

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE _____ PAGE _____ OF _____ PAGES

2. AMENDMENT/MODIFICATION NO. _____		3. EFFECTIVE DATE _____	4. REQUISITION/PURCHASE REQ. NO. _____	5. PROJECT NO. <i>(If applicable)</i> _____
6. ISSUED BY _____ CODE _____		7. ADMINISTERED BY <i>(If other than Item 6)</i> _____ CODE _____		

8. NAME AND ADDRESS OF CONTRACTOR <i>(No., street, county, State and ZIP Code)</i> CODE _____ FACILITY CODE _____	(X)	9A. AMENDMENT OF SOLICIATION NO. _____
		9B. DATED <i>(SEE ITEM 11)</i> _____
		10A. MODIFICATION OF CONTRACT/ORDER NO. _____
		10B. DATED <i>(SEE ITEM 11)</i> _____

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended. Offers 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 your 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 ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: <i>(Specify authority)</i> 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 <i>(such as changes in paying office, appropriation date, etc.)</i> 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 <i>(Specify type of modification and authority)</i>

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.)*

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 <i>(Type or print)</i>		16A. NAME AND TITLE OF CONTRACTING OFFICER <i>(Type or print)</i>	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
<i>(Signature of person authorized to sign)</i>		<i>(Signature of Contracting Officer)</i>	

Item 14. Continued.

CHANGES TO VOLUME I – PROJECT INFORMATION, BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT

1. Standard Form 1442, Item 13.A. – **The date for Receipt of Phase II Design Proposals is hereby established to be “4 pm local time 2 May 2002”**

A revised Standard Form 1442 is attached showing the phase II Proposal Receipt Date.

2. Replacement Sections - Replace the following Section with the attached new Section of the same number and title, bearing the notation “ACCOMPANYING AMENDMENT NO. 0004 TO SOLICITATION NO. DACA63-02-R-0007.”

SECTION 00120 - PROPOSAL SUBMISSION REQUIREMENTS

3. Write-in change to Section 00700 CONTRACT CLAUSES – Revise the following clause to read as follows:

“52.236-1 PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least twelve **(12%) (am#4)** percent of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.”

CHANGES TO VOLUME II – DESIGN AND PERFORMANCE REQUIREMENTS

4. New Chapters - Add the following accompanying new chapter, bearing the notation "ACCOMPANYING AMENDMENT NO. 0004 TO SOLICITATION NO. DACA63-02-R-0007:"

CHAPTER F - DEMOLITION

5. Replacement Chapters - Replace the following chapters with the accompanying new chapters of the same number and title, each bearing the notation "ACCOMPANYING AMENDMENT NO. 0004 TO SOLICITATION NO. DACA63-02-R-0007:"

CHAPTER 111 - FACILITY PERFORMANCE
CHAPTER D7 - TELECOMMUNICATIONS
CHAPTER D71 - VOICE AND DATA
CHAPTER G12 - EARTHWORK
CHAPTER G21 - PAVEMENTS AND SURFACING
CHAPTER G3 - SITE SERVICES

CHANGES TO VOLUME III – SPECIFICATIONS

6. Replacement Sections - Replace the following Sections with the attached new Sections of the same number and title, each bearing the notation “ACCOMPANYING AMENDMENT NO. 0004 TO SOLICITATION NO. DACA63-02-R-0007.”

SECTION 01016 DESIGN DOCUMENT REQUIREMENTS
SECTION 01770 CONTRACT CLOSEOUT

CHANGES TO VOLUME IV – ATTACHMENTS

7. Replacement Drawings.- Replace the drawing listed below with the attached new drawing of the same number, bearing the notation "AM #0004":

c01.cal C1 PROJECT LOCATION MAP

END OF AMENDMENT

SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>	1. SOLICITATION NUMBER	2. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED	PAGE OF PAGES
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IMPORTANT - The "offer" section on the reverse must be fully completed by the offeror.

4. CONTRACT NUMBER	5. REQUISITION/PURCHASE REQUEST NUMBER	6. PROJECT NUMBER
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7. ISSUED BY	CODE	8. ADDRESS OFFER TO
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9. FOR INFORMATION CALL	A. NAME	B. TELEPHONE NUMBER (Include area code) (NO COLLECT CALLS)
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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):

11. The Contractor shall begin performance within _____ calendar days and complete it within _____ calendar days after receiving
 award, notice to proceed. This performance period is mandatory, negotiable. (See _____.)

