sensor stability error over five years shall not exceed 0.14 degree C (0.25 degree F) cumulative. Direct connection of RTDs to digital controllers, without transmitters, is preferred provided controller supports direct connection of RTDs. When RTDs are connected directly to the controller, keep lead resistance error to 0.14 degree C (0.25 degree F) or less. Total error for a RTD circuit shall not exceed 0.28 degree C (0.5 degree F), which includes sensor error, lead resistance error or 4 to 20 mA or 0 to 10 VDC transmitter error, and A/D conversion resolution error.

2.2.1.3 Temperature Sensor Details

a. Room Type: Conceal element behind protective cover matched to the room interior. Room temperature sensors connected directly to application specific controllers shall have integral pushbutton, system override digital input button, and a setpoint adjustment lever

b. Duct Averaging Type: Continuous averaging RTDs for ductwork applications shall be 30 centimeters in length for each 0.37 square meters (one foot in length for each 4 square feet) of ductwork cross-sectional area with a minimum length of 1.8 meter (6 feet). Probe type duct sensors of 30 centimeter (one foot) length minimum are acceptable in ducts 1.1 square meter (12 feet square) and less.

c. Immersion Type: 75 mm (3 inches) total immersion for use with sensor wells, unless otherwise indicated.

d. Sensor Wells: Stainless steel material. Provide heat-sensitive transfer agent between exterior sensor surface and interior well surface.

e. Outside Air Type: Provide element on the buildings north side with sunshade to minimize solar effects. Mount element at least 75 mm (3 inches) from building outside wall. Sunshade shall not inhibit the flow of ambient air across the sensing element. Shade shall protect sensing element from snow, ice, and rain.

2.2.2 Transmitters

Transmitters shall have 4 to 20 mA or 0 to 10 VDC output linearly scaled to the temperature, pressure, humidity, or flow range sensed. Transmitter shall be matched to the sensor, factory calibrated, and sealed. Total error shall not exceed 0.1 percent at any point across the measured span. Supply voltage shall be 24 volts ac or dc. Transmitters shall have non-interactive offset and span adjustments. For temperature sensing, transmitter stability shall not exceed 0.05 degrees C (0.09 degrees F) a year.

2.2.2.1 Spans and Ranges

Transmitter spans or ranges shall meet the following:

a. Temperature:

(1) 28 degrees C (50 degrees F) span: Room, chilled water, cooling coil discharge air, return air sensors

(2) 56 degrees C (100 degrees F) span: Outside air, hot water, heating coil discharge air, mixed air sensors

(3) 111 degrees C (200 degrees F) span: High temperature hot water, heating hot water, chilled/hot water system sensors.

b. Pressure:

(1) –125 to 125 pascals (-0.5 to 0.5) inches water differential range: static pressure control of rooms

(2) 0 to 1250 pascals (0 to 5 inches) water differential range: Duct static pressure

(3) 0 to 689 kPa (0 to 100 psig) differential: Water differential pressure

c. Relative Humidity:

(1) 10 to 90 percent minimum relative humidity range

2.2.3 Relative Humidity Transmitters

Provide integral humidity transducer and transmitter. Output of relative humidity instrument shall be a 4 to 20 mA or 0 to 10 VDC signal proportional to full range of relative humidity input. Accuracy shall be 2 percent of full scale, long-term stability shall be less than one percent drift per year. Sensing element shall be polymer or thin film polymer type.

2.2.4 Pressure Transmitters

Provide integral pressure transducer and transmitter. Output of pressure instrument shall be a 4 to 20 mA or 0 to 10 VDC signal proportional to the pressure span. Span shall be as specified. Accuracy shall be 1.0 percent. Linearity shall be 0.1 percent.

2.2.5 Current Transducers

Provide current transducers to monitor amperage of motors. Select current transducer for normal measured amperage to be near 50 percent of full-scale range. Current transducers shall have an accuracy of one percent and 4 to 20 mA or 0 to 10 VDC output signal.

2.2.6 Air Quality Sensors

2.2.6.1 CO2 Sensor

Provide CO2 sensors with integral transducers where shown. Output signal shall be 4 to 20 mA or 0 to 10 VDC. Accuracy shall be ±5 percent of full scale.

2.2.7 Input Switches

2.2.7.1 Timed Local Override

Provide momentary contact push button override with override time set in controller software. Provide to override DDC time of day program and activate occupancy program for assigned units. Upon expiration of override time, the control system shall return to time-of-day program. Time interval for the length of operation shall be software adjustable and shall expire unless reset.

2.2.7.2 Insertion Freeze Protection Switch

Electric switch shall be capillary type. Provide special purpose insertion thermostats with flexible elements a minimum of 6 meters (20 feet) in length for coil face areas up to 3.7 square meters (40 square feet). Switch contacts shall be rated for motor starter circuit voltage being interrupted. Switch shall be equipped with auxiliary set of contacts for input of switch status to digital controller. Provide additional elements or longer elements for larger coils at the rate of 30 centimeters (1-foot) of element per .37 square meters (4 square feet) of coil. Serpentine capillaries perpendicular to the air flow to uniformly sense the entire airflow. A freezing condition at 18-inch increments along the sensing element shall activate the thermostatic switch. Switch shall require manual reset after activation.

2.2.7.3 Electronic Airflow Measurement Stations and Transmitters

a. Station - Each station shall contain an array of velocity sensing elements and straightening vanes inside a flanged sheet metal casing. The velocity sensing elements shall be of the RTD or thermistor type. The sensing elements shall be distributed across the duct cross section in the quantity and pattern set forth for measurements and instruments of ASHRAE 3 and SMACNA HVACTAB for the traversing of ducted air flows. The resistance to airflow through the airflow measurement station shall not exceed 20 pascals (0.08 inch water gage) at an airflow of 10.16 meters per second (2,000 fpm). Station construction shall be suitable for operation at airflow of up to 25.4 meters per second (5,000 fpm) over a temperature range of 4 to 49 degrees C (20 to 120 degrees F), and accuracy shall be plus or minus 3 percent over a range of 0.635 to 12.7 meters per second (125 to 2,500 fpm) scaled to air volume.

b. Each transmitter shall produce a linear, temperature compensated 4 to 20 mA or 0 to 10 VDC output corresponding to the actual air flow. The transmitter shall be a 2-wire, loop powered device. The output error of the transmitter shall not exceed 0.5 percent of the calibrated measurement.

2.2.8 Energy Metering

2.2.8.1 Electric Meters

Provide kilowatt-hour (kWh) meter for building as indicated or specified. Integrate electric meter signal into DDC system; meter signal output must be compatible with DDC input. DDC shall measure both instantaneous and accumulated electrical usage.

a. Meter: ANSI C12.10. Provide watt-hour meter and socket corresponding to the ratios of the current transformers and transformer secondary voltage. Meters shall be selected for the building voltage, phase, four -wire wye system, three-element type with three current transformers. Meters shall be complete with a box mounted socket having automatic circuit closing bypass. Provide watt-hour meter with not less than four pointer-type kWh registers, provisions for pulse initiation, and a universal Class 2 indicating maximum kW demand register, sweep pointer indicating type, with a 30 -minute interval. Meter accuracy shall be within plus or minus one percent. The correct multiplier shall be provided on face of meter.

b. Current Transformers: ANSI C57.13. Provide three current transformers with 600-volt insulation, rated for metering with voltage, BIL, momentary, and burden ratings coordinated with the ratings of the associated meters. Provide a butyl molded donut or window type transformers mounted on a bracket to allow secondary cables to connect to the transformer bushings. Identify the wiring of the current transformer secondary feeders to permit field current measurements to be taken with hook-on ammeters.

2.3 OUTPUT HARDWARE

2.3.1 Dampers

Damper shall conform to SMACNA DCS.

a. A single damper section shall have blades no longer than 1220 mm (48 inches) and shall be no higher than 1830 mm (72 inches). Maximum damper blade width shall be 203 mm (8 inches). Larger sized damper shall be made from a combination of sections.

b. Dampers shall be steel, or other materials where shown. Flat blades shall be made rigid by folding the edges. Blades shall be provided with compressible seals at points of contact. The channel frames of the dampers shall be provided with jamb seals to minimize air leakage. Dampers shall not leak in excess of 102 L/s per square meter (20 cfm per square foot) at 996 Pa (4 inches water) gage static pressure when closed. Seals shall be suitable for an operating temperature range of minus 40 degrees C to 93 degrees C (40 degrees F to 200 degrees F). Dampers shall be rated at not less than 10 m/s (2000 fpm) air velocity. All blade-operating linkages shall be within the frame so that blade-connecting devices within the same damper section will not be located directly in the air stream. Damper axles shall be 13 mm (0.5 inch) (minimum) plated steel rods supported in the damper frame by stainless steel or bronze bearings. Blades mounted vertically shall be supported by thrust bearings. Pressure drop through dampers shall not exceed 10 Pa gage at 5 m/s (0.04 inch water gage at 1000 fpm) in the wide-open position. Frames shall not be less than 50 mm (2 inches) in width. Dampers shall be tested in accordance with AMCA 500.

c. Operating links external to dampers (such as crankarms, connecting rods, and line shafting for transmitting motion from damper actuators to dampers) shall withstand a load equal to twice the maximum required damper-operating force. Rod lengths shall be adjustable. Links shall be brass, bronze, zinc-coated steel, or stainless steel. Moving parts in contact with one another shall be of different materials. Working parts of joints and clevises shall be brass, bronze, or stainless steel. Adjustments of crankarms shall control the open and closed position of dampers.

2.3.2 Valves

2.3.2.1 Valve Assembly

Valves shall have stainless steel stems. Valve bodies shall be designed for not less than 862 kPa (gage) (125 psig) working pressure or 150 percent of the system operating pressure, whichever is greater. Valve leakage rating shall be 0.01 percent of rated Cv. Class 125 copper alloy valve bodies and Class 150 steel or stainless steel valves shall conform to ASME/ANSI B16.5 as a minimum. Cast iron valve components shall conform to ASTM A 126 Class B or C as a minimum.

2.3.2.2 Butterfly Valve Assembly

Butterfly valves shall be threaded lug type suitable for dead-end service and for modulation to the fully closed position, with noncorrosive discs, stainless steel shafts supported by bearing, and EPDM seats suitable for temperatures from minus 29 degrees C to plus 121 degrees C (minus 20 degrees F to plus 250 degrees F). Valves shall have a manual means of operation independent of the actuator.

2.3.2.3 Two-Way Valves

Two-way modulating valves shall have equal percentage characteristics.

2.3.2.4 Three-Way Valves

Three-way valves shall have equal percentage characteristics.

2.3.2.5 Duct Coil and Terminal Unit Coil Valves

Provide control valves with either flare-type or solder-type ends provided for duct or terminal-unit coils. Provide flare nuts for each flare-type end valve.

2.3.2.6 Valves for Chilled Water, Condenser Water and Glycol Service

a. Bodies for valves 40 mm (1 1/2 inches) and smaller shall be brass or bronze, with threaded or union ends. Bodies for valves from 50 to 80 mm (2 inches to 3 inches) inclusive shall be of brass, bronze or iron. Bodies for 50 mm (2 inch) valves shall have threaded ends. Bodies for valves from 65 to 80 mm (2 1/2 to 3 inches) shall have flanged-end connections. Internal valve trim shall be brass or bronze except that valve stems may be Type 316 stainless steel. Water valves shall be sized for a 21 kPa (3 psi) differential through the valve at rated flow, except as indicated otherwise. Select valve flow coefficient (Cv) for an actual pressure drop not less than 50 percent or greater than 125 percent of the design pressure drop at design flow.

b. Valves 100 mm (4 inches) and larger shall be butterfly valves.

2.3.2.7 Valves for Hot Water Service

Valves for hot water service below 121 degrees C (250 Degrees F):

a. Bodies for valves 40 mm(1 1/2 inches) and smaller shall be brass or bronze with threaded or union ends. Bodies for valves larger than 50 mm (2 inches) shall have flanged-end connections. Water valves shall be sized for a 21 kPa (3 psi) differential through the valve at rated flow, except as indicated otherwise. Select valve flow coefficient (Cv) for an actual pressure drop not less than 50 percent or greater than 125 percent of the design pressure drop at design flow.

b. Internal trim, including seats, seat rings, modulation plugs, and springs, of valves controlling water hotter than 99 degrees C (210 degrees F) shall be Type 316 stainless steel.

c. Internal trim for valves controlling water 99 degrees C (210 degrees F) or less shall be brass or bronze.

d. Non-metallic parts of hot water control valves shall be suitable for a minimum continuous operating temperature of 121 degrees C or 28 degrees C (250 degrees F or 50 degrees F) above the system design temperature, whichever is higher.

e. Valves 100 mm (4 inches) and larger shall be butterfly valves.

2.3.3 Actuator

2.3.3.1 Electric Actuators

Provide direct drive electric actuators for all control applications. When operated at rated voltage, each actuator shall be capable of delivering torque required for continuous uniform motion and shall have end switch to limit travel, or shall withstand continuous stalling without damage. Actuators shall function properly with range of 85 to 110 percent of line voltage. Provide gears of steel or copper alloy. Fiber or reinforced nylon gears may be used for torque less than 1.8 Newton meters (16 inch pounds). Provide hardened steel running shafts in sleeve bearing of copper alloy, hardened steel, nylon, or ball bearing. Provide two-position actuators of the single direction, spring return, or reversing type. Provide proportioning actuators capable of stopping at all points in the cycle and starting in either direction, from any point. Provide reversing and proportioning actuators with limit switches to limit travel in either direction unless operator is stall type. Actuators shall have a simple switch for reversing direction, and a button to disengage clutch for manual adjustments. Provide reversible shaded pole, split capacitor, synchronous, or steper type electric motors.

2.3.3.2 Pneumatic Actuators

Provide piston or diaphragm type actuator with full range or split range springs to provide required sequence specified and fail safe operation.

2.3.4 Output Signal Conversion

2.3.4.1 Electronic to Pneumatic Transducer

Electronic to pneumatic transducer shall convert 4 to 20 mA or 0 to 10 VDC digital controller output signal to a proportional 0 to 20 psig pressure signal (operator scaleable). Accuracy shall be 1.0 percent or better. Linearity shall be 0.1 percent. Transducer shall have feedback circuit that converts pneumatic signal to a proportional 4 to 20 mA or 0 to 10 VDC signal.

2.3.4.2 Pneumatic to Electronic Pressure Transducer

Pneumatic to electronic transducer shall convert 0 to 20 psig signal to a proportional 4 to 20 mA or 0 to 10 VDC signal (operator scaleable). Supply voltage shall be 24 VDC. Accuracy shall be 1.0 percent or better. Linearity shall be 0.1 percent.

2.3.5 Output Switches

2.3.5.1 Control Relays

Shall be double pole, double throw (DPDT), UL listed, with contacts rated to the application, indicator light, and dust proof enclosure. Light indicator is lit when coil is energized and is off when coil is not energized. Relays shall be socket type, plug into a fixed base, and replaceable without need of tools or removing wiring. Encapsulated "PAM" type relays are permissible for terminal control applications.

2.3.5.2 Solenoid Air Valves

Each valve shall have three port operation: common, normally open, and normally closed. Internal parts shall be brass, bronze, or stainless steel. Valves shall be rated at 344 kPa (50 psig) minimum when used in a control system operating at 172 kPa (25 psig) or less, or 1034 kPa (150 psig) when used in a control system operating in the range 172 to 689 kPa (25 to 100 psig).

2.4 ELECTRICAL POWER AND DISTRIBUTION

For control power provide a new, dedicated source 120 volts or less, 60 Hz, three wire (black, white, and green). Run green ground wire to panel ground; conduit grounds are not sufficient.

2.4.1 Transformers

Transformers shall conform to UL 506. Power digital controllers and terminal control units (TCU's) from dedicated circuit breakers with surge protection specified. Transformers for digital controllers serving terminal equipment on lower level LANs may be grouped to have specified surge protection sized for the number of controllers on a single transformer. Provide a fuse on the secondary side of the transformer.

2.4.2 Surge Protection

Surge and transient protection consist of devices installed externally to digital controllers.

2.4.2.1 Power Line Surge Protection

Surge suppressors external to digital controller, shall be installed on all incoming AC power. Surge suppressor shall be rated by UL 1449, have a fault indicating light, and have clamping voltage ratings below the following levels:

a. Unit is a transient voltage surge suppressor 120 VAC/1 phase/2 wire plus ground, hard wire individual equipment protector.

b. Unit must react within 5 nanoseconds and automatically reset.

c. Voltage protection threshold, line to neutral, starts at no more than 211 volts peak on the 120 VAC line.

d. The transient voltage surge suppressor must have an independent secondary stage equal to or greater than the primary stage joule rating.

e. The primary suppression system components must be pure Silicon Avalanche Diodes.

f. Silicon Avalanche Diodes or Metal Oxide Varistors are acceptable in the independent secondary suppression system.

g. The Transient Suppression System shall incorporate an indication light which denotes whether the primary and/or secondary transient protection components is/are functioning.

h. All system functions of the Transient Suppression System must be individually fused and not short circuit the AC power line at any time.

i. The Transient Suppression System shall incorporate an EMI/RFI noise filter with a minimum attenuation of 13 dB at 10 kHz to 300 MHz.

j. The system must comply with IEEE C62.41, Class "B" requirements and be tested according to IEEE C62.45.

k. The system shall operate at -20 to +50 degrees C (-4 to 122 degrees F).