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE PAYMENT BONDS? <i>(If "YES," indicate within how many calendar days after award in Item 12B.)</i> <input type="checkbox"/> YES <input type="checkbox"/> NO	12B. CALENDAR DAYS
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13. ADDITIONAL SOLICITATION REQUIREMENTS:

- A. Sealed offers in original and _____ copies to perform the work required are due at the place specified in Item 8 by _____ (hour) local time _____ (date). If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.
- B. An offer guarantee is, is not required.
- C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.
- D. Offers providing less than _____ calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

OFFER (Must be fully completed by offeror)

14. NAME AND ADDRESS OF OFFEROR (Include ZIP Code)	15. TELEPHONE NUMBER (Include area code)
	16. REMITTANCE ADDRESS (Include only if different than Item 14)
CODE	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 offer is accepted by the Government in writing within _____ calendar days after the date offers are due. (Insert any number equal or greater than the minimum requirement stated in 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)

AMOUNTS

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

19. ACKNOWLEDGEMENT OF AMENDMENTS
(The offeror acknowledges receipt of amendments to the solicitation - give number and date of each)

AMENDMENT NO.										
DATE										

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)	20B. SIGNATURE	20C. OFFER DATE
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AWARD (To be completed by Government)

21. ITEMS ACCEPTED

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA
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24. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)	ITEM	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO <input type="checkbox"/> 10 U.S.C. 2304(c) () <input type="checkbox"/> 41 U.S.C. 253(c) ()
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26. ADMINISTERED BY	CODE	27. PAYMENT WILL BE MADE BY
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CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

<input type="checkbox"/> 28. NEGOTIATED AGREEMENT (Contractor is required to sign this 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 contract.	<input type="checkbox"/> 29. AWARD. (Contractor is not required to sign this document.) Your offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.
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30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN (Type or print)	31A. NAME OF CONTRACTING OFFICER (Type or print)
30B. SIGNATURE	31B. UNITED STATES OF AMERICA
30C. DATE	BY
	31C. AWARD DATE

SECTION 00120
PROPOSAL SUBMISSION REQUIREMENTS
01/02
AMENDMENT NO. 0004

1 GENERAL

1.1 INTRODUCTION

Through the use of a two-phase procurement process, the Department of the Army desires to obtain the design and construction of Consolidated Library/Education Center Fort Polk, Louisiana. In this procurement procedure consideration will be given initially to the Project Organization and Personnel; Experience; Past Performance; and Financial Capacity. The offerors that are rated the highest on the Phase I evaluation criteria, minimum of two (2) but no more than four (4), will be selected and given the opportunity to offer their preliminary design and cost proposals in Phase II. Final selection and basis for award of the Design/Build Contract will be on the basis of qualifications, technical quality, price, and other salient factors considered to be in the Government's best interests. If awarded the Contract, the offeror shall complete the design and construction documents and construct the facility in compliance with these completed requirements.

1.2 WHERE AND WHEN TO SUBMIT PROPOSAL

Submit Phase I of the Proposal no later than the date and time indicated in Item 13.A of the Solicitation, Offer and Award form (Standard Form 1442) found in Section 00010, SOLICITATION, OFFER, AND AWARD. Offerors invited to participate in Phase II will be notified of the date and time for submission of their Phase II proposal.

1.3 EXPLANATION TO PROSPECTIVE OFFERORS

Any prospective offeror desiring an explanation or interpretation of the solicitation, drawing, specifications, etc. must request such in writing, and are directed to the individuals listed in Section 00100 INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS, soon enough to allow a reply to reach all prospective offerors before the submission of their proposals. Oral explanation/instructions given before award of a contract will not be binding. Any information given a prospective offeror concerning a solicitation will be furnished promptly to all other prospective offerors as an amendment to the solicitation, if that information is necessary for submitting proposals, or if the lack of it would be prejudicial to other prospective offerors.

1.4 REQUIRED TECHNICAL DATA FOR PROPOSAL SUBMISSION

Offerors are advised that the required data will be utilized for review and evaluation and used for determination of a "Quality Rating" by a Technical Evaluation Board and that all data submitted for consideration under this proposal will be reviewed only for the purposes required for evaluation and award. The Government will not make assumptions concerning the offeror's intent, capabilities, facilities, or experiences. Clear identification is the sole responsibility of the offeror.

1.5 PROPOSAL PREPARATION

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

1.5.1 Phase I – (AM#3) Primary Design Construction Team Management Proposal (AM#3)

- A. Solicitation, Offer, and Award
- B. Project Organization and Personnel
- C. Experience
- D. Past Performance
- E. Financial Capacity

- 1.5.2 Phase II – Design and Cost/Price Proposal (AM#3) Phase II will be submitted ONLY by those firms that are rated the highest on Phase I evaluation criteria, minimum of two (2) but no more than four (4).

- (AM#3)
- A. Design Proposal (Volume I)
 - B. Preliminary Project Schedule (Volume I)
 - C. Pro Forma Requirements (Volume II)

1.5.3 Format

1.5.3.1 Written Material

- a. All written material, including catalog cuts, shall be submitted in standard three ring loose-leaf binders. Proposals shall be tabbed and labeled in a manner to afford easy identification from a Table of Contents. Font size shall be not less than 10 point. Each page shall be identified with the appropriate page number centered at the bottom of the page. Sheet size of the proposal contents shall be 8 ½ by 11 inches. 11 by 17 inch sheets will be allowed for charts and tables but will be counted as 2 single-sided or 4 double-sided pages. Legibility, clarity, coherence, and the contents are important. The Phase I (Management/Technical) proposal length shall be limited to 70 single-sided or 35 double-sided pages, exclusive of the cover sheet, Table of Contents, and appendices. The offeror shall not submit verbatim sections or attachments of this solicitation as part of their proposal. Offers that do not meet these requirements may be subject to rejection.
- b. A cover sheet identifying the offeror and the project shall be provided. The second sheet shall be a Table of Contents.
- c. Table of Contents. The proposal shall contain a detailed Table of Contents. The complete Table of Contents shall be included in each binder used.
- d. Materials submitted but not required by this solicitation (such as company brochures and equipment lists) shall be relegated to appendices.
- e. Proposal revisions for written portions of the proposal, including catalog cuts and specifications, shall be submitted as page replacements with revised text readily identifiable, e.g. bold face print or underlined. The source of the revision, e.g. Error, Omission, or Clarification (EOC), amendment or other Contractor-initiated change, shall also be indicated for each revision. Revised pages shall be numbered, dated, submitted in same number of copies as the original proposal submittal, and a different color page than the original.

1.5.3.2 Drawings

- a. Full size drawings shall be submitted in accordance with Section 1016, DESIGN DOCUMENT REQUIREMENTS. Each drawing shall be identified with the appropriate Sequence and Sheet Numbers in the lower right hand corner. The original and one copy of all drawings must be full size drawings. The remaining copies may be full size or reduced size, but no smaller than 11 x 17 inches.
- b. All alternate designs, which may or may not be priced as additive or deductive items shall be graphically described on separate drawings from the base proposal design. All alternate designs shall meet the minimum requirements of the solicitation.
- c. Proposal revisions for drawings shall be submitted as sheet replacements with all changes identified on the drawings with clouds and in the title block, including the source of the revision, e.g. Error, Omission, or Clarification (EOC), amendment, or other Contractor-initiated change. Revised drawings shall be numbered, dated, and submitted in the same number of copies as the original proposal submittal.

1.5.3.3 Electronic Material

The offeror shall submit one copy of the proposal and all revisions, if applicable, on CD-ROM. All textual material, catalog cuts, and other non-drawing material shall be in Adobe Acrobat Portable Document Format (.pdf), arranged in the same order as the hard copy version with each section or part book marked. All drawings shall be formatted in accordance with Section 1016 DESIGN DOCUMENT REQUIREMENTS, Paragraph “.CAL Files.” The offeror must ensure that all textual material, if it has been scanned, has been converted to a text searchable document by using the Paper Capture tool in Adobe Acrobat.

1.5.4 Proposal Submission

The proposal submitted shall include an original, copies as indicated below, and one electronic copy on CD-ROM disk (Both Volumes of Phase II may be on the same CD-ROM disk.) Each proposal shall be marked to clearly identify the original and the copies. The copies shall be numbered. Volume II of Phase II shall be sealed in a single package separate from Volume I.