2.4.2.2 Telephone and Communication Line Surge Protection

Provide transient surge protection to protect the DDC controllers and LAN related devices from surges that occur on the phone lines (modem or direct connect) and on inter-unit LAN communications. Devices shall be UL listed.

a. The surge protection shall be a rugged package with continuous, non-interrupting protection and not use crowbar technology. Instant automatic reset after safely eliminating transient surges, induced lightning, and other forms of transient over voltages.

b. Unit must react within 5 nanoseconds using only solid-state silicone avalanche technology.

c. Unit shall be installed at the proper distance as recommended by the manufacturer.

2.4.2.3 Controller Input/Output Protection

Controller input/output points shall surge protection with optical isolation, metal oxide varistors (MOV), or silicon avalanche devices. Fuses are not permitted for surge protection.

2.4.3 Wiring

Provide complete electric wiring for DDC System, including wiring to transformer primaries. Control circuit wiring shall not run in the same conduit as power wiring over 100 volts. Circuits operating at more than 100 Volts shall be in accordance with Section 16415 ELECTRICAL WORK, INTERIOR. Circuits operating at 100 Volts or less shall be defined as low voltage and shall be run in rigid or flexible conduit, metallic tubing, metal raceways or wire trays, armored cable, or multi-conductor cable. Provide circuit and wiring protection as required by NFPA 70. Aluminum-sheathed cable or aluminum conduit may be used but shall not be buried in concrete. Use conduit or plenum-rated cable in HVAC plenums. HVAC plenums include the space between a drop ceiling and the architectural ceiling, within walls, and within ductwork. Protect exposed wiring from abuse and damage.

2.4.3.1 AC Control Wiring

a. Control wiring for 24 V circuits shall be insulated copper 18 AWG minimum and rated for 300 VAC service.

b. Wiring for 120 V shall be 14 AWG minimum and rated for 600 V service.

2.4.3.2 Analog Signal Wiring

Analog signal wiring shall be 18 AWG single or multiple twisted pair. Each cable shall be 100 percent shielded, and have 20 AWG drain wire. Each wire shall have insulation rated to 300 V ac. Cables shall have an overall aluminum-polyester or tinned-copper (cable-shield tape). Install analog signal wiring in conduit separate from AC power circuits.

2.5 FIRE PROTECTION DEVICES

Provide smoke detectors in return and supply air ducts on downstream side of filters in accordance with NFPA 90A, except as otherwise indicated. Provide UL listed or FM approved detectors for duct installation.

2.5.1 Smoke Detectors

Provide in systems having air handling capacity over 944 l/s (2,000 cfm) in accordance with NFPA 90A. Design for detection of abnormal smoke densities by the ionization or photoelectric principle, responsive to both invisible and visible particles of combustion, and not susceptible to operation by changes to relative humidity. Provide UL listed or FM approved detectors for duct installation. Provide duct detectors with an approved duct housing, mounted exterior to duct, and with perforated sampling tubes extending across width of duct. Provide 115 V ac power supply unit integral with duct housing. Duct smoke detectors shall conform to the requirements of UL 268A. Duct smoke detectors shall have perforated sampling tubes extended into the air duct. Detector circuitry shall be mounted in a metallic enclosure exterior to the duct. Detectors shall have manual reset. Detectors shall be rated for air velocities that include air flows between 2.5 and 20 m/s. 500 and 4000 fpm. Detectors shall be powered from the HVAC control panel. Detectors shall have two sets of normally open alarm contacts and two sets of normally closed alarm contacts. Detectors shall be connected to the building fire alarm panel for alarm initiation. A remote annunciation lamp and accessible remote reset switch shall be provided for duct detectors that are mounted eight feet or more above the finished floor and for detectors that are not readily visible. Remote lamps and switches as well as the affected fan units shall be properly identified in etched rigid plastic placards. Detectors shall have test port or test switch. Provide each detector with a visible indicator lamp that lights when detector is activated. Activation of duct detector shall cause shutdown of associated air handling unit and closing of dampers and shall sound an alarm bell, minimum 6 inch diameter in a normally occupied area located as directed. Provide a separate bell for each air handling unit, with an engraved plastic or metal label indicating which unit each bell annunciates.

2.6 INDICATORS

2.6.1 Thermometers

2.6.2 Pressure Gages

a. Provide pressure gages for all pneumatic outputs. Select gage range so normal pressures are approximately equal to the midpoint readings on the scale, unless otherwise specified. Accuracy shall be plus or minus 2 percent of the range. Gages shall conform to ANSI/ASME B40.1.

b. Gages indicating pneumatic outputs shall have 2 inch diameter faces. Scale shall be 0 to 207 kPa (0 to 30 psi), with 7 kPa (1 psi) graduations.

c. Gages for low differential pressure measurements shall be 4 1/2 inch (nominal) size with two sets of pressure taps, and shall have a diaphragm actuated pointer, white dial with black figures, and pointer zero adjustment. Gage shall have ranges and graduations as

appropriate for the application, or as shown. Accuracy shall be plus or minus 2 percent of scale range.

2.7 PNEUMATIC POWER SUPPLY AND TUBING

2.7.1 Air Compressors

Provide tank mounted, duplex, electric motor driven, oil type, air cooled, reciprocating type air compressor including motor, controller, pressure switch, belt guard, pressure relief valve, and automatic moisture drain valve. Piston speed shall not exceed 137 meters/min (450 fpm). Set relief valve for 69 to 172 kPa (10 to 25 psig) above the control switch cut-off pressure. Pressure switch shall start compressor at 482 kPa (70 psig) and stop compressor at 620 kPa (90 psig). Size each compressor to run not more than 33 percent of the time with full system control load. Compressor shall have maintaining type starter for automatic restart after power failure. Provide duplex air compressors with electric alternator switch assembly. Motors 0.5 hp and larger shall be three-phase, 208 or 460-volt, 60 Hz.

2.7.2 Compressed Air Tank

Provide steel tank constructed and labeled in accordance with ASME BPVC SEC VIII for a minimum of 1378 kPa (200 psig) working pressure.

2.7.3 Intake Air Filter and Silencer

Provide dry-type combination intake air filter and silencer with baked enamel steel housing. Filter shall be 99 percent efficient at 10 micron rating.

2.7.4 Refrigerated Air Dryer

a. Provide a refrigerant dryer sized for continuous operation to reduce the compressed air dew point temperature, at 138 kPa (20 psig) output pressure, to 30 degrees F with average tank pressure of 551 kPa (80 psig) and ambient air temperature between 12.7 and 35 degrees C (55 and 95 degrees F). Provide dryer with an automatic condensate drain trap with a manual override feature. Provide refrigerant gages for suction lines.

b. Connect dryer in the high pressure piping between tank and pressure -reducing valve.

2.7.5 Compressed Air Discharge Filter

a. Provide dry type filter, 99 percent efficient in removing oil and solid particles at 0.03 micron rating, with baked enamel steel housing and manual drain valve. Provide visual indicator to show when oil filter element should be changed.

b. Provide disposable filter directly before each control module with pneumatic outputs. Disposable filter shall eliminate 99.99 percent of all liquid or solid contaminants 0.1 micron or larger. Provide filter with easy to remove fittings.

2.7.6 Air Pressure-Reducing Station

Provide pressure-reducing valve (PRV) with field adjustable range of 0 to 344 kPa (0 to 50 psig) discharge pressure, with inlet pressure of 483 to 620 kPa (70 to 90 psig). Provide factory-set pressure relief valve to relieve overpressure downstream of PRV exceeding 172 kPa (25 psig). Provide inlet pressure gage with range of 0 to 689 kPa (0 to 100 psig) and outlet pressure gage with range of 0 to

207 kPa (0 to 30 psig). For two pressure systems, provide an additional PRV and outlet pressure gage.

2.7.7 Pneumatic Tubing

2.7.7.1 Copper Tubing

Provide ASTM B 75 or ASTM B 88M (ASTM B 88) rated tubing. Tubing 9.52 mm (0.375 inch) outside diameter and larger shall have minimum wall thickness equal to ASTM B 88M (ASTM B 88), Type M. Tubing less than 9.52 (0.375 inch) outside diameter shall have minimum wall thickness of 0.635 mm (0.025 inch). Concealed tubing shall be hard or soft copper; multiple tubing shall be racked or bundled. Exposed tubing shall be hard copper; rack multiple tubing. Tubing for working pressures greater than 207 kPa (30 psig) shall be hard copper. Bundled tubing shall have each tube numbered each 1.82 meter (six feet) minimum. Racked and individual tubes shall be permanently identified at each end. Fittings shall be solder type ANSI B16.18 or ASME/ANSI B16.22, using ASTM B 32, 95-5 tin-antimony solder, or compression type ASME/ANSI B16.26.

2.7.7.2 Polyethylene Tubing

Provide flame-resistant, multiple polyethylene tubing in flame-resistant protective sheath, or unsheathed polyethylene tubing in rigid metal, intermediate metal, or electrical metallic tubing conduit for areas where tubing is exposed. Single, unsheathed, flame-resistant polyethylene tubing may be used where concealed in walls or above ceilings and within control panels. Provide polyethylene tubing only for working pressures of 207 kPa (30 psig) or less. Number each tube in sheathing each two feet minimum. Permanently identify unsheathed tubing at each end. Fittings shall be compression or barbed push-on type. Extruded seamless polyethylene tubing shall conform to the following:

a. Minimum Burst Pressure Requirements: 689 kPa at 23.8 degrees C (100 psig at 75 degrees F) to 172 kPa at 65.5 degrees C (25 psig at 150 degrees F);

b. Stress Crack Resistance: ASTM D 1693, 200 hours minimum;

c. Tensile Strength (Minimum): ASTM D 638, 7584 kPa (1100 psi);

d. Flow Rate (Average): ASTM D 1238, 0.30 decigram per minute; and

e. Density (Average): ASTM D 792, 920 kg/m3.

2.8 VARIABLE FREQUENCY 3 PHASE MOTOR DRIVES

The variable frequency drive (VFD) shall convert 208 or 460 volt (+/- 10%), three phase, 60 hertz (+/- 2Hz), utility grade power to adjustable voltage/frequency, three phase, AC power for stepless motor control from 5% to 105% of base speed.

2.8.1 Description

The variable frequency drive (VFD) shall produce an adjustable AC voltage/ frequency output for complete motor speed control. The VFD must meet all of the following criteria.

a. The VFD shall use sinecoded PWM technology. The sinecoded PWM calculations are performed by the VFD microprocessor.

b. The VFD shall use IGBT transistors for the inverter's three phase output.

c. The VFD shall use a three phase diode bridge converter to charge the VFD constant voltage capacitor buss.

d. The VFD shall have the ability for control by either a remote 4-20 mA or 0 to 10 VDC control signal or from a local control panel located on the VFD itself.

e. The VFD shall use microprocessor technology for VFD control. The VFD shall be programmable with a permanently mounted keypad included with each VFD.

f. The VFD shall be fully self diagnostic. No external programmers, analyzers, interrogators, or diagnostic boards, shall be needed to annunciate VFD faults or drive internal status.

2.8.2 Code Standards

VFD shall be UL listed as delivered to the end user. The VFD shall meet current National Electrical Code.

2.8.3 VFD Quality Assurance

To ensure quality, each and every VFD shall be subject to a series of in-plant quality controlled inspections before approval for shipment from the manufacture's facilities.

a. All components shall be tested prior to assembly and the complete unit shall be tested under full load conditions to ensure maximum product reliability.

b. The VFDs shall be the current standard production unit with at least 10 identical units already in the field.

c. Engineering support shall be available from the factory of the VFD. Phone support shall be free of charge to the end user for the life of the equipment. Factory support shall be available in the English language.

2.8.4 VFD Service

The VFD shall be supplied with:

a. 24 month parts and labor warranty. The warranty shall start when the system is accepted by the end user or 30 months from date of shipment.

b. Installation, operation, and troubleshooting guide(s).

c. A district service support group shall provide the following additional services:

(1) Factory trained personal on-site for start-up for up to one working day at no additional cost. Personnel shall be competent in operation and repair of the particular model of VFD that is installed.

(2) On-site training of customer personnel in basic installation, troubleshooting, and operation of VFDs at no additional cost. This training shall be conducted for up to 6 personnel at the installation site for a minimum of 4 hours.

2.8.5 Basic VFD Features

The VFD shall have the following basic features with no more then three separate internal electronic boards.

a. VFD mounted operator control keypad capable of:

(1) Remote/Local operator selection with password access.

(2) Run/Stop and manual speed commands.

(3) All programming functions.

(4) Scrolling through all display functions.

b. Digital display capable of indicating:

(1) VFD status.

(2) Frequency.

(3) RPM of motor.

(4) Phase current.

(5) Fault diagnostics in descriptive text.

(6) All programmed parameters.

c. Standard PI loop controller with input terminal for controlled variable and parameter settings made while inverter running.

d. User interface terminals for end-user remote control of VFD speed, speed feedback, and isolated form C SPDT relay energized on drive fault condition.

e. An isolated form C SPDT auxiliary relay energized on run command.

f. The VFD shall have a metal NEMA 1 enclosure.

g. The VFD shall have an adjustable carrier frequency with 16 KHz minimum upper limit.

h. The VFD shall have a built in or external line reactor with 3% minimum impedance to protect DC buss capacitors and rectifier section diodes.

2.8.6 Programmable Parameters

The VFD shall include the following operator programmable parameters:

a. Upper limit frequency.

b. Lower limit frequency.

c. Acceleration rate.

d. Deceleration rate.

e. Variable torque volts per Hertz curve.

f. Starting voltage level.

g. Starting frequency level.

h. Display speed scaling.

i. Enable/disable auto-restart feature.

j. Enable/disable softstall feature.

k. Motor overload level.

l. Motor stall level.

m. Jump frequency and hysteresis band.

n. PWM carrier frequency.

2.8.7 Protective Circuits and Features

a. An electronic adjustable inverse time current limit with consideration for additional heating of the motor at frequencies below 45Hz, for the protection of the motor.

b. An electronic adjustable soft stall feature, allowing the VFD to lower the frequency to a point were the motor will run at FLA when an overload condition exists at the requested frequency. The VFD will automatically return to the requested frequency when load condition permit.

c. The VFD will have a separate electronic stall at 110% VFD rated current and a separate hardware trip at 190% current.

d. The VFD shall have ground fault protection that protects output cables and motor from grounds during both starting and continuous running conditions.

e. The VFD shall have the ability to restart after the following faults:

(1) Overcurrent (drive or motor).

(2) Power outage.

(3) Phase loss.

(4) Overvoltage/Undervoltage.

e. The VFD shall restart into a rotating load without tripping or damaging the VFD or the motor.

f. The VFD shall keep a log of a minimum of four previous fault conditions, indicating type and time of occurrence in descriptive text.

g. The VFD shall be able to sustain 110% rated current for 60 sec.

h. The VFD shall respond to and record the following fault conditions:

(1) Over current (and have an indication if the over current was during acceleration, deceleration, or running).

(2) Overcurrent internal to the drive.

(3) Motor overload at start-up.

(4) Over voltage from the utility power.

(5) Motor running overload.

(6) Overvoltage during deceleration.

(7) VFD over heat.

(8) Load end ground fault.

(9) Abnormal parameters or data in VFD EEPROM.

2.8.8 Operational Conditions

The VFD shall be designed and constructed to operate within the following service conditions.

a. Ambient Temperature Range, -17.7 to 48.8 degrees C (0 to 120 deg. F).

b. Non-condensing relative humidity to 90%.

2.8.9 Available Options

Provide the following options:

a. RFI/EMI filters

b. RS232 or RS422/485 interface card with application software which can both control and monitor the VFD from a attached computer.

c. A manual bypass circuit and switch integral or external to the drive to allow drive bypass drive and operate at 100% speed. Overload fuses and other protective hardware shall remain in the circuit during bypass.

d. One set of spare parts per drive including: all replaceable circuit cards, power diode assemble, DC Buss capacitor, power output transistor assembly, all fuses, and all lights. Package parts individually for long term storage and clearly label contents.

PART 3 EXECUTION

3.1 INSTALLATION

Perform installation under supervision of competent technicians regularly employed in the installation of DDC systems.

3.1.1 Wiring Criteria

a. Input/output identification: Permanently label each field wire, cable, or pneumatic tube at each end with unique descriptive identification.

b. Rigid or flexible conduit shall be terminated at all sensors and output devices.

c. Surge Protection: Install surge protection per manufacturer's specification.

d. Grounding: Ground controllers and cabinets to a good earth ground. Ground controller to a ground in accordance with Section 16415 ELECTRICAL WORK, INTERIOR. Grounding of the green ac ground wire, at the breaker panel, alone is not adequate. Run metal conduit from controller panels to adequate building grounds. Ground sensor drain wire shields at controller end.

e. Contractor is responsible for correcting all associated ground loop problems.

d. Wiring in panel enclosures shall be run in covered wire track.

3.1.2 Digital Controllers

a. Do not divide control of a single mechanical system such as an air handling unit, boiler, chiller, or terminal equipment between two or more controllers. A single controller shall manage control functions for a single mechanical system. It is permissible, however, to manage more than one mechanical system with a single controller.

b. Provide digital control cabinets that protect digital controller electronics from dust, at locations shown on the drawings.

3.1.3 Temperature Sensors

Provide temperature sensors in locations to sense the appropriate condition. Provide sensor where they are easy to access and service without special tools. Calibrate sensors to accuracy specified. In no case will sensors designed for one application be installed for another application.

3.1.3.1 Room Temperature Sensors

Provide on interior walls to sense average room temperature conditions. Avoid locations near heat sources or which may be covered by office furniture. Room temperature sensors should not be mounted on exterior walls when other locations are available. Mount center of sensor at 5 feet above finished floor.

3.1.3.2 Duct Temperature Sensors

a. Provide sensors in ductwork in general locations as indicated. Select specific sensor location within duct to accurately sense appropriate air temperatures. Do not locate

sensors in dead air spaces or positions obstructed by ducts or equipment. Install gaskets between the sensor housing and duct wall. Seal duct and insulation penetrations.

b. String duct averaging sensors between two rigid supports in a serpentine position to sense average conditions. Insulate temperature sensing elements from supports. Provide hinged duct access doors to install averaging sensors if needed.

c. Locate freeze protection sensors in appropriate locations to sense lowest temperatures, to avoid potential problems with air stratification.

3.1.3.3 Immersion Temperature Sensors

Provide thermowells for sensors measuring temperatures in liquid applications or pressure vessels. Locate wells to sense continuous flow conditions. Do not install wells using extension couplings. Where piping diameters are smaller than the length of the wells, provide wells in piping at elbows to sense flow across entire area of well. Wells shall not restrict flow area to less than 70 percent of pipe area. Increase piping size as required to avoid restriction. Provide thermowells with thermal transmission material within the well.

3.1.3.4 Outside Air Temperature Sensors

Provide outside air temperature sensor in weatherproof enclosure on north side of the building, away from exhaust hoods, air intakes and other areas that may affect temperature readings. Provide sunshields to from direct sunlight.

3.1.4 Damper Actuators

Actuators shall not be mounted in the air stream.

3.1.5 Thermometers

Provide thermometers at locations indicated. Mount thermometers to allow reading when standing on the floor.

3.1.6 Pressure Sensors

3.1.6.1 Differential Pressure

a. Duct Static Pressure Sensing: Locate duct static pressure tip approximately two-thirds of distance from supply fan to end of duct with the greatest pressure drop.

b. Pumping Proof with Differential Pressure Switches: Install high pressure side between pump discharge and check valve.

c. Steam Pressure Sensing: Install snubbers and isolation valves on steam pressure sensing applications.

3.1.7 Pressure Gages

Pneumatic output lines shall have pressure gages mounted near the digital controllers.

3.1.8 Pneumatic Tubing

Run concealed tubing in finished areas, and run exposed tubing in unfinished areas such as mechanical equipment rooms. For tubing to be enclosed in concrete, provide rigid metal conduit or intermediate metal conduit. Provide tubing parallel and perpendicular to building walls throughout. Maximum spacing between tubing supports shall be 1.5 meters (5 feet). With the compressor turned off, test each tubing system pneumatically at 1.5 times the working pressure, with a maximum pressure drop of 7 kPa (1 psig). Correct leaks. Caulking of joints will not be permitted. Do not run tubing and electrical power conductors in the same conduit.

3.1.9 Control Drawings

a. Post laminated copies of as-built control system drawings in each mechanical room.

b. Provide 3 sets of as-built control drawings to the Contracting Officer.

3.2 TEST AND BALANCE SUPPORT

Controls contractor will coordinate with and provide full time on-site technical support to test and balance (TAB) personnel specified under Section 15990 TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS or any other documents in the project specification. This support shall include:

a. On-site operation of control systems for proper operating modes during all phases of balancing and testing.

b. Control setpoint adjustments for proper balancing of all relevant mechanical systems, including VAV boxes.

c. Setting all control loops with setpoints and adjustments determined by TAB personnel.

3.3 FIELD QUALITY CONTROL

3.3.1 General

a. Demonstrate compliance of the heating, ventilating, and air conditioning control system with the contract documents. Furnish personnel, equipment, instrumentation, and supplies necessary to perform calibration and site testing. Ensure that test personnel are regularly employed in the testing and calibration of DDC systems.

b. Testing will include the field tests and the performance verification tests. Field tests shall demonstrate proper calibration of input and output devices, and the operation of specific equipment. Performance verification test shall ensure proper execution of the sequence of operation and proper tuning of control loops.

c. Obtain approval of the field test plan and performance verification test play for each phase of testing before beginning that phase of testing. Give to the Contracting Officer written notification of planned testing at least 30 days prior to test. Notification shall be accompanied by the proposed test procedures. In no case will the Contractor be allowed to start testing without written Government approval of field test plan and performance verification test plan.

d. Before scheduling the performance verification test, furnish field test documentation and written Certified Statement of Field Test Completion to the Contracting Officer for approval. The statement, certified by the DDC system provider, states that the installed system has

been calibrated, tested, and is ready for the performance verification test. Do not start the performance verification test prior to receiving written permission from the Government.

e. Tests are subject to oversight and approval by the Contracting Officer. The testing shall not be run during scheduled seasonal off-periods of heating and cooling systems.

3.3.2 Test Reporting for Field Testing and Performance Verification Tests

a. During and after completion of the Field Tests, and again after the Performance Verification Tests, identify, determine causes, replace, repair or calibrate equipment that fails to meet the specification, and submit a written report to the Government.

b. Document all tests with detailed test results. Explain in detail the nature of each failure and corrective action taken. Provide a written report containing test documentation after the Field Tests and again after the Performance Verification Tests. Convene a test review meeting at the job site to present the results to the Government. As part of this test review meeting, demonstrate by performing all portions of the field tests or performance verification test that each failure has been corrected. Based on the report and test review meeting, the Government will determine either the restart point or successful completion of testing. Do not retest until after receipt of written notification by the Government. At the conclusion of retest, assessment will be repeated.

3.3.3 Contractor's Field Tests

Field tests shall include the following:

3.3.3.1 System Inspection

Observe the HVAC system in its shutdown condition. Check dampers and valves for proper normal positions. Document each position for the test report.

3.3.3.2 Calibration Accuracy and Operation of Inputs Test

Verify correct calibration and operation of input instruments. For each sensor and transmitter, including those for temperature, pressure, humidity, and air quality, record the reading at the sensor or transmitter location using calibrated test equipment. On the same table, record the corresponding reading at the digital controller for the test report. The test equipment shall have been calibrated within one year of use. Test equipment calibration shall be traceable to the measurement standards of the National Institute of Standards and Technology.

3.3.3.3 Actuator Range Adjustment Test

With the digital controller, apply a control signal to each actuator and verify that the actuator operates properly from its normal position to full range of stroke position. Record actual spring ranges and normal positions for all modulating control valves and dampers. Include documentation in the test report.

3.3.3.4 Digital Controller Startup and Memory Test

Demonstrate that programming is not lost after a power failure, and digital controllers automatically resume proper control after a power failure.

3.3.3.5 Surge Protection Test

Show that surge protection, meeting the requirements of this specification, has been installed on incoming power to the digital controllers and on communications lines.

3.3.3.6 Application Software Operation Test

Test compliance of the application software for:

a. Ability to communicate with the digital controllers, uploading and downloading of control programs

b. Text editing program: Demonstrate the ability to edit the control program off line.

c. Reporting of alarm conditions: Force alarms conditions for each alarm, and ensure that workstation receives alarms.

d. Reporting trend and status reports: Demonstrate ability of software to receive and save trend and status reports.

3.3.4 Performance Verification Tests

Conduct the performance verification tests to demonstrate control system maintains setpoints, control loops are tuned, and controllers are programmed for the correct sequence of operation. Conduct performance verification test during seven days of continuous HVAC and DDC systems operation and before final acceptance of work. Specifically the performance verification test shall demonstrate the following:

3.3.4.1 Execution of Sequence of Operation

Demonstrate the HVAC system operates properly through the complete sequence of operation, for example seasonal, occupied/unoccupied, and warm-up. Demonstrate proper control system response for abnormal conditions by simulating these conditions. Demonstrate hardware interlocks and safeties work. Demonstrate the control system performs the correct sequence of control after a loss of power.

3.3.4.2 Control Loop Stability and Accuracy

Furnish the Government graphed trends of control loops to demonstrate the control loop is stable and that setpoint is maintained. Control loop response shall respond to setpoint changes and stabilize in 3 minutes. Control loop trend data shall be real time and the time between data points shall not be greater than one minute. The contractor shall provide a printer, either the project printer or temporary, at the job site for printing graphed trends. The printer shall remain on the job site throughout Performance Verification Testing to allow printing trends.

3.4 TRAINING

Submit a training course schedule, syllabus, and training materials 14 days prior to the start of training. Furnish a qualified instructor to conduct training courses for designated personnel in the maintenance and operation of the HVAC and DDC system. Orient training to the specific system being installed under this contract. Use operation and maintenance manual as the primary instructional aid in contractor provided activity personnel training. Base training on the Operations and Maintenance manuals and a DDC training manual. Manuals shall be delivered for each trainee with two additional sets delivered for archiving at the project site. Training manuals shall include an agenda, defined objectives and a detailed description of the subject matter for each lesson. Furnish audio-visual

equipment and all other training materials and supplies. A training day is defined as 8 hours of classroom or lab instruction, including two 15 minute breaks and excluding lunch time, Monday through Friday, during the daytime shift in effect at the training facility. For guidance, the Contractor should assume the attendees will have a high school education and are familiar with HVAC systems.

3.4.1 DDC Training Phase I

The first class shall be taught for a period of 2 consecutive training days at least 2 weeks prior to the scheduled Performance Verification Test. The first course shall be taught in a government provided facility on base. Training shall be classroom, but have hands-on operation of similar digital controllers. A maximum of 8 personnel will attend this course. Upon completion of this course, each student, using appropriate documentation, should be able to perform elementary operations, with guidance, and describe the general hardware architecture and functionality of the system. This course shall include but not be limited to:

a. Theory of operation

b. Hardware architecture

c. Operation of the system

d. Operator commands

e. Control sequence programming

f. Data base entry

g. Reports and logs

h. Alarm reports

i. Diagnostics

3.4.2 DDC Training Phase II

The second course shall be taught in the field, using the operating equipment at the project sites for a total of 2 consecutive days. A maximum of 8 personnel will attend the course. The course shall consist of hands-on training under the constant monitoring of the instructor. Course content should duplicate DDC Training Phase I course as applied to the installed system. The instructor shall determine the level of the password to be issued to each student before each session. Upon completion of this course, students should be fully proficient in the operation of each system function.

END OF SECTION

APPENDIX A
GEOTECHNICAL REPORT

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IBCT (Initial Brigade Combat Team) BRIGADE VEHICLE MAINTENANCE COMPLEX
FORT LEWIS, WASHINGTON

PROJECT NO. 54068 & 54113

FINAL
GEOTECHNICAL REPORT

22 JANUARY 2001

PREPARED BY

CIVIL/SOILS SECTION, DESIGN BRANCH
SEATTLE DISTRICT, U.S. ARMY CORPS OF ENGINEERS

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CENWS-EC-DB-CS 22 January 2001

IBCT Brigade Vehicle Maintenance Complex
Fort Lewis, Washington
PN 54068 & 54113

1. General. This project consists of constructing a new tactical vehicle maintenance shops for organizational maintenance for two Infantry Battalions of the Initial Brigade. Project features include a equipment storage facility, organizational vehicle parking area, and sentry station. Other project features include utilities connections, fencing, and site improvements.

2. Foundation Exploration. Subsurface exploration was conducted between 29 November 2000 and 3 January 2001 by the Seattle District, U. S. Army Corps of Engineers. The exploration was conducted in three phases and a total of two hundred thirty-two backhoe exploration test holes (00-BH-900 thru 931, 933-954, 956-997, 1100-1191; 01-BH-1192 thru 1236) were dug to a depths ranging from 305 mm to 3000 mm using a John Deere backhoe, Model 410E. Exploration logs and locations of exploration are shown on plates GT-1 through GT-11. Soils were visually classified in accordance with the "Unified Soil Classification System" (ASTM D 2487). The foundation exploration plan was extended beyond this initial project to include out year adjacent projects in this site complex.

3. Site Conditions.

a. Regional Geology. The site lies on a broad upland drift plain in the southern part of the Puget Sound Basin. The upland separates the main body of Puget Sound on the west from a complex of old (Pleistocene) ice marginal stream channels on the east. The upland is underlain by deposits from the latest Pleistocene (Vashon) glaciation which ended about 12,000 years ago. The thickness of unlithified Pleistocene sediments beneath the Puget Sound Basin is generally in excess of 305 meters and reaches approximately 610 meters in the vicinity of the site. The low relief upland surface slopes gently westward with maximum elevations decreasing from 213 meters on the east to 92 meters on the west. The central and western portions of the upland are characterized by an extensive series of broad glacial meltwater channels cut about 30 meters into the general upland surface and mantled by a thin veneer of latest outwash gravel (Steilacoom gravel) deposited in braided channels as melting of ice from the upland permitted rapid discharge of glacial Lake Puyallup, on the east, across the upland surface toward the depression of Puget Sound. The gravels in these channels contain an extensive, shallow, unconfined aquifer, manifest in a number of large lakes and

peat-filled former lakes. Kettles within these channels attest to the original incorporation of ice blocks within the gravel deposits.

b. Site Geology and Foundation Conditions. The site lies on a glacial outwash plain underlain by sand and gravel. In general, subsurface site conditions generally consist of a surficial layer of loose to compact, black organic silty gravel (GM) underlain to considerable depth by clean gravels and sands with varying amounts of cobbles to 305 mm in diameter and an occasional boulder to 406 mm in diameter. The relative density of the gravels and sands generally increases with depth. At the site, the surficial organic-rich gravels (GM) range in depth from 100 mm to 1800 mm with an average depth of about 500 mm (refer to the specific exploration logs). Groundwater was not encountered in any of the exploration test holes and typically can be found within 6 meters from the ground surface. Groundwater typically fluctuates about 1.5 to 2 meters seasonally.

c. Earthquake History. Reference: Draft TI 809-04/AFMAN 32-1149 V1 (I), Seismic Design for Buildings, May 1998. From Table 3-1, Site Classification, based on soil types and shear wave velocies from similar soils on the base, a site classification of C is recommended for design.

d. Environmental History. Visual or olfactory evidence of hazardous materials was not observed during the subsurface exploration. If any suspected hazardous material is found during the performance of this job, all work will stop and the Corps of Engineers inspector and the Base Environmental Office will be notified immediately.

4. Recommendations for Foundation Design.

a. Site Preparation. Black organic-rich gravels (GM) overlie the project site. The capacity of these soils to adequately support the structures and pavements over a long-term period is of concern. The exploration logs indicate that the depth of these potentially unsatifactory soils (black GM) extend up to 1.8 meters (see specific exploration logs for depths and locations). To minimize the effects of possible long term problems with differential settlement due to organic decomposition, all of the unsatisfactory materials (black GM) under buildings and structures with footings shall be excavated and replaced with satisfactory fill material. Under new pavements except sidewalks, the unsatisfactory materials (black GM) shall be removed up to a maximum depth of 750 mm measured from the top of the subgrade and replaced with satisfactory fill material. Approximate limits of unsatisfactory materials are shown on exploration logs. For each 300 mm of overexcavated depth below footings, increase footing trench width by 300 mm. Replace excavated material with clean gravels compacted to at least 95 percent of maximum modified Proctor density. Fills shall be placed in 225 mm lifts with maximum particle size of 150 mm; however, occasional cobbles having sizes up to but not exceeding the lift thickness will be permitted provided that there are no pockets, lenses, or concentrations of stone. Where such pockets, lenses, or concentrations of stone exist, they shall be removed and replaced at the contractor's expense.

b. Soil Properties. We recommend the following soil properties for use in design analysis: ? = 35 degrees, cohesion = 0, moist unit weight = 2170 kilograms per cubic meter.

c. Footing and Slab Design. Footings shall be placed a minimum of 450 mm below finished grade for frost protection. Computations based on Terzaghi bearing capacity factors, using the above soil properties, indicate an allowable bearing capacity of slightly more than 192 kilopascals (kPa) for footings at the design frost depth. We therefore recommend that footings be designed for a net allowable bearing capacity of 192 kPa dead load plus live load with one-third overstress allowed for temporary dynamic loads on the compacted gravel or the natural sandy gravel foundation. Except as otherwise specifically approved, slabs-on-grade shall not bear directly on footings or pedestals and shall not be tied to footings or pedestals. A capillary water barrier, consisting of a 150 mm-minimum thickness of free draining granular material, and a vapor barrier shall be provided beneath all interior slabs-on-grade. This will also serve as a cushion where the slabs pass over footings or grade beams.

d. Earth Pressure Coefficients. For gravelly backfill material with assigned angle of internal friction of 35 degrees, theoretical earth pressure coefficients for active (K_a), at rest (K_o), and passive (K_p) conditions are .27, .45, and 3.7, respectively. These coefficients are valid only for frictionless, vertical walls with horizontal backfill. For walls designed for other conditions, appropriate revisions of these coefficients must be made. Wall movements of at least .005H (H = wall height) are required to reduce wall pressures to active condition. Very stiff or internally braced walls for which movements less than .005H are anticipated should be designed for K_o condition or appropriate braced cut criteria. A relatively large wall movement is required to develop full passive earth pressure. For this reason, $K_p = 2.0$ is recommended for general design use. For static conditions, all walls should have a safety factor of at least 2.0.

e. Underground Utilities. All frost susceptible utility lines shall be placed with top of pipe at least 450 mm below ground surface in open areas for frost protection and 900 mm below ground surface under traffic areas for strength requirements. Alternatively, pipe placed at depths less than 900 mm under traffic areas shall be designed for the anticipated loads, except in no case shall the top of pipe be less than 450 mm below ground surface. In situ earth resistivity measurements taken in similar soils at other areas on the base indicate very high resistivity in excess of 500,000 ohm-cm, which is indicative of soils of unlikely corrosion activity. Materials in this area are generally relatively uniform clean gravels, with the water table below the level of utilities. Corrosion of utilities in this area has reportedly not been a significant problem.

f. Earth Resistivity Measurements and Electrical Grounding System. Due to known high resistivity soil conditions as previously mentioned in paragraph 4.e. above, obtaining lower ground

resistance values has been a problem at Fort Lewis. In the past, designers have used electrolytic grounding systems, extensive use of copper conductors, and other such methods at Fort Lewis.