Phase I – Management/Technical Proposal	Original and nine (9) copies
Phase II – Design Proposal	
Volume I	Original and nine (9) copies
Volume II	Original and one (1) copy

1.6 REFERENCED PUBLICATIONS

Corps of Engineers' (COE) design criteria and manuals that are referenced in this solicitation, such as Technical Manuals (TM) and Instructions (TI), Military Handbooks, Engineering Regulations (ER), and Engineering Manuals (EM), can be downloaded from the Internet at the following address: <http://www.hnd.usace.army.mil/techinfo> or obtained from the current National Institute of Building Science's (NIB) Construction Criteria Base (CCB) CD-ROM disk. The COE SWD-AEIM, AR 190-51, and EC 1110-1-92 are on the Solicitation CD-ROM Disk. The Installation Information Infrastructure Architecture (I3A) guidelines can be downloaded from the Internet at the following address: <http://arch-odisc4.army.mil/>. Obtaining other referenced publications such as Federal and Military specifications, Military Standards, and industry standards (i.e., ASTM, ANSI, ACI, NFPA, building codes) will be the responsibility of each offeror. See Section 00100, paragraph "52.211-2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE DOD INDEX OF SPECIFICATIONS AND STANDARDS (DODISS) AND DESCRIPTIONS LISTED IN THE ACQUISITION MANAGEMENT SYSTEMS AND DATA REQUIREMENTS CONTROL LIST, DOD 5010.12-L (AUG 1998)", for information on obtaining these publications. Offerors are warned that due to the limited time for proposal preparation and submittal, there may not be enough time for ordering and receiving any of the above references. Failure to receive requested references will not be sufficient reason for extension of the proposal submission date.

1.7 UNNECESSARILY ELABORATE PROPOSALS OR QUOTATIONS

Unnecessarily elaborate brochures or other presentations beyond those sufficient to present a complete and effective response to this solicitation are not desired and may be construed as an indication of the offeror's lack of cost consciousness. Elaborate artwork, expensive paper and bindings, and expensive visual and other presentation aids are neither necessary nor wanted.

1.8 REQUIREMENT FOR SPECIAL MARKING OF PROPOSAL DATA

Envelopes or other cover for material submitted in response to this RFP shall be opaque, and must be so presented that they may easily be identified. At a minimum, the outside cover for each phase must show:

- Destination of Proposal
- Name and location of project as described in the RFP documents
- Solicitation number
- Name and address of offeror
- Project phase and volume number

Submit the proposal in the format specified. Oral or telephonic proposals or modifications will not be considered.

Mail or deliver the proposal to the address listed on the Standard Form 1442, "Solicitation, Offer and Award."

1.9 DESCRIPTION OF EVALUATION CRITERIA

1.9.1 Phase I – Management/Technical Proposal Preparation

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

(AM#3)

A. Solicitation, Offer, and Award: The Standard Form 1442 shall be completely filled out and signed by a principal of the firm authorized to bind the design;-build team. Signatures(s) must be in long hand.

B. Project Organization and Personnel:

1. Personnel (AM#3) Primary Design Construction Team):

a. **This factor considers the offeror's proposed design, construction, and management team.** Provide professional resume data on the individuals who will be key personnel on the (AM#3) **Primary Design Construction** project team. Key personnel identified in this section should be (AM#3) **Primary Contractor's** senior working-level people who will be involved in design and construction on a day-to-day basis, as opposed to departmental level supervisors or executives. If reassignment of personnel is considered possible, provide the names and resumes of the alternate professionals in each assignment.

See Sections 01015, 01320, 01430, and 01451 for minimum personnel qualifications. The following list shall be provided as a minimum:

Project Manager
Project Architect
Senior Structural Engineer
Senior Mechanical Engineer
Senior Electrical Engineer
Senior Civil Engineer
Fire Protection Engineer
Registered Communication Distribution Designer
NACE Certified Corrosion Specialist
Design Quality Control Manager
Construction Quality Control Manager
Project Scheduler
Interior Designer (AM#2)
Landscape Architect (AM#3)

Information to be provided includes:

Name
Project assignment
Name of firm with which associated
Years experience: with this firm, with other firms
Education: degrees(s)/year/specialization
Active registration: state and year first registered
Experience and qualifications relevant to proposed project: for each project listed, provide project description, project dates, the individual's project assignment to include specific roles and responsibilities, and its relevance to this solicitation.