5. Recommended Construction and Drainage Considerations.

a. Grades of at least 1 percent and preferably 5 percent, to promote drainage of water away from the structure, shall be provided around the perimeter of the structure.

b. Runoff from roofs shall be directed away from the structure by downspouts and storm drains or surface channels.

c. Walks and pavements adjacent to the structure shall be positively sloped away from the structure.

d. The site shall be prepared to avoid ponding of water in low areas. Sumps and pumps shall be provided at the bottom of excavations, if necessary, to remove rainwater or surface drainage which has entered the excavation.

6. Recommendations for Pavement Design. Pavements for this facility will accommodate various wheeled vehicles both organizational and privately-owned. The new initial Brigade Battalion's tactical vehicle is the Light Armored Vehicle III (LAV III). This vehicle has a gross vehicle weight of 37,795 pounds (combat weight) on 4 axles/8tires configuration. Other vehicles in the brigade compliment are unkown at this time. The LAV III shall be used for design of vehicle pavements. Each brigade will have approximately 310 LAV III in the inventory.

Pavements shall consist of asphaltic concrete (AC) accesss roads, storage areas, and parking areas. Portland cement concrete (PCC) hardstand will be situated around the building. Sidewalks shall be PCC. These designs assume that the subgrade shall consist of the in-situ sandy soils or granular backfill materials. Removal of unsatisfactory materials consisting of black, organic-rich silty gravels (GM) shall be restricted to a maximum depth of 750 mm measured from the top of the subgrade.

Note: The pavement design technical manuals (TM 5-822-5) are not in a metric format, therefore non-metric units will be used to determine the required pavement thicknesses. The recommended pavement thickness will be in metric units.

a. Conventional PCC Access Hardstand. The design assumptions are as follows:

(a) Category IVA traffic. (more than 25% truck traffic).

(b) Class E pavement

(c) K, modulus of subgrade reaction of 350 pounds per square inch per inch (p.s.i./in.)

(d) Subbase - CBR 40

(e) Base - CBR 80

(f) fs, flexural strength of concrete, 600 p.s.i. at 28 days age

From TM 5-822-5 (Table 3-1, Pavement Design Index), a design index of 5 is obtained for a Category IVA traffic and Class E road. From Figure 9-1. for a base course thickness of 4 inches, the effective k at the top of the base coure is 370 p.s.i/inch. From Figure 12-1 (Design Curves for Plain Concrete Roads and Streets), for a flexural strength of 600, an effective k of 370, and a design index of 5, the required PCC thickness is 6.5 inches. The recommended section shall consist of 6.5 inches of PCC and 4 inches of base course. The metric equivalent is 165 mm of PCC placed on 100 mm of base course.

b. Asphaltic Concrete Pavement Hardstand Storage and Access Roads for Organizational Vehicles (Trucks). The design is based upon the following assumptions:

(1) Category IVA Traffic (more than 25% multi-axle truck traffic)

(2) Class E road

(3) Subgrade - CBR 30

(4) Base - CBR 80

From TM 5-822-5 (Table 3-1, Pavement Design Index), a design index of 5 is obtained for a Category IVA traffic and Class E road. From Figure 8-1, for a subgrade CBR of 30 and design index of 5, the total pavement section thickness required is 3.5 inches. The minimum recommended pavement section for a Design Index of 5 (Table 6-1) is 2.5 inches of AC and 4 inches of base course. The recommended pavement section shall consist of 65 mm of AC pavement and 100 mm inches of base course.

c. Asphaltic Concrete Pavement Parking Area for Privately-owned Vehicles and Visitors. The design is based upon the following assumptions:

(1) Category I Traffic.(up to two axle trucks)

(2) Class F road

(3) Subgrade - CBR 30

(4) Base - CBR 80

From TM 5-822-5 (Table 3-1, Pavement Design Index), a design index of 1 is obtained for a Category I traffic and Class F road. From Figure 8-1, for a subgrade CBR of 30 and design index of 1, the total pavement section thickness required is 2.2 inches. The minimum recommended pavement section is 2 inches for constructibility. The recommended pavement section shall consist of 50 mm of AC pavement and 100 mm inches of base course.

d. Compaction Requirements. The base course shall be compacted to at least 100 percent of the maximum modified Proctor density. The top 150 mm of the subgrade shall be compacted to at least 90 percent of the maximum modified Proctor density for cohesive materials and 95 percent of the maximum modified Proctor density for cohesionless materials.

e. Portland Cement Concrete Sidewalks. This pavement is designed in accordance with paragraph 12-6, TM 5-822-5. The pavement section shall be 100 mm of PCC on 100 mm of base course. The base course shall be compacted to at least 95 percent of the maximum modified Proctor density. The top 6 inches of the subgrade shall be compacted to 90 percent of the maximum modified Proctor density. Compressive strength shall be 24.1 megapascals (MPa) at 28 days age.

7. Recommendations for Floor Slab Design. The design of the floor slab shall be according to the requirements of TM 5-809-12, "Concrete Floor Slabs on Grade Subjected to Heavy Loads," where applicable.

8. Location of Borrow. Borrow areas are not available on the Fort. The Contractor shall be responsible for obtaining borrow materials from sources outside the limits of Government-controlled land.

9. Disposal Areas. Disposal areas are not available on the Fort. The Contractor shall be responsible for disposal of all materials off the Fort.

10. Preparation of Plans and Specifications. The guide specifications listed below shall be used as the basis for preparation of technical sections of the specifications. Full consideration shall be given to notes at the end of these specifications in marking and altering the wording of the requirements to conform to conditions of this particular project. The technical manuals referenced below shall also be reviewed for information relative to preparation of plans and specifications. Guide specifications can be accessed from the Seattle District Public Home Page: http://www.nws.usace.army.mil.

a. Guide Specifications.

(1) CEGS 02220, DEMOLITION.

(2) CEGS 02230, CLEARING AND GRUBBING.

(3) CEGS, 02300, EARTHWORK.

(4) CEGS 02315, EXCAVATION, FILLING, AND BACKFILLING FOR BUILDINGS.

(5) CEGS 02316, EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS.

(6) CEGS 02722, AGGREGATE AND/OR GRAED-CRUSHED AGGREGATE BASE COURSE.

(7) CEGS 02753, CONCRETE PAVEMENTS FOR SMALL PROJECTS.

(8) CEGS 02770, CONCRETE SIDEWALKS AND CURBS AND GUTTERS.

(9) CEGS 02741, BITUMINOUS PAVING FOR ROADS, STREETS, AND OPEN STORAGE AREAS.

(10) CEGS 02763, PAVEMENT MARKINGS.

(11) CEGS 03100, STRUCTURAL CONCRETE FORMWORK.

(12) CEGS 03150, EXPANSION JOINTS, CONTRACTION JOINTS, AND WATERSTOPS.

(13) CEGS 03200, CONCRETE REINFORCEMENT.

(14) CEGS 03300, CAST-IN-PLACE STRUCTURAL CONCRETE.

(15) CEGS 03330, CAST-IN-PLACE ARCHITECTURAL CONCRETE, if required.

(16) CEGS MASONRY, if required.

b. References.

(1) TM 5-742, Concrete and Masonry.

(2) TM 5-805-1, Standard Practice for Concrete for Military Structures.

(3) TM 5-809-1/AFM 88-3, Chap. 1, Load Assumptions for Buildings.

(4) TM 5-809-2/AFM 88-3, Chapter 2, Concrete and Structural Design for Buildings.

(5) TM 5-809-3/AFM 88-3, Masonry Structural Design for Buildings.

(6) Draft TI 809-04/AFMAN 32-1149 V1 (I), Seismic Design for Buildings, May 1998.

(7) TM 5-809-12/AFM 88-3, Chapter 15, Concrete Floor Slabs on Grade Subjected to Heavy Loads.

(8) TM 5-813-1/AFM 88-10, Chapter 5, Water Distribution Systems.

(9) TM 5-814-1/AFM 88-11, Chapter 1, Sanitary and Industrial Waste Sewers.

(10) TM 5-818-1, Procedures for Foundation Design of Buildings and Other Structures (Except Hydraulic Structures).

(11) TM 5-822-2/AFM 88-7, Chapter 5, General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas.

(12) TM 5-822-5/AFM 88-7, Chapter 1, Pavement Design for Roads, Streets, Walks, and Open Storage Areas.

(13) TM 5-822-7/AFM 88-6, Chapter 8, Standard Practice for Concrete Pavements.

(14) TM 5-822-8, Bituminous Pavements - Standard Practice.

APPENDIX B

CONCEPTUAL DRAWINGS

(See separately attached conceptual drawings.)

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INDEX OF DRAWINGS

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FT. LEWIS, WA
PN 54068 & 54113

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46	E-11	Detail II	A	3 APR 2002
47	E-12	Detail III	A	3 APR 2002

REVISIONS TO DRAWINGS BY NOTATION

Drawing, Sheet C-2: Delete propane line. Delete "Existing Propane Line" and "Point of Connection to Existing Line."

Drawing, Sheet C-5: Add Note 5, to read, "Components within a fenced area define the scope of work for the respective Bid Item."

Drawing, Sheet C-6: Add Note 5, to read, "Components within a fenced area define the scope of work for the respective Bid Item."

Drawing, Sheet C-7: Delete propane line. Delete "Existing Propane Line" and "Point of Connection to Existing Line."

Drawing, Sheet C-8: Show 200mm force main (FM) to extend from Plate C-7 matchline, to terminate at sanitary lift station, at the outlet of oil/water separator.

Drawing, Sheet A-8: In Detail at Eave, change Rigid Insulation to R-30, min.

Drawing, Sheet A-9: In CMU Wall Section, delete "(R-7)" from rigid insulation callout.

STANDARD DETAILS BOUND IN THE SPECIFICATIONS

DRAWING NUMBER	SHEET NUMBER	TITLE	DATE
SECTION 01501 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS			
	1 & 2	U.S. Air Force Project Construction Sign	84JUN20
	1	Hard Hat Sign	10SEP90

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APPENDIX C

Interim Department of Defense Antiterrorism/Force Protection Construction Standards

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Interim Department of Defense Antiterrorism/Force Protection Construction Standards

December 16, 1999

Deputy Under Secretary of Defense for Installations

FOR OFFICIAL USE ONLY

FOREWORD

This document is issued under the authority of DoD Instruction Number 0-2000.16, "DoD Combating Terrorism Program Standards," May 10, 1999. DoD Instruction 0-2000.16 established DoD Standard 20, which requires the development of antiterrorism/force protection guidelines for new construction. This interim standard implements the requirement to provide guidance for the minimum construction requirements that should be incorporated into all inhabited new construction and major renovations funded under the Military Construction (MILCON) appropriation.

This document applies to the Office of the Secretary of Defense (OSD); the Military Departments (including their National guard and Reserve components); the Chairman, Joint Chiefs of Staff and Joint Staff; the Combatant Commands; and the Defense Agencies (hereafter referred to collectively as "DoD Components").

This document is effective immediately and is mandatory for use by all the DoD Components.

Send recommended changes to this document to:

Office of the Under Secretary of Defense for Installations
Attn: Chairman, Security Engineering Working Group
3340 Defense Pentagon, Room 3E1074
Washington, DC 20301-3340

The DoD Components may obtain copies of this document through the U.S. Army Engineer District, Omaha, ATTN: CENWO-ED-ST, 215 North 17th Street, Omaha, NE 68102-4978.
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Other Federal Agencies may obtain copies from Department of the Army, U.S. Army Corps of Engineers, ATTN: CEMP-ET, Washington, DC 20314-1000.

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FIGURES

TABLES

REFERENCES

(a) DoD Directive 5200.8R, "Physical Security Program," May, 1991.
(b) DoD Instruction 2000.16, "DoD Combating Terrorism Program Standards," with Change 1, May 10, 1999.
(c) FMR, Part 7000.14R, "DoD Financial Management Regulation," April 1998.
(d) Technical Manual 5-853-1/Air Force Manual 32-1071, Volume 1, Security Engineering - Project Development (For Official Use Only), May 1994.
(e) Technical Manual 5-853-2/Air Force Manual 32-1071, Volume 2, Security Engineering - Concept Design (For Official Use Only), May 1994.
(f) Technical Manual 5-853-3/Air Force Manual 32-1071, Volume 3, Security Engineering - Final Design (For Official Use Only), May 1994.
(g) Technical Instruction 809-4, Seismic Design for Buildings, December 1998.
(h) Military Handbook 1013/1A, "Design Guidelines for Physical Security of Facilities," June 28, 1993.
(i) User's Guide UG-2031-SHR, "User's Guide on Protection Against Terrorist Vehicle Bombs," June 1998.
(j) User's Guide UG-2030-SHR, "User's Guide on Security Glazing Applications," June 1998.
(k) U.S. Army Corps of Engineers Engineer Technical Letter 1110-3-498, "Design of Collective Protection Shelters to Resist Chemical, Biological, and Radiological (CBR) Agents," February 24, 1999.
(l) U.S. Central Command Operations Order (OPORD) 97-01A, Appendix 2 to Annex C, Construction Standards (Secret), April 15, 1999.
(m) U.S. European Command Antiterrorism/Force Protection Operations Order 99-01, Appendix 1 to Annex D, Force Protection Design Standards (For Official Use Only), May 18, 1999.
(n) U.S. Pacific Command Antiterrorism Operations Order 5050-99, Tab B to Appendix 1 to Annex M, Construction Standards, February 10, 1999.
(o) U.S. Southern Command Regulation 380-16, Appendix G, Military Construction Considerations, September 9, 1998.

DL1. DEFINITIONS

DL1.1. Terms used in this Manual are defined below:

DL1.1.1. Active Vehicle Barrier. A vehicle barrier which must be manually or automatically deployed in response to detection of a threat.

DL1.1.2. Aggressor. Any person seeking to compromise an asset. Aggressor categories include protesters, criminals, terrorists, and subversives.

DL1.1.3. Annealed Glass. The most common form of glass available. Depending on manufacturing techniques, it is also known as plate, float, or sheet glass.

DL1.1.4. Asset. A resource requiring protection. For this interim standard, the asset is limited to people.

DL1.1.5. Conventional Construction. Building construction including doors, windows, or manufacturers' components which is not designed to resist tools, weapons, or explosives but is designed to resist common environmental conditions.

DL1.1.6. DoD Personnel. Any U.S. military, DoD civilian, or family member.

DL1.1.7. Exclusive Standoff Zone. A controlled area surrounding a structure into which only service and delivery vehicles are allowed. The perimeter of this area is defined by perimeter barriers and is set at a standoff distance sufficient to reduce the blast effects of vehicle bomb detonations on the protected structure.

DL1.1.8. Facility. Any single building, project, or site.

DL1.1.9. Fragment Retention Film. A thin optically clear film applied to glass to minimize the spread of glass fragments when the glass is shattered. The film may also be treated with reflective coatings to provide obscuration.

DL1.1.10. Glazing. Glass, plastic, or composite sheets used in windows.

DL1.1.11. Inhabited Structure. Structures intended to be occupied by DoD personnel with a personnel density of greater than one person per 400 square feet. This density generally excludes industrial and storage facilities. This does not include guard type facilities, single and duplex detached family housing. It may include portions of structures in which not all areas have such population densities.

DL1.1.12. Laminated Glass. Two or more individual sheets of glass bonded together by a polyvinyl butyral (PVB) plastic interlayer.

DL1.1.13. Level of Protection. The degree to which an asset is protected against a tactic based on the asset's value. Levels of protection refer to the amount of damage a structure is allowed to sustain or the probability that an aggressor will be defeated by the protective system. Specific levels of protection are associated with each tactic.

DL1.1.14. Major Renovation. Modifications to buildings that cost in excess of 50 percent of the replacement cost of the building.

DL1.1.15. Minimum Standards. Protective measures to be applied to all inhabited structures or billeting or primary gathering structures regardless of the identified threat. These measures provide a degree of protection that will not preclude direct effects of blast, but will minimize collateral damage of buildings and people and will limit progressive collapse of structures. They add relatively little additional cost. and they may also facilitate future upgrades and deter acts of aggression.

DL1.1.16. Nonexclusive Standoff Zone. A controlled area used in conjunction with an exclusive standoff zone which provides less restrictive land use than an exclusive standoff zone. Cars (but not trucks) may be granted uncontrolled access to a nonexclusive standoff zone. The nonexclusive standoff zone perimeter is defined by barriers and set at a standoff distance sufficient to reduce the blast effects of a truck bomb detonation on the protected structure.

DL1.1.17. Passive Vehicle Barrier. Any perimeter barrier that serves the function of arresting or impeding vehicular movement and that is non-movable.

DL1.1.18. Perimeter Barrier. A fence, wall, passive vehicle barrier, landform, or line of vegetation applied along an exterior perimeter used to obscure vision, hinder personnel access, or hinder or prevent vehicle access.

DL1.1.19. Permanent Structure. All structures intended for use by DoD personnel for more than three years. They are normally, but not exclusively, structures designed with masonry exteriors.

DL1.1.20. Planning Team. The team responsible for criteria development on a project and for generating all of the necessary programming documents. The installation project planning team typically consists of a facilities planner, and representatives from security forces, force protection, intelligence, logistics, operations, and the facility user.

DL1.1.21. Primary Gathering Structures. A subset of inhabited structures in which 50 or more DoD personnel routinely gather (e.g., office buildings, and indoor recreation facilities).

DL1.1.22. Protective Measures. Elements of a protective system which protect an asset against a threat. Protective measures are divided into defensive and detection measures.

DL1.1.23. Protective System. An integration of all of the protective measures required to protect an asset against the range of threats applicable to the asset.

DL1.1.24. Standoff Distance. A distance maintained between a structure or inhabited portion of a structure and the potential location for an explosives detonation to reduce the explosives' blast effects on the structure. Standoff distances required vary with building component construction.

DL1.1.25. Tactics. The specific methods of achieving the aggressor's goals to injure personnel, destroy military assets, or steal military materiel or information.

DL1.1.26. Temporary Structures. Structures intended for use for a period of 3 years or less, and are not expeditionary. These structures are often capable of being relocated such as some pre-engineered buildings, trailers, and stress tension shelters.

DL1.1.27. Troop Billeting Structure. A subset of inhabited structures in whichDoD personnel are billeted, not to include military family housing.

DL1.1.28. Threat Severity Levels. Levels within each tactic which correspond to different sets of tools, weapons, and explosives. The

severity of effects of the tools, weapons, and explosives increases with increasing threat severity levels.

C1. CHAPTER 1

CONSTRUCTION STANDARDS

C1.1. GENERAL.

C1.1.1. Recent terrorist attacks have demonstrated the vulnerability of U.S. military and civilian personnel and the facilities where they work and live. A heightened awareness of the terrorist threat has prompted the Department of Defense (DoD) to find methods to reduce injuries and death in the event of future attacks. To address that issue, DoD Instruction 2000.16 (reference a) established DoD Standard 20, which requires the development of antiterrorism/force protection guidelines for new construction. This interim standard partially implements that requirement.

C1.1.2. The purpose of this standard is to ensure that force protection standards are incorporated into the planning, programming, and budgeting for the design, and construction of Military Construction (MILCON) funded facilities. This interim standard will be updated with the completion of the first volume of the DoD Security Engineering Manual. This standard includes minimum construction requirements that will be incorporated into all inhabited new MILCON construction and major renovations regardless of the threat level. It also addresses measures that can be applied where higher threat levels apply. Inhabited structures are defined for the purposes of this standard as structures occupied by DoD personnel with a personnel density of greater than one person per 400 square feet. This density generally excludes industrial and storage facilities and also does not cover guard facilities or family housing. The standard also provides additional guidance for troop billeting and primary gathering structures, a special case of inhabited structures.

C1.1.3. This interim construction standard addresses what could effectively be addressed in the short term and what the Chairman of the Joint Chiefs of Staff wanted to be covered as soon as possible. It applies to all DoD agencies and services with MILCON programming, design, or construction responsibilities. It applies to new MILCON construction and major renovations for inhabited structures both within and outside the continental United States funded under the MILCON appropriation for fiscal year 2002 and beyond. This interim standard is the minimum set for DoD. Each Commander-in-Chief (CINC) may set more stringent AT/FP construction standards to meet the specific threats in that CINC's area of responsibility.

C1.2. SCOPE.

C1.2.1. This standard provides guidance to:

C1.2.1.1. Specify the planning, engineering, design, and construction criteria for incorporating force protection requirements into MILCON projects.

C1.2.1.2. Provide a process and a tool for incorporating force protection costs into DD Form 1391 for MILCON projects.

C1.2.2. This standard establishes minimum construction standards for all DoD inhabited structures with additional requirements for troop billeting and primary gathering structures.

C1.3. CONSTRUCTION STANDARDS.

C1.3.1. Minimum Standards. Minimum standards apply regardless of the identified threat. Where there is no specific threat identified and you meet minimum standoff distances in Appendix 2, add approximately 0.5 percent of facility cost for one- and two-story buildings, except for administrative buildings and 1 percent for administrative buildings and buildings of three or more stories). The minimum standards include application of effective layout or prudent use of elements not specifically required to mitigate threats. They also may facilitate future upgrades and increased threat conditions (THREATCON) and may deter acts of aggression. Minimum standards are addressed in detail in Appendix 2. Those measures are to be considered minimum construction standards that will be incorporated into all new construction and major renovations for inhabited structures. Appendix 2 includes additional protective measures for troop billeting and primary gathering structures, a critical subset of inhabited structures.

C1.3.2. Threat Specific Standards. In addition to the minimum standards described above this interim standard provides guidance for incorporating additional measures to mitigate specific threats. That guidance includes design strategies for mitigating the effects of specific aggressor tactics to defined levels of protection and the effect on building cost of applying those measures. Refer to Appendix 1 for design strategies and Appendices 3 and 4 for guidance on determining cost.

C1.4. RECORDING FORCE PROTECTION COSTS ON DD FORM 1391.

C1.4.1. The following provides interim guidance for recording costs for force protection on DD Form 1391 in accordance with DoD FMR 7000.14R (reference b). It should not supercede any service or agency guidance on filling out DD Form 1391. Instructions for determining the costs to which this paragraph refers are included in Appendix 4.

C1.4.1.1. Where there is no specific threat identified and one meets minimum standoff criteria in Appendix 2, add 0.5 percent to the primary facility costs for buildings of one or two stories and add 1 percent for buildings of three or more stories. There are instances where threat criteria costs may or may not be additive with the minimum standards costs. Table AP4.T3 summarizes the application of minimum criteria and multiple threat costs integration. Enter the percentage as described below.

C1.4.1.2. Where there is a specific threat identified, enter the enhanced construction cost for the building as a cost per square foot as a separate line item under "Primary Facility" on the DD Form 1391. The line item should be titled "Antiterrorism Force Protection/Physical Security Measures." Those costs should include measures such as special structural improvements and bullet resistant glass, etc. They should not include costs for security measures that are mandated elsewhere.

C1.4.1.3. Where there is a specific threat identified that includes blast, the 0.5 to 1 % minimum criteria cost is included in the tables addressed in AP4.T4.

C1.4.1.4. Where there is a specific ballistics threat but not a blast threat, than the 0.5 to 1% minimum criteria cost must be added to the costs for ballistics protection. Where combination threats exist for both ballistics and blast, the cost tables values are additive.

C1.4.1.5. Where land acquisition serves a specific purpose such as providing standoff distance for force protection, the acquisition shall be listed as a separate antiterrorism/force protection line item under the primary facility.

C1.4.1.6. Where applicable, enter costs for site improvements for antiterrorism/force protection that are specifically applied to mitigate the effects of a threat (such as the vehicle barriers, fencing, berms, and landscaping, etc.) on a separate line item under "Supporting Facilities" on the DD Form 1391. Use the same title used for the primary facility.

C1.4.1.7. List the specific antiterrorism/force protection measures and considerations that the project provides in the applicable paragraph of the DD Form 1391 in accordance with component guidance. Include reference to the design criteria used to determine the enhanced costs.

C1.5. ADDITIONAL ASSISTANCE. Additional assistance in applying this standard is available from the sources listed in Table C1.T1.

Table C1.T1. List of Sources

Component	Organization	Point of Contact	Phone Number	E-Mail Address
DoD Agencies	Joint Staff (J-34)	LTC Vincent Kam	(703) 693-7551 ext 119	kamvw@js.pentagon.mil
Air Force	Air Force Civil Engineer Support Agency	Mr. James Lafrenz	(850) 283-6332	jim.lafrenz@afcesa.af.mil
Army	HQ Corps of Engineers	Mr. Ray Navidi	(202) 761-0223	ray.g.navidi@usace.army.mil
	Corps of Engineers Protective Design Center	Mr. Curt Betts	(402) 221-4918	curt.p.betts@usace.army.mil
Marine Corps	HQ U.S. Marine Corps (POS)	Capt Thomas Mockbee	(703) 614-4177 ext 114	Mockbeetb@hqmc.usmc.mil
	HQ U.S. Marine Corps Land Use and Military Construction Branch	Ms. Jane Brattain	(703) 695-8321	Brattainhj@hqmc.usmc.mil
Navy	NCIS/N-34	Mr. Bruce Bittenbender	(202) 433-9087	Bbitten@ncis.navy.mil
	Naval Facilities Engineering Service Center	Mr. Mitch Hardin	(805) 982-1571	hardinmd@nfesc.navy.mil

AP1. APPENDIX 1

PLANNING AND DESIGN STRATEGIES

AP1.1. INTRODUCTION. The design strategies presented in this appendix apply to the development of protective measures beyond the minimum standards. Summaries of design strategies are provided to help one understand the basis for determining the costs of mitigating the effects of the tactics included in this standard. They include both the basic design strategies and the more specific design strategies associated with different levels of protection. By understanding the levels of protection one will know what risks are associated with each level. These strategies are discussed in more detail in references d, e, and f.

AP1.2. VEHICLE BOMB TACTICS.

AP1.2.1. Vehicle bomb tactics include moving and stationary vehicle bombs. In both of these tactics, aggressors attack facilities to destroy, damage, injure, or kill people or assets within them using a vehicle laden with explosives. In the moving vehicle bomb tactic, the aggressor drives the vehicle into the target structure and detonates the explosives. In the stationary vehicle bomb tactic, the aggressor parks the vehicle near the structure and detonates the explosives remotely or by a time delay. When one threat severity level is selected, the threat also includes all lower threat severity levels. The basic design strategy and levels of protection are described below.

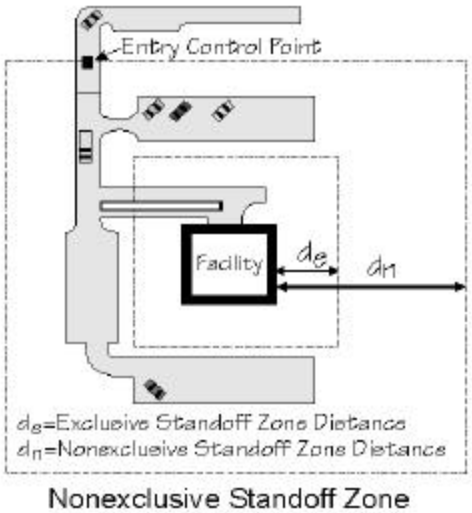
AP1.2.1.1. Standoff Distance. Blast pressures near an exploding vehicle bomb are very high, but they decrease rapidly with distance from the explosion. The design strategy for these tactics is to maintain as much standoff distance as possible between the vehicle bomb and the structure and then, if necessary, to harden the structure for the resulting blast pressures. The standoff distance will be considered to be the distance from the face of the target structure (at any point) to the point on the site at which you can effectively establish a perimeter within which you can control vehicle access. Alternatively, where there is an area of a structure that does not meet the requirements of an inhabited structure, that area can be considered to be part of the standoff distance. In that case, the standoff distance would be from the site perimeter to the face of that portion of the structure constituting the inhabited structure. The standoff distance is maintained by barriers on the perimeter of the resulting standoff zone. See the passive vehicle barrier cost graph in Appendix 4 (Table AP4.T.22.) to establish perimeter cost for a facility.

AP1.2.1.1.1. Exclusive Standoff Zone. Exclusive standoff zones may be used at all threat severity levels. Only emergency response, delivery, and service vehicles are allowed into the exclusive standoff zone. Give special consideration to allowing unimpeded access to the exclusive standoff zone for emergency response vehicles.

AP1.2.1.1.2. Nonexclusive Standoff Zone. Nonexclusive standoff zones may be used for the high, very high, and special case threat severity levels to minimize limitations on land use. Where the nonexclusive standoff zone is employed, it encloses an exclusive standoff zone. The inner perimeter is set at the distance associated with the 220 pound TNT threat and the outer perimeter is set at the distance associated with the truck bombs. Cars can enter the outer perimeter with only cursory visual searches, but are not allowed within the inner perimeter. Trucks cannot enter the outer perimeter without being searched. Note that these searches require manpower, which is not accounted for in this standard.

AP1.2.1.2. Vehicle Barriers. The difference between the moving and stationary vehicle bomb tactics is that the aggressor using the moving vehicle bomb tactic will attempt to crash through the vehicle barriers, and the aggressor using the stationary vehicle bomb tactic will not. Therefore, vehicle barriers for the moving vehicle bomb tactic must be capable of stopping the moving threat vehicle at the perimeter of the standoff zone. For the stationary vehicle bomb tactic, vehicle barriers must mark the perimeter of the standoff zone but are not required to stop the moving threat vehicle. Perimeter barriers extend around the entire perimeter ending only at entry points. They are applied for both non-exclusive and exclusive standoff zones. Active barriers are installed at all entry points and can be raised or lowered to allow vehicles to pass. See Figure AP1.F1. For barriers to resist the moving vehicle tactic, including means to slow vehicle approach will decrease the requirements for both perimeter and active vehicle barriers.

Figure AP1.F1. Nonexclusive Standoff Zone



Nonexclusive Standoff Zone

AP1.2.1.3. Levels of Protection.

AP1.2.1.3.1. Low Level of Protection: Damaged, Unrepairable. The structure or protected space will sustain a high degree of damage without collapse. Although collapse is prevented, occupants may be injured and other assets may be damaged but will survive. Damaged building components, including structural members, will require replacement. Depending on the scale of the blast damage, its location, and structure characteristics, the structure may be completely unrepairable, requiring demolition and replacement. The damage allowed may make surviving assets vulnerable to subsequent attack. Majority of personnel will suffer lacerations and blunt trauma from window glazing fragments and other non-structural debris.

AP1.2.1.3.1.1. Windows will break and be propelled into the room up to a few feet.

AP1.2.1.3.1.2. Doors will only be hollow metal.

AP1.2.1.3.2. Medium Level of Protection: Damaged, Repairable. The structure or protected space will sustain a significant degree of damage, but the structure will be reusable. Occupants and other assets may sustain minor injuries or damage. Damaged building components other than structural members may require replacement, but damaged structural members can be repaired. Personnel will suffer mostly minor and some serious lacerations and blunt trauma from window glazing fragments and non-structural debris.

AP1.2.1.3.2.1. Windows will break, but will not fall out of the frame.

AP1.2.1.3.2.2. Doors will be blast resistant.

AP1.2.1.3.3. High Level of Protection: Superficial Damage. The structure or protected space will sustain only superficial damage. Occupants and other assets will also incur only superficial injury or damage. Personnel will suffer only minor lacerations and blunt trauma from window glazing fragments and non-structural debris.

AP1.2.1.3.3.1. Windows will not break.

AP1.2.1.3.3.2. Doors will be blast resistant.

AP1.3. PLACED BOMB TACTIC. In this tactic the aggressor carries an explosive device up to a structure, places it, and detonates it either remotely or on a time delay. The basic design strategy is to establish a standoff zone as for the vehicle bomb tactics and maintain it with a fence. Levels of protection are the same as the vehicle bomb tactics.

AP1.4. BALLISTICS TACTIC. In this tactic aggressors fire small arms at assets within the structure. The basic design strategy is dependent on the level of protection. The strategy for the low level of protection is predicated on the assumption that aggressors will not shoot at what they cannot see; therefore, protection is limited to obscuring the assets from views from outside the building. Obscuration might be achieved by installing reflective fragment retention film on the windows and glazed doors of the building or blocking sightlines from uncontrolled vantage points with vegetation, walls, or other structures. At the high level of protection the design strategy involves ensuring that all building components, including windows and doors are bullet resistant.

AP2. APPENDIX 2

DOD ANTITERRORISM/FORCE PROTECTION MINIMUM STANDARDS

AP2.1. SECURITY ENGINEERING STANDARD 1: SITEWORK.

AP2.1.1. Facility Access.

AP2.1.1.1. Eliminate, minimize, or mitigate lines of approach perpendicular to inhabited structures.

AP2.1.1.2. Minimize vehicle access points.

AP2.1.1.3. Coordinate with the installation master plan to site facilities with large non-DoD visitor populations away from inhabited structures where possible.

AP2.1.2. Facility Characteristics.

AP2.1.2.1. Avoid conditions within 30 feet of inhabited structures that permit concealment of aggressors or that would obscure the view of objects or packages 6 inches in height from the view of security personnel.

AP2.1.2.2. Minimize exposure to surveillance and observation of assets within inhabited structures from uncontrolled natural or man-made vantage points.

AP2.1.3. Facility Standoff / Separation. Facility standoff distances are intended to prevent the progressive collapse of structures. For all cases below, standoff distances will be to the face of that portion of a structure that meets the criteria of an inhabited structure or a troop billeting or primary gathering structure. Portions of structures with lesser occupancies may be located within the stated standoff distances. When the standoff distance is not available, select a cost for the low level of protection against a 50 pound TNT explosive at the available standoff. Costs to achieve the low level of protection are included in Appendix 4. For design purposes, design the structure to sustain an equivalent degree of damage to what it would experience from a 50 pound TNT explosive placed at 80 feet.

AP2.1.3.1. Maintain a minimum standoff distance of 80 feet from inhabited structures to installation perimeters.

AP2.1.3.2. For troop billeting and primary gathering structures, maintain a minimum standoff distance of 150 feet from the structures to installation perimeters.

AP2.1.3.3 Locate trash containers at least 30 feet from inhabited structures.

AP2.1.3.4. Locate trash containers at least 80 feet from troop billeting and primary gathering structures.

AP2.1.3.5. Maintain a minimum building separation of 50 feet for troop billeting and primary gathering structures.

AP2.2. SECURITY ENGINEERING STANDARD 2: PARKING AND ROADWAYS.

AP2.2.1. Parking beneath inhabited structures is strongly discouraged. If unavoidable, mitigate by designing columns assuming loss of lateral support at any one floor level (i.e., a laterally unsupported length equal to two stories) to avoid progressive collapse and control access to the parking structure.

AP2.2.2. To limit the possibility of progressive collapse, locate parking lots and roadways at least 30 feet from inhabited structures and 80 feet from troop billeting and primary gathering structures. The standoff distance from roadways is measured from the nearest edge of pavement. Portions of structures with lesser occupancies may be located within the stated standoff distance. When the standoff distance is not available, select a cost for the low level of protection against a 50 pound TNT explosive at the available standoff. Costs to achieve the low level of protection are included in Appendix 4. For design purposes, design the structure to sustain an equivalent degree of damage to what it would experience from a 50 pound TNT explosive placed at 80 feet.

AP2.3. SECURITY ENGINEERING STANDARD 3: BUILDING LAYOUT.

AP2.3.1. Minimize or mitigate exposure of personnel in inhabited structures to potential glass fragment hazards.

AP2.3.2. Design circulation within inhabited structures to provide detection of people approaching controlled areas or occupied spaces.

AP2.3.3. Locate activities with large non-DoD visitor populations within or around inhabited structures away from protected assets where possible.

AP2.3.4. When possible, position exterior doors on inhabited structures so they cannot be easily targeted from the installation perimeter or uncontrolled vantage points.

AP2.4. SECURITY ENGINEERING STANDARD 4: SUPERSTRUCTURE.

AP2.4.1. Structural. The intent of these requirements is to minimize the possibility of progressive collapse. Where these requirements cannot be met for major MILCON funded renovations or existing structures, design the renovation to provide as much mitigation as is practical.

AP2.4.1.1. For inhabited structures of three stories or more, use a moment resisting frame support system and design in structural redundancy that allows the loss of one primary vertical or one primary lateral load-carrying element without progressive collapse.

AP2.4.1.2. For all multistory inhabited structures, design all multistory vertical load carrying elements assuming loss of lateral support at any one floor level (i.e., a laterally unsupported length equal to two stories).

AP2.4.1.3. Exterior masonry walls will be reinforced in all inhabited structures.

AP2.4.1.4. On multistory inhabited structures, run concrete floor slab reinforcement continuously through both faces of the slab and into the beams and columns to improve capability to withstand load reversals.

AP2.4.1.5. Exterior walls in inhabited structures will employ one-way wall elements spanning vertically to minimize blast loads on columns.

AP2.4.1.6. Structurally separate portions of inhabited structures with lesser occupancies from the inhabited portions of the structure when portions with lesser occupancies are located within prescribed standoff distances.

AP2.4.2. Non-structural. Attach interior ceiling mounted fixtures to the supporting structural system (i.e., use seismic detailing from Technical Instruction 809-4) in inhabited structures. This includes suspended ceilings, light fixtures, and mechanical and electrical ducting and pipes.

AP2.4.3. Exterior Windows. For single glazed windows in inhabited structures, use a minimum of ¼-inch (6-mm) annealed laminated glass. For insulated glass units, the inner pane should be a minimum of ¼-inch (6-mm) annealed laminated glass.

AP2.4.4. Exterior Doors. Use a minimum of ¼-inch (6-mm) annealed laminated glass for exterior door glazing in inhabited structures.

AP2.5. SECURITY ENGINEERING STANDARD 5: MAILROOMS.

AP2.5.1. Avoid routing key utilities (including communications, fire detection and alarm, water mains, etc.) through or on common walls to mailrooms in inhabited structures.

AP2.5.2. Locate mailrooms on perimeters of inhabited structures.

AP2.6. SECURITY ENGINEERING STANDARD 6: MECHANICAL AND UTILITY SYSTEMS.

AP2.6.1. Locate air intakes above the first story ceiling (for two-story or higher inhabited structures) or on the roof of single-story inhabited structures , and restrict access to the intakes.

AP2.6.2. Control access to roofs of inhabited structures. Avoid external ladder access by providing entry from internal stairways or ladders such as in mechanical rooms. Alternatively, secure external ladders.

AP2.6.3. Include an emergency shutoff switch in the control system that immediately shuts down the heating, ventilation, and air conditioning (HVAC) system of inhabited structures.

AP2.6.4. Ensure that redundant utilities in inhabited structures do not run in the same locations or chases.

AP2.6.5. Secure exterior access to power/heat plants, gas mains, water supplies, communications, electrical service, or other support facilities or infrastructure.

AP2.6.6. Construct fire protection systems in inhabited structures using seismic detailing.

AP3. APPENDIX 3

THREAT SPECIFIC CONSTRUCTION GUIDANCE

AP3.1. THREAT SPECIFIC CONSTRUCTION GUIDANCE. The security engineering documents listed as references d through f and h (Army TM 5-853/Air Force AFMAN 32-1071 series and the Navy MIL HNDBK 1013/1A) provide detailed guidance for developing protective measures to mitigate the effects of the threats described by this standard. Those documents will be considered to be the acceptable means of implementing this standard and for developing protective measures for DoD assets associated with new construction and major renovations for inhabited structures. References i and j can also be used. In addition to the guidance presented in this standard and in its references, the costs for protection can be further optimized by having a qualified team perform vulnerability assessments of sites.

AP3.2. ANTITERRORISM/FORCE PROTECTION DESIGN CRITERIA.

AP3.2.1. Planning and design criteria are developed and recommended for projects by local planning teams. These criteria must include the elements described below. Detailed discussion of these issues may be found in TM 5-853-1/AFMAN 32-1071, Volume 1 and MIL HNDBK 1013/1A. For areas within specific CINC's areas of operations, refer to the applicable CINC Operations Orders or regulations (references l through o) for guidance.

AP3.2.1.1. Assets. The user must identify the assets to be protected and the design criteria must be focused on those assets. This interim standard focuses on people as assets, as opposed to buildings, equipment, or other objects. It does not preclude providing antiterrorism/force protection for mission critical or otherwise important assets.

AP3.2.1.2. The Design Basis Threat. Threat that generates requirements for design must be described by the installation commander in terms of the tactics aggressors are likely to use in attempting to compromise assets and the weapons, tools, and explosives that they will use in carrying out those tactics. For this interim standard, those threats will be limited to explosives and ballistics threats. Additional threats will be addressed in the DoD Security Engineering Manual. The explosive threats in this standard may include both vehicle and placed bombs. The tactics and threat parameters addressed in this interim standard are described below. The specific

threat parameters associated with those tactics are described by threat severity levels of low, medium, high, very high, and special case as detailed in Table AP3.T1. Design basis threats are not the same as the National Threat Level Systems. While national level threats apply to a geographic area, design basis threats apply to specific assets within facilties.

AP3.2.1.2.1. Vehicle Bomb Tactic. This can take the form of either a moving or stationary vehicle bomb. In a moving vehicle bomb scenario an aggressor drives an explosive laden vehicle into a target structure or along a target perimeter road and detonates it. In the stationary vehicle bomb scenario the aggressor parks an explosive laden vehicle near a target structure, leaves, and detonates the explosive either remotely or on a time delay.

AP3.2.1.2.2. Placed Bomb Tactic. In this tactic the aggressor carries a man portable explosive to a structure and places it in a position near the structure. The bomb is either detonated remotely or via a time delay. This tactic is referred to as the exterior tactic in TM 5-853-1 / AFMAN 32-1071, Volume 1. It is included under the stationary tactic in MIL HNDBK 1013/1A.

Table AP3.T1. Threat Parameters (Interim Standard)

Tactic	**Threat Severity Level**	**Weapon**	**Tool**
Vehicle bomb	Special Case	20,000 pounds TNT	60,000-pound truck
(Moving and			
Stationary)	High	1000 pounds TNT	5000-pound truck
	Medium	500 pounds TNT	4000-pound car
	Low	220 pounds TNT	4000-pound car
	Minimum	50 pounds TNT	4000-pound car
Placed bomb		50 pounds TNT	
Mail bomb		2 pounds TNT	
Ballistics	Very high	7.62 mm Armor Piercing	
	High	7.62 mm	
	Medium	.44 Magnum	
	Low	.38 Special	

AP3.2.1.2.3. Mail Bomb. In this tactic aggressors deliver bombs or incendiary devices to the target in letters or packages.

AP3.2.1.2.4. Ballistics Tactic. In this tactic aggressors fire small arms at target facilities with the intent of hitting people inside the facilities.

AP3.2.1.2.5. Chemical, Biological, and Radiological Threats. These threats can come from a wartime attack, a terrorist attack, or from an industrial accident.

AP3.2.1.3. Levels of Protection. Levels of protection addressed by this interim standard reflect the degree to which the assets will be protected against the threat. These levels of protection reflect different levels of damage to inhabited structures and injury to occupants from the effects of specific tactics. These levels of protection provide protection beyond that provided by applying the minimum standards in appendix 2. They should be applied where a design basis threat is specified by an installation planning team.The levels of protection specific to each of the above tactics and the level of protection provided by applying the minimum standards are described in Table AP3.T2.

AP3.3. FORCE PROTECTION COST TOOLS.

AP3.3.1. Appendix 4 provides estimates of the costs of force protection enhancements for new construction projects subjected to threats described above. The costs in the blast tables include the costs of applying the minimum standards. The cost tables are for costs to achieve protection to levels of protection over and above those associated with applying the minimum measures in Appendix 2. The tables provide increases in the costs per square foot of floor space for a variety of construction baselines. There are separate tables for each of the threat parameters detailed above, and a separate chart for perimeter barrier costs. The costs in the cost tables reflect construction that will be adequate to mitigate the effects of the applicable threats to the applicable level of protection. Including these costs will identify funding required for force protection requirements.

Table AP3.T2. Levels of Protection

Tactic	Level of Protection	Potential Structure Damage	Potential Injury
Bombing tactics	Minimum	Significant damage, but no progressive collapse	Majority of personnel suffer serious injuries. There are likely to be a limited number of fatalities
	Low	Damaged – unrepairable No collapse, but structural members will require replacement	Majority of personnel suffer lacerations and blunt trauma injuries from window glazing and non-structural elements
	Medium	Damaged - repairable Damaged structural elements can be repaired	Mostly minor and some serious lacerations and blunt trauma from window glazing and non-structural elements
	High	Superficial damage	Only superficial lacerations and blunt trauma from non-structural elements
Ballistics tactic	Low	Limited - screening	Unlikely
	High	Superficial – hardened	None

AP3.3.2. Costs for protection against mail bombs and chemical, biological, and radiological threats are not specifically addressed in this interim standard except as measures incorporated into the minimum standards.

AP3.3.3. Appendix 1 provides descriptions of the basic design strategies used in developing the protective measures that were used as the basis for the cost calculations. The protective measures include perimeter barriers and building components designed to resist weapons and explosives effects, including walls, doors, windows, and roofs. Understanding the design strategies allows the user to understand the basis for the costs.

AP4. APPENDIX 4

COST TOOLS

AP4.1. INTRODUCTION. These tools can be used in formulating costs for antiterrorism/ force protection for MILCON projects. They are only to be used in programming for new construction. This interim standard does not include cost increases for major renovations, which are likely to be higher than those for new construction.

AP4.2. FORMULATION OF TOOLS. The tools described in this appendix were developed by determining the ballistics and blast resistance of various "hardened" building components to applicable levels of protection and estimating the costs of buildings built using those components. The relative costs of the hardened buildings were tabulated as increases over baseline costs for six common building categories in terms of percentage cost increase per square foot of floor space. The relative costs reflect all construction, labor, and material costs for the buildings. They also include the costs of applying the minimum standards in appendix 2. The costs in the tables in this appendix must be corrected with area cost factors, building area factors, escalation, and any other special construction considerations commonly programmed into DD Forms 1391 at your installation or for the applicable type of facility. The baseline construction for walls, doors, windows, and roofs for each of the six building categories is summarized below. The six structure types selected represent a majority of recent military construction. They can be used to represent other structure types that are similar from the standpoint of function and basic construction.

Table AP4.T1. Baseline Construction

Structure Category	Building Component Construction			
	Walls	Doors	Windows	Roofs
288 Person Barracks (interior corridor) (3 stories) (115,000 gross sf)	Concrete masonry unit	3' X 7' Hollow metal and 6' X 7 ' glazed pairs	Aluminum frame / sliding	Standing seam metal
288 Person Barracks (exterior entrances) (3 stories) (102,000 gross sf)	Concrete masonry unit	3' X 7' Hollow metal and 6' X 7' glazed pairs	Aluminum frame / sliding	Standing seam metal
Dining Facility (1 story) (14,000 gross sf)	Brick veneer / metal stud	Hollow metal and glazed, 3' X 7' & 6' X 7' pairs	Aluminum frame / fixed	Standing seam metal
Administrative Facility (2 stories) (26,000 gross sf)	Brick veneer / metal stud	Hollow metal and glazed, 3' X 7' & 6' X 7' pairs	Aluminum frame / fixed, projected, & storefront	Standing seam metal
Medical Clinic (1 story) (40,000 gross sf)	Brick veneer / metal stud	Hollow metal and glazed, 3' X 7' & 6' X 7' pairs	Aluminum frame / fixed	Built-up roofing

Special Structures	Concrete masonry unit	Hollow metal and glazed, 6' X 7' pairs	Aluminum frame / fixed	Standing seam metal

Table AP4.T2. Examples of Facility Construction Types Represented by Baseline

Baseline Structure	Occupancy Classification	Examples of Facility Construction Types Represented
Barracks, External Entrances	Housing	?? Enlisted Barracks ?? Trainee Barracks ?? Transient Unaccompanied Personnel Housing ?? Unaccompanied Enlisted/NCO/Officers Quarters
Barracks, Internal Corridor	Housing	?? Enlisted Barracks ?? Trainee Barracks ?? Transient Unaccompanied Personnel Housing ?? Unaccompanied Enlisted/NCO/Officers Quarters
Administration Facility	Office	?? Airfield Operations Building ?? Aviation Unit Operations Building ?? ?? Brigade/Battalion/Company Headquarters ?? Cargo Handling Office Building ?? Community Services Center ?? Courtroom ?? Dispatch Building ?? Emergency Operations Center ?? Field Operations Building ?? National Guard/Reserve Center ?? School ?? Child Development Center ?? Ship Operations Building
Medical Clinic	Medical	?? Ambulance Garage/Fire Station/Police Station ?? Dental Clinic ?? Laboratory ?? Medical Center/Hospital ?? Pharmacy ?? Red Cross Building ?? Troop Dispensary/Health Clinic ?? Veterinary Facility
DINING FACILITY	Services Facility	?? Dining Facility ?? Drug/Alcohol Abuse Center ?? Laundry
Special Structures		?? Auditoriums ?? Chapels ?? Gymnasiums ?? Theaters

AP4.3. USING THE TOOLS.

AP4.3.1. Using the construction cost increase tables.

AP4.3.1.1. Select a baseline structure category using Table AP4.T1 or AP4.T2. The baseline facility types can be extrapolated with Table AP4.T2. Then

select the table that applies to the bomb size or ballistics threat and level of protection that is being programmed using Table AP4.T3 and AP4.T4 as a guide for explosives or Table AP4-T20. for ballistics.

AP4.3.2. Using the tables for bomb threats.

AP4.3.2.1. Enter the table with the standoff distance (in feet) from the site perimeter to the standoff distance will be considered to be the distance from the face of the target structure (at any point) to the point on the site at which you can effectively establish a perimeter within which you can control vehicle access. Alternatively, where there is an area of a structure that does not meet the requirements of an inhabited structure, that area can be considered to be part of the standoff distance. In that case, the standoff distance would be from the site perimeter to the face of that portion of the structure constituting the inhabited structure.

AP4.3.2.2. Follow the line to the structure category that corresponds to your facility type. That cost increase (as a percentage of the square foot cost) will correspond to the cost above "conventional construction" to provide the construction required to mitigate the postulated design basis threat to the applicable level of protection.

AP4.3.2.3. Multiply the percentage cost increase per square foot by the square foot cost for the baseline construction for the planned facility. That cost may be the baseline cost for the type of facility being programmed as found in the Military Construction Pricing Guide or other baseline cost guidance. Because these costs are presented as percentages, they are not specific to any particular year and do not have to be escalated separately from the total project cost.

AP4.3.3. Using the tables for ballistic threats.

AP4.3.3.1. Select Table AP4-T20 for the appropriate level of protection (high or low).

AP4.3.3.2. For the low level of protection, select the percentage cost increase that corresponds to your structure type.

AP4.3.3.3. For the high level of protection, select the percentage cost increase for your structure under the desired threat severity level.

AP4.3.4. Using the vehicle barrier cost chart (Figure AP4.F1.). This chart is only necessary when the moving vehicle bomb tactics apply. Note that the costs in this chart are current for Calendar Year 1999. Application for future years will require cost escalation factors.

AP4.3.4.1. Perimeter Barriers. Use the standoff distance used above to estimate the total perimeter vehicle barrier cost. Read the total cost associated with that standoff distance from figure AP4.F1 for the vehicle applicable barrier rating (refer to Table AP4.T21). Alternatively, determine perimeter length and apply the unit cost in Table AP4.T21.

AP4.3.4.2. Active Barriers.

AP4.3.4.2.1. Assume the number of egress and ingress locations through the perimeter based on traffic volume. The barrier costs as tabulated are for a 12-foot traffic lane. Commonly an entry point will have two lanes, each of which needs a barrier.

AP4.3.4.2.2. Enter the active vehicle barrier Table AP4.T22. and multiply the cost by the number of lanes assumed.

AP4.3.5. Multiple Tactic Costs. Costs associated with protecting a structure from more than one threat (i.e., ballistics and explosives) will be considered to be multiple tactic costs. In this interim standard, the costs for multiple tactics are conservatively considered to be additive. Table AP4.T3 provides a guide on the integration of multiple threats and designates costs that should be combined for the total estimate.

AP4.3.6. Vehicle Bomb Example. Consider a 288-person barracks with interior corridors for which the planning team has postulated a low threat severity level (220 pounds TNT) for the moving vehicle bomb threat. The required level of protection is low. The baseline cost is $142 per square foot from the Military Construction Pricing Guide. The available standoff distance is limited to approximately 80 feet. Based on expected traffic to the facility, assume you will need 4 entry/exit lanes through the perimeter.

AP4.3.6.1. Determine the additional construction cost for the primary facility.

AP4.3.6.1.1. Select Table AP4.T8 that corresponds to the 220-pound explosive/low level of protection for the 288-person barracks with interior corridors.

AP4.3.6.1.2. Enter the table at the available standoff distance of 80 feet.

AP4.3.6.1.3. Read across the table to the column that corresponds with baseline facility type (barracks interior corridor) to find the percentage cost “increase.” In this example it is 3.1 percent.

AP4.3.6.1.4. Determine the additional cost. 3.1 percent X $142 per square foot is $4.40 per square foot additional cost. That additional cost would be entered into the DD Form 1391 on the force protection line item under "primary facility."

AP4.3.6.2. Determine the vehicle barrier costs.

AP4.3.6.2.1. Determine the perimeter barrier costs by entering the perimeter barrier Figure AP4.F1. with 80 feet of standoff distance.

AP4.3.6.2.2. Read Figure AP4.F1 for an estimate for the low level of protection at 80 ft standoff: $70,000.

AP4.3.6.3. Refer to the active barrier Table AP4.T22 at the low to medium rating and read $25,000 per lane. Multiply $25,000 by four lanes for a total of $100K.

AP4.3.6.4. Total Vehicle Barrier Cost. Add the passive vehicle barrier system $70,000 to the active vehicle barrier system $100,000 for a total of $170,000.

AP4.3.7. Multiple Threat Example. There is a requirement to build a dining facility that will provide a high level of protection against a medium severity level ballistic threat and a medium level of protection against a 1000-pound explosive device. Available unencumbered land will make it possible to place a perimeter around the building at a 300-foot standoff distance. The perimeter must stop a 15,000-pound truck traveling at speeds of up to 30 miles per hour. The building perimeter must have two entrances and two exits.

AP4.3.7.1. Vehicle Barrier Costs.

AP4.3.7.1.1. Active vehicle barrier cost. From Table AP4.T22, each entrance and exit lane will require an active vehicle barrier that costs approximately $25,000. Therefore, since two entrance barriers and two exit barriers are required, $100,000 should be planned for procurement and installation of four active vehicle barriers located around the perimeter.

AP4.3.7.1.2. Passive Vehicle Barrier Cost. From Figure AP4.F1., the passive barrier system cost for a building requiring 300 feet of standoff is $140,000

AP4.3.7.1.3. Total vehicle barrier cost for active and passive barrier systems.

$ 140,000 – Passive Vehicle Perimeter Barrier System

$ 100,000 – Active Vehicle Barrier Systems

$ 240,000 – Total Vehicle Barrier Cost

AP4.3.7.2. Structure Hardening Cost to Protect against Explosive Attack. From Table AP4.T15, (1000 lbs TNT medium level of protection) the cost increase per square foot of floor space for a DINING FACILITY with 300 feet of standoff is 10 percent. Assuming that the average cost per square foot for a DINING FACILITY is $209.65 per square foot, the increase is (0.10 x $209.65/SF = $20.96/SF).

AP4.3.7.3. Structure Hardening Cost to Protect against Ballistic Attack. From Table AP4.T20, the cost per square foot increase is 3.9 percent for a DINING FACILITY that requires a high level of protection against a medium threat severity level ballistic attack. Assuming that the average cost per square foot for a DINING FACILITY is $209.65 per square foot, the increase is 0.039 x $209.65/SF = $8.18/SF.

AP4.3.7.4. Total Facility Hardening Cost.

Ballistics Threat Cost Increase ----	$ 8.18/SF
Explosives Threat Cost Increase --	$20.96/SF
Total Cost Increase ----------	$29.14/SF

AP4.3.7.5. Estimated Costs for Antiterrorism/Force Protection.

$ 240,000 – Total vehicle barrier cost

$ 29.14/SF – Estimated additional cost of the DINING FACILITY with ballistic and blast protection.

Table AP4.T3. Minimum Criteria and Multiple Threat Costs Integration

Costs to be Included				
Criteria	***Standard Cost 0.5 - 1.0 %***	***Blast Tables Cost AP4.T4***	***Ballistics Table Cost AP4.T20***	***Vehicle Barrier AP4.T21&22 and/or AP4.F1***
Minimum Standards	X			
Minimum, Standoff not met		X		
Blast Threat		X		
Ballistics Threat	X		X	
Blast and Ballistics		X	X	
Blast with vehicle		X		X
Blast with vehicle and ballistics		X	X	X

Table AP4.T4. Index of Tables for Various Bomb Sizes and Levels of Protection

	Levels of Protection		
TNT	***Low***	***Medium***	***High***
50 LBS	AP4.T5	AP4.T6	AP4.T7
220 LBS	AP4.T8	AP4.T9	AP4.T10
500 LBS	AP4.T11	AP4.T12	AP4.T13
1,000 LBS	AP4.T14	AP4.T15	AP4.T16
20,000 LBS	AP4.T17	AP4.T18	AP4.T19

Table AP4.T5. 50 lbs TNT Low Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Buildng Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
30-34	4.7	4.6	10.3	20.5	8.0	6.7
35-39	3.4	3.3	9.0	12.7	6.8	4.8
40-49	3.3	3.2	8.9	12.1	6.7	4.6
50-69	2.8	2.7	8.5	10.3	6.3	4.2
70-89	2.8	2.7	8.4	10.0	6.2	4.1
90-149	2.7	2.5	8.3	9.5	6.1	4.0
150-	2.1	2.0	7.3	7.4	4.7	4.0

Table AP4.T6. 50 lbs TNT Medium Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Buildng Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
30-34	26.7	6.7	11.9	24.7	15.4	14.1
35-37	26.2	6.2	11.4	21.6	14.8	13.3
38-39	25.8	5.7	11.1	21.0	14.6	12.1
40-45	25.0	5.0	10.3	16.4	13.8	11.0
46-49	17.5	4.3	9.0	14.5	12.0	8.7
50-62	17.3	4.1	8.8	13.0	11.7	8.3
63-74	17.0	3.9	8.6	12.7	11.6	8.2
75-89	17.0	3.8	8.5	12.4	11.5	8.1
90-99	2.7	2.6	6.1	9.5	8.3	4.0
100-149	2.6	2.5	6.1	9.2	8.3	3.9
150-	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T7. 50 lbs TNT High Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Buildng Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
30-31	28.7	8.7	14.1	27.7	17.3	20.4
32-34	28.4	8.3	13.8	27.2	17.0	19.2
35-37	27.3	7.3	12.8	23.2	16.1	16.7
38-39	26.7	6.7	12.1	22.3	15.7	14.7
40-42	26.5	6.4	11.9	22.0	15.5	13.8
43-45	26.2	6.2	11.4	21.6	14.8	13.3
46-50	18.8	5.6	10.2	20.3	13.2	11.2
51-74	17.4	4.2	8.9	13.7	11.9	8.5
75-79	17.3	4.1	8.8	13	11.7	8.3
80-89	17.2	4.0	8.7	12.7	11.7	8.2
90-109	2.8	2.7	6.2	10.0	8.4	4.1
110-149	2.6	2.5	6.1	9.2	8.3	3.9
150-	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T8. 220 lbs TNT Low Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Buildng Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
40-43	7.6	7.5	11.1	27.1	13.1	15.1
44-45	7.3	7.1	10.8	26.5	12.8	13.8
46-47	6.8	6.6	10.3	25.7	12.4	12.1
48-49	6.5	6.3	9.8	25.3	11.8	11.6
50-51	4.6	4.5	8.1	14.5	9.9	8.9
52-53	4.0	3.9	7.5	13.6	9.5	6.9
54-64	3.6	3.5	7.1	12.4	9.2	5.8
65-70	3.6	3.5	7.0	12.0	9.1	5.7
71-74	3.2	3.1	6.7	11.5	8.8	4.5
75-89	3.2	3.1	6.6	11.3	8.8	4.5
90-109	3.1	3.0	6.5	11.0	8.7	4.4
110-124	3.1	3.0	6.5	10.6	8.6	4.4
125-129	2.8	2.7	6.3	10.3	8.5	4.2
130-339	2.8	2.7	6.2	10.0	8.4	4.1
180-339	2.6	2.5	6.1	9.2	8.3	3.9
340-	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T9. 220 lbs TNT Medium Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Buildng Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
40-42	60.6	13.3	21.1	38.4	25.6	35.3
43-45	58.8	11.5	19.4	35.8	24.3	29.6
46-49	44.0	10.4	17.0	33.2	21.0	25.4
50-54	42.2	8.5	15.3	22.4	19.2	22.7
55-57	42.0	8.4	15.2	21.6	19.0	22.7
58-59	41.7	8.0	14.8	21.0	18.7	21.2
60-64	41.2	7.5	14.3	20.3	18.4	19.5
65-68	41.1	7.4	14.2	19.9	18.3	19.4
69-81	40.2	6.6	13.4	18.6	17.7	16.6
82-87	39.9	6.3	12.8	18.0	17.0	15.9
88-89	25.1	5.1	10.5	15.5	13.8	11.8
90-109	24.7	4.7	10.1	14.6	13.5	10.5
110-147	24.7	4.7	10.0	14.3	13.4	10.4
148-149	17.3	4.1	8.8	13.0	11.7	8.3
150-165	17.2	4.0	8.7	12.7	11.7	8.2
166-179	17.0	3.8	8.5	12.4	11.5	8.1
180-189	2.8	2.7	6.2	10.0	8.4	4.1
190-339	2.6	2.5	6.1	9.2	8.3	3.9
340	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T10. 220 lbs TNT High Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Buildng Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
39	61.7	14.4	22.6	40.1	27.1	38.6
40-41	61.3	14.0	21.9	39.4	26.1	37.8
42-45	60.6	13.3	21.1	38.4	25.6	35.3
46-49	45.8	12.1	18.8	35.9	22.3	31.2
50-52	44.0	10.4	17.2	25.6	20.6	28.6
53-71	42.3	8.7	15.4	23.0	19.3	22.9
72-74	41.7	8.0	14.8	22.1	18.8	20.8
75-83	41.2	7.5	14.3	20.3	18.4	19.5
84-87	40.3	6.7	13.4	19.0	17.8	16.7
88-99	25.5	5.5	11.0	16.5	14.5	12.5
100-114	25.4	5.4	10.9	15.9	14.4	12.3
115-147	24.8	4.8	10.1	14.9	13.5	10.6
148-159	17.4	4.2	8.9	13.7	11.9	8.5
160-179	17.2	4.0	8.8	12.7	11.8	8.3
180-199	3.0	2.9	6.5	10.3	8.6	4.2
200-214	2.9	2.8	6.3	9.5	8.4	4.0
214-339	2.6	2.5	6.1	9.2	8.3	3.9
340-	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T11. 500 lbs TNT Low Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Building Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
50-53	7.6	7.4	11.2	18.9	12.5	18.2
54-68	5.9	5.7	9.5	16.3	11.3	12.5
69-72	5.2	5.1	8.8	15.4	10.8	10.4
73-74	4.9	4.8	8.6	14.9	10.6	9.4
75-83	4.8	4.6	8.4	14.1	10.4	9.2
84-87	4.2	4.1	7.8	13.2	10.0	7.2
88-89	3.6	3.5	7.1	12.4	9.2	5.8
90-115	3.6	3.5	7.0	12.0	9.1	5.7
116-119	3.2	3.1	6.6	11.3	8.8	4.5
120-149	3.1	3.0	6.6	11.0	8.8	4.4
150-189	3.1	3.0	6.5	10.6	8.6	4.3
190-207	3.0	2.9	6.4	10.3	8.6	4.2
208-278	2.8	2.7	6.2	10.0	8.4	4.1
279-519	2.6	2.5	6.1	9.2	8.3	3.9
520-	2.1	2.0	4.7	7.0	73	3.9

Table AP4.T12. 500 lbs TNT Medium Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Building Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
50-51	81.6	13.9	23.7	32.4	29.1	41.3
52-59	80.9	13.2	23.0	31.3	28.6	38.9
60-68	66.1	12.0	20.6	28.8	25.3	34.7
69-74	64.4	10.3	18.9	26.3	24.1	29.0
75-89	56.9	9.6	17.6	24.1	22.3	26.7
90-91	56.2	8.9	16.9	22.8	21.8	24.5
92-99	55.9	8.6	16.6	22.4	21.5	23.6
100-104	55.8	8.6	16.5	22.1	21.5	23.5
105-107	41.0	7.4	14.2	19.6	18.3	19.3
108-119	40.2	6.6	13.3	18.4	17.7	16.5
120-129	40.2	6.5	13.3	18.1	17.6	16.4
130-144	39.9	6.2	12.8	17.7	17.0	15.9
145-149	39.5	5.9	12.4	17.1	16.7	14.7
150-209	39.5	5.8	12.4	16.8	16.7	14.6
210-266	24.6	4.6	10.0	14.0	13.4	10.4
267-269	24.7	4.4	97	13.6	13.1	10.2
270-354	24.2	4.2	9.6	12.8	13.0	10.0
355-449	16.8	3.7	8.4	11.6	11.4	7.9
450-518	2.6	2.5	6.1	9.2	8.3	3.9
520-	2.1	2.0	4.7	7.8	7.3	3.9

Table AP4.T13. 500 lbs TNT High Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Building Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
50-51	84.2	16.4	26.7	42.0	32.6	46.2
52-59	83.5	15.7	25.8	41.0	31.5	44.5
60-65	67.6	13.4	22.4	32.3	27.2	38.4
66-69	66.9	12.8	21.7	31.3	26.7	36.1
70-71	66.7	12.5	21.5	30.0	26.5	35.8
72-74	66.2	12.1	20.7	29.3	25.4	34.9
75-79	58.8	11.5	19.5	28.1	23.8	32.8
80-104	57.1	9.8	17.8	25.5	22.6	27.0
105-106	42.1	8.4	15.2	21.6	19.1	22.5
107-109	41.5	7.8	14.6	20.7	18.7	20.5
110-129	41.2	7.5	14.3	20.3	18.4	19.5
130-139	40.3	6.7	13.4	19.0	17.8	16.7
140-174	40.2	6.6	13.3	18.4	17.7	16.5
175-189	39.9	6.2	13.0	17.8	17.4	15.3
190-209	39.6	5.9	12.5	17.4	16.8	14.8
210-224	24.8	4.8	10.1	14.9	13.5	10.6
225-229	24.7	4.7	10.0	14.3	13.4	10.4
230-289	24.6	4.6	10.0	14.0	13.4	10.4
290-341	24.5	4.5	9.8	13.2	13.2	10.1
342-354	24.2	4.2	9.6	12.8	13.0	10.0
355-449	16.8	3.7	8.4	11.6	11.4	7.9
450-519	2.6	2.5	6.1	9.2	8.3	3.9
520-	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T14. 1000 lbs TNT Low Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Building Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
50-54	8.4	8.2	12.1	20.1	13.1	20.9
55-59	8.3	8.1	11.9	19.9	13.0	20.6
60-80	7.6	7.4	11.2	18.9	12.5	18.2
81-99	5.8	5.7	9.4	16.3	11.2	12.4
100-103	5.7	5.5	9.3	15.4	11.1	12.2
104-109	5.1	4.9	8.7	14.5	10.6	10.2
110-119	4.8	4.6	8.4	14.1	10.4	9.2
120-122	4.7	4.6	8.4	13.7	10.4	9.1
123-124	4.1	4.0	7.8	12.8	9.9	7.1
125-134	3.8	3.7	7.5	12.2	9.7	6.2
135-149	3.5	3.4	7.0	11.8	9.1	5.7
150-169	3.5	3.4	7.0	11.5	9.0	5.6
170-184	3.1	3.3	6.6	11.0	8.8	4.4
185-249	3.1	3.0	6.5	10.7	8.7	4.3
250-309	3.0	2.9	6.4	10.3	8.6	4.2
310-339	2.8	2.7	6.2	10.0	8.4	4.1
340-739	2.6	2.5	6.1	9.2	8.3	3.9
740-	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T15. 1000 lbs TNT Medium Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Building Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
50-54	82.9	15.1	25.5	34.2	31.3	44.3
55-62	82.6	14.8	25.2	33.7	31.0	43.2
63-69	82.2	14.4	24.6	33.2	30.2	42.5
70-74	81.7	14.0	23.8	32.5	29.1	41.7
75-94	66.1	12.0	20.6	28.8	25.3	34.7
95-97	58.7	11.4	19.5	27.6	23.7	32.7
98-99	57.0	9.7	17.7	25.0	22.5	26.9
100-119	56.9	9.6	17.6	24.1	22.3	26.7
120-127	56.8	9.5	17.5	23.7	22.2	26.5
128-129	56.1	8.9	16.8	22.6	21.7	24.5
130-131	41.3	7.7	14.5	20.1	18.5	20.3
132-149	41.1	7.4	14.2	19.6	18.3	19.3
150-169	40.4	6.8	13.5	18.1	17.8	17.3
170-184	40.2	6.5	13.3	18.1	17.6	16.4
185-199	40.1	6.5	13.2	17.8	17.6	16.3
200-209	39.8	6.2	12.7	17.4	16.9	15.8
210-219	39.5	5.8	12.4	16.8	16.7	14.6
220-269	24.7	4.7	10.0	14.3	13.4	10.4
270-349	24.6	4.6	10.0	14.0	13.4	10.4
350-399	24.5	4.5	9.8	13.1	13.2	10.1
400-437	24.2	4.2	9.6	12.8	13.0	10.0
438-562	16.8	3.7	8.4	11.6	11.4	7.9
563-739	2.6	2.5	6.1	9.2	8.3	3.9
740-	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T16. 1000 lbs TNT High Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Building Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
60-62	84.9	17.1	27.5	45.3	33.5	47.4
63-64	84.7	16.9	27.2	45.0	33.1	47.0
65-69	84.5	16.7	27.0	43.6	32.9	46.6
70-74	83.9	16.1	26.4	41.5	32.4	45.2
75-89	68.1	13.9	23.1	33.0	28.1	39.5
90-94	67.4	13.2	22.2	31.0	27.0	38.1
95-110	59.3	12.0	20.3	28.7	24.8	33.7
111-119	57.6	10.3	18.6	26.2	23.6	27.9
120-124	57.1	9.8	17.8	25.5	22.6	27.0
125-129	56.9	9.6	17.6	24.1	22.3	26.7
130-148	42.1	8.4	15.2	21.6	19.1	22.5
149-174	42.1	7.9	15.2	20.7	19.1	20.5
175-178	41.1	7.4	14.2	19.6	18.3	19.3
179-219	40.2	6.6	13.3	18.4	17.7	16.5
220-244	25.4	5.4	10.9	15.9	14.4	12.3
245-289	25.1	5.1	10.6	15.3	14.2	11.1
290-299	24.9	4.9	10.4	14.4	14.0	10.9
300-379	24.6	4.6	10.0	14.0	13.4	10.4
380-437	24.5	4.5	9.8	13.2	13.2	10.1
438-489	17.1	3.9	8.6	11.9	11.6	8.1
490-739	16.9	3.7	8.4	11.6	11.5	8.0
740-	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T17. 20,000 lbs TNT Low Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Building Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
176-186	9.8	9.6	14.0	23.6	15.5	27.5
187-199	9.5	9.3	13.7	23.1	15.3	26.2
200-204	9.4	9.2	13.6	22.9	15.2	25.7
205-233	9.2	9.0	13.4	21.6	15.0	25.4
234-239	8.4	8.2	12.0	20.5	13.1	23.8
240-242	8.3	8.1	11.9	19.9	13.0	23.7
243-258	7.6	7.4	11.2	18.9	12.5	20.8
259-279	7.2	7.1	10.7	18.4	11.8	20.2
280-282	7.1	6.9	10.6	17.6	11.6	20.0
283-310	5.4	5.3	8.9	15.0	10.4	13.1
311-319	4.8	4.7	8.2	14.1	10.0	10.7
320-373	4.7	4.6	8.2	13.7	9.9	10.6
374-379	4.4	4.3	7.9	13.3	9.7	9.4
380-410	4.4	4.2	7.8	13.0	9.6	9.3
411-465	3.8	3.6	7.2	12.1	9.2	6.9
466-569	3.5	3.4	6.9	11.8	9.0	5.7
570-625	3.4	3.3	6.9	11.2	8.9	5.7
626-799	3.1	3.0	6.5	10.6	8.6	4.3
800-997	3.0	2.9	6.4	10.3	8.6	4.2
998-1059	2.8	2.7	6.2	10.0	8.4	4.1
1060-2659	2.6	2.5	6.1	9.2	8.3	3.9
2660-	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T18. 20,000 lbs TNT Medium Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Building Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
178-185	85.7	17.9	29.1	39.8	35.3	55.9
186-199	84.4	16.5	27.8	37.7	34.3	50.5
200-204	69.6	15.4	25.4	35.2	31.1	46.3
205-215	69.4	15.1	25.2	33.9	30.9	46.0
216-239	67.9	14.8	22.9	31.7	27.9	42.4
240-259	67.7	13.5	22.7	31.1	27.7	41.8
260-273	60.3	12.9	21.5	29.8	26.1	39.7
274-279	59.4	12.9	20.2	28.6	24.2	38.1
280-281	59.3	12.8	20.0	27.8	24.1	37.9
282-291	58.6	11.3	19.3	26.7	23.6	35.1
292-319	58.3	11.3	18.8	26.2	22.8	34.5
320-335	58.2	11.2	18.7	25.9	22.7	34.4
344-349	56.5	9.2	17.0	23.3	21.5	27.4
350-372	41.7	8.1	14.6	20.8	18.3	23.3
373-379	41.1	7.5	14.0	19.9	17.9	20.8
380-444	41.1	7.4	14.0	19.7	17.8	20.8
445-494	40.7	7.1	13.6	19.2	17.5	19.6
495-569	40.1	6.5	13.0	18.3	17.1	17.1
570-574	40.0	6.4	12.9	17.7	17.0	17.0
575-674	39.8	6.2	12.7	17.3	16.8	16.0
675-766	25.0	5.0	10.3	14.8	13.6	11.8
767-799	24.7	4.7	10.0	14.8	13.4	10.4
800-1059	24.6	4.6	9.9	14.0	13.3	10.3
1060-1099	24.5	4.5	9.8	13.1	13.2	10.1
1100-1237	17.1	3.9	8.6	11.9	11.5	8.0
1238-2659	16.8	3.7	8.4	11.6	11.4	7.9
2660-	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T19. 20,000 lbs TNT High Level of Protection

STANDOFF DISTANCE IN FEET	Percentage Building Cost Increase					
	BARRACKS EXTERNAL ENTRANCES	BARRACKS INTERIOR CORRIDOR	DINING FACILITY	ADMIN FACILITY	MEDICAL CLINIC	SPECIAL STRUCTURE
227-251	69.6	15.4	25.4	35.2	31.1	46.3
252-254	69.3	15.0	25.1	34.8	30.9	45.0
255-261	69.1	14.8	24.9	33.4	30.6	44.7
262-317	60.4	14.1	21.6	30.3	26.2	39.9
318-322	59.5	14.1	20.2	29.1	24.3	38.3
323-329	58.8	13.4	19.5	28.1	23.8	35.4
330-349	58.5	13.4	19.0	27.6	23.0	34.8
350-364	43.7	11.1	16.6	25.1	19.8	30.6
365-407	43.5	10.9	16.4	23.7	19.6	30.3
408-470	41.8	8.4	14.7	21.2	18.3	23.4
471-509	41.1	7.5	14.0	20.2	17.9	20.9
510-524	41.1	7.5	14.0	19.8	17.8	20.8
525-604	40.7	7.1	13.6	19.2	17.5	19.6
605-674	40.1	6.5	13.0	18.3	17.1	17.1
675-773	25.4	5.4	10.7	15.8	13.9	13.0
774-859	25.1	5.1	10.4	15.4	13.7	12.0
860-964	25.0	4.9	10.3	14.5	13.6	11.7
965-1099	24.6	4.6	9.9	14.0	13.3	10.3
1100-1159	17.2	4.0	8.7	12.7	11.7	8.2
1160-1516	17.1	3.9	8.6	11.9	11.5	8.0
1517-2659	16.8	3.7	8.4	11.6	11.4	7.9
2660-	2.1	2.0	4.7	7.0	7.3	3.9

Table AP4.T20. Ballistic Threat Low and High Levels of Protection

Structure Type	Percentage Building Cost Increases				
	Low Level of Protection	High Level of Protection			
		Low Threat Severity	Medium Threat Severity	High Threat Severity	Very High Threat Severity
DINING FACILITY	0.18	2.6	3.9	5.4	6.1
Administration Bldg.	0.81	17.5	25.3	27.8	30.4
Medical Clinic	0.12	3.1	4.4	5.8	6.5
Barracks, Exterior Entrance	0.13	6.4	8.1	15.0	17.0
Barracks, Corridor Entrance	0.13	3.1	4.5	5.2	5.7
Special Structures	0.18	4.2	5.0	9.7	11.9

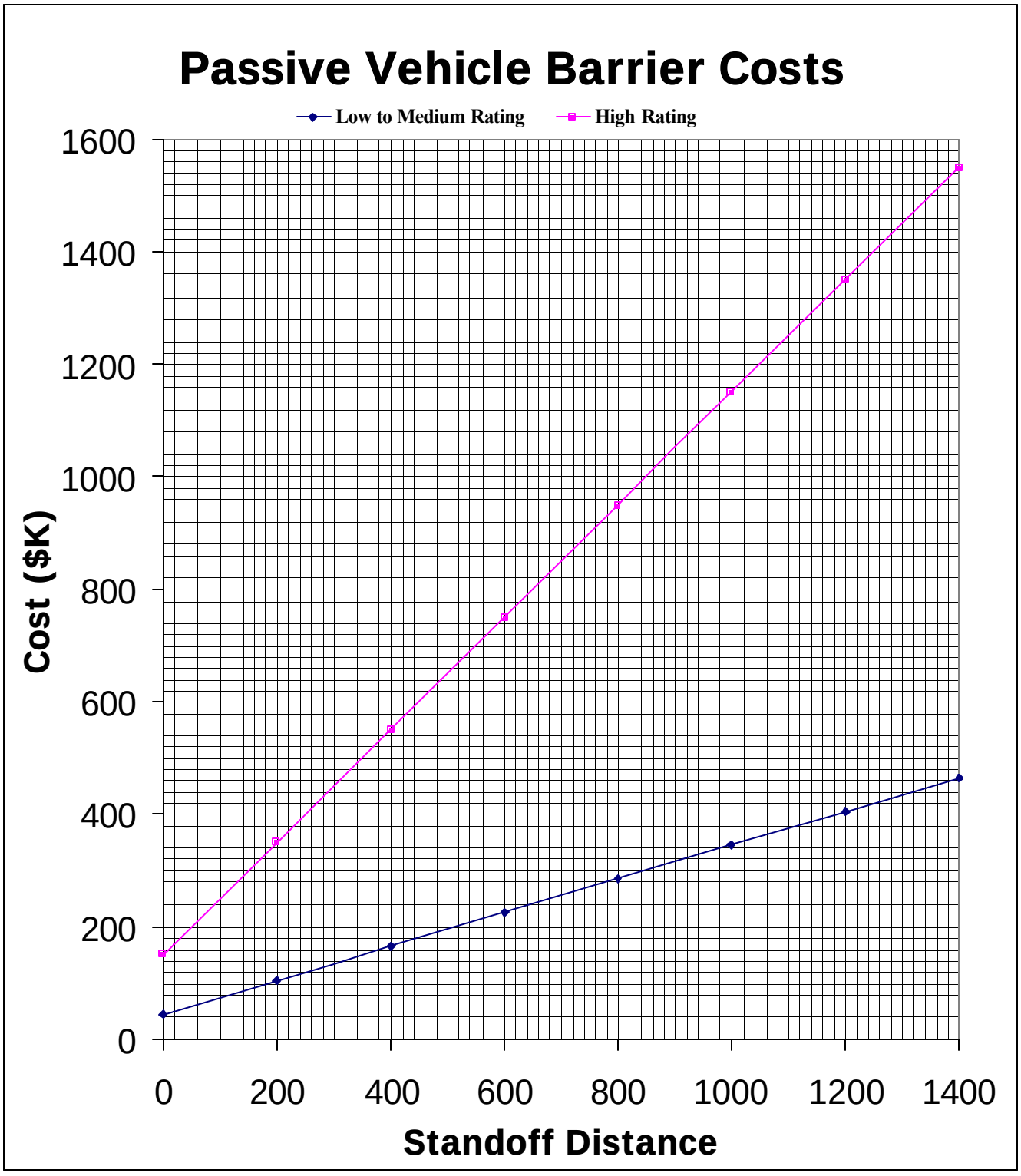
Table AP4.T21. Passive Vehicle Barrier Costs and Ratings

Rating	Cost Per Foot	Vehicle Weight (in lbs)	Vehicle Speed MPH
High	$100	60,000	Up to 25
High	$100	15,000	30-50
Low to Medium	$30	15,000	Up to 30
Low to Medium	$30	4,000	Up to 55
Non-rated fence	$23	Not Applicable	Not Applicable

Table AP4.T22. Active Vehicle Barrier Costs per Vehicle Entrance/Exit

Rating	Cost Per Vehicle Lane	Vehicle Weight (in lbs)	Vehicle Speed MPH
High	$42,000	60,000	Up to 25
High	$42,000	15,000	30-50
Low to Medium	$25,000	15,000	Up to 30
Low to Medium	$25,000	4,000	Up to 55
Non-rated access control gate	$2,000	Not Applicable	Not Applicable

Figure AP4.F1. Total Cost for Passive Vehicle Barrier Systems Versus Standoff Distance



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CIVIL ENGINEER SUPPORT AGENCY
TYNDALL AIR FORCE BASE, FLORIDA 32403-5319

15 Feb 00

MEMORANDUM FOR AT/FP POINTS OF CONTACT

FROM: HQ AFCESA/CESC (LAFRENZ)
139 Barnes Drive, Suite 1
Tyndall AFB, FL 32403-5219

SUBJECT: Erata to Interim Department of Defense Antiterrorism/Force Protection Construction Standards, December 16, 1999

1. The Security Engineering Working Group (SEWG) considered using agency comments about the Interim DoD AT/FP Construction Standards at their meeting on 8 Feb 00. The following erata to the Interim Standards are effective immediately. Official correspondence from the DoD will follow. The nature and impact of the erata requires immediate dissemination and implementation.

2. The following changes are applicable to Security Engineering Standard 1: Sitework.

a) Paragraph AP2.1.3. Facility Standoff/Separation. Delete the fourth, fifth, and sixth sentence. The remaining paragraph will read "Facility standoff distances are intended to prevent the progressive collapse of structures. For all cases below, standoff distances will be to the face of that portion of a structure that meets the criteria of an inhabited structure or a troop billeting or primary gathering structure. Portions of structures with lesser occupancies may be located within the stated standoff distances."

b) Paragraph AP2.1.3.1. Add the following after the existing sentence. "When the standoff distance is not available, select a cost for the low level of protection against a 50 pound TNT explosive at the available standoff. Costs to achieve the low level of protection are included in Appendix 4. For design purposes, design the building elements to sustain an equivalent degree of damage to what it would experience from a 50 pound TNT explosive placed at 80 feet."

c) Paragraph AP2.1.3.2. Add the following after the existing sentence. "When the standoff distance is not available, select a cost for the low level of protection against a 220 pound TNT explosive at the available standoff.

Costs to achieve the low level of protection are included in Appendix 4. For design purposes, design the building elements to sustain an equivalent degree of damage to what it would experience from a 220 pound TNT explosive placed at 150 feet."

d) Paragraph AP2.1.3.5. Change 50 feet to 30 feet. The sentence will read "Maintain a minimum building separation of 30 feet for troop billeting and primary gathering structures."

3. The following changes are applicable to Security Engineering Standard 4: Superstructure.

   Delete Paragraph AP2.4.1.1. Substitute the following. "AP2.4.1.1. For all inhabited structures of three stories or more, design to sustain local damage with the structural system as a whole remaining stable and not being damaged to an extent disproportionate to the original local damage. This shall be achieved through an arrangement of the structural elements that provides stability to the entire structural system by transferring loads from any locally damaged region to adjacent regions capable of resisting those loads without collapse. This shall be accomplished by providing sufficient continuity, redundancy, or energy dissipating capacity (ductility) or a combination thereof, in the members of the structure. That analysis will include removal of one primary vertical or one primary lateral load-carrying element without progressive collapse. For further guidance, refer to American Society of Civil Engineers Standard 7-95, Minimum Design Loads for Buildings and Other Structures."

4. Questions may be referred to the undersigned at DSN 523-6332 or e-mail Jim.Lafrenz@tyndall.af.mil.

JAMES L. LAFRENZ, P.E.
Security Engineering Working Group
Senior Structural Engineer

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