- b. Identify the Designer(s)-of-Record for each discipline
- c. In an appendix, provide letters of commitment for all key personnel on the **AM#3) Primary Design/Construction** project team and any proposed alternate personnel. By identifying these personnel, the offeror is making a commitment that, barring unforeseen circumstances, they are the personnel who will be assigned to the project. A letter of commitment from each firm committing specific individuals from the firm may be provided in lieu of separate letters for each individual.
- d. Capacity to Perform
 - (1) Provide a list of key professional job titles. Indicate the total number of personnel in each category for the **(AM#3) Primary Design Construction Team** and consultants on the team and the number of personnel in each category who will be assigned to this project.
 - (2) Discuss capacity to successfully perform the requirements of this Contract based on current workload and staffing. Discuss strategy to provide supplemental and/or replacement personnel to support this project during design and/or construction, as necessary. In the appendix, provide a list of all current contracts for the **(AM#3) Primary Design Construction Team**, and consultants on the team.

2. Team Organization and Management:

- a. Provide an organizational chart and supporting narrative describing how the team will be structured. Include all key design and construction personnel and firms on the organizational chart. Discuss the specific roles and responsibilities of each key individual and firm.
- b. Describe the proposed management structure for the team. Discuss how the design and construction process will be managed, to include a discussion on delegation of authority within the team.
- c. Describe interactions within the team and with the Corps of Engineers during design. Discuss how design changes will be handled and the roles that various team members will play when dealing with design changes. Discuss the role of construction team members during design phase.
- d. Describe interactions within the team and with the Corps of Engineers during construction. Discuss how changes will be handled during construction and the roles that various team members will play when dealing with changes during construction. Discuss the role of design team members during construction. Specifically address design team's role in construction Quality Control program; Requests For Information (RFI's); shop drawing/submittal review and approval; attending progress meetings; site visits; inspections; and contract completion and closeout.
- e. Describe the time control systems to be utilized. Discuss the use of the project schedule for managing the design and construction. Describe internal procedures for handling delays to minimize time growth.
- f. Identify the items of work to be self-performed by offeror and the percentage of the overall contract value that this work represents.
- g. Describe the team's computer-aided drafting and design (CADD) capabilities. Identify the CADD software to be used in the design of this project; if all disciplines are not using the same CADD software, identify the software that each discipline is using. Discuss compatibility with the Government's target CADD and compliance with the Tri-Service A/E/C/ CADD standards. Explain how compatibility will be achieved if the design, or portion of the design, is prepared using a CADD system other than the Government's target CADD system. (Refer to Section 01016 for information on the Government's target CADD system and compatibility requirements.)

(AM#3) C. Experience

1. Provide a list of projects currently underway or completed within the last 5 years that best demonstrates the design and construction experience of the team (firms and/or individual team members) to successfully complete this facility using a design/build process. Experience beyond 5 years ago for construction contractors will not be given consideration unless the key personnel proposed for this project played a significant role in the earlier project and the project can be shown to be similar to this project. An offeror must make clear the extent of involvement in those projects by current key personnel and clearly describe how the older project is similar to this project, considering changes in technology, materials, equipment, codes, etc. Experience beyond 5 years ago for design firms will not be given consideration.

List no more than 10 projects total. The list of projects shall include the following information:

- a. Project name and location
- b. Type of facility
- c. Nature of firm's responsibility (design, construction or both)
- d. Identify type of contract (design, design/build, or construction)
- e. Project owner's name and address and project manager's (point of contact) name, telephone number, fax number, and email address (if known)
- f. If a government contract, include the contracting agency and contracting officer's name, telephone number, fax number, and email address (if known)
- g. Date started
- h. Original scheduled completion date
- i. Actual completion date
- j. Overall size of facility (in square feet or square meters)
- k. Construction cost (excluding design costs)
- l. Duration of construction (excluding design time)
- m. Problems encountered and corrective actions taken
- n. Identify which proposed team members and/or firms were involved in the project; their specific roles and responsibilities on the project; and the extent of time they were involved with the project
- o. Relevance of experience to the solicitation project

2. Joint Ventures: If offeror represents the combining of two or more companies for the purpose of this RFP, the proposal shall indicate whether the firms have experience working together in design/build ventures and for how long and how many projects. In addition, each company of this joint venture shall list their Government contract experiences.

(AM#3) D. Past Performance:

1. For each design and/or construction firm on the project team, provide firm's name, address, and DUNS number.
2. Offerors are encouraged to submit awards, letters, evaluations (ACASS, CCASS, and/or non-Corps evaluations), or other forms of recognition that demonstrates the performance capabilities and customer satisfaction for each firm on the team. If provided, this additional past performance information shall be included in an appendix and will not count towards the aforementioned page limitation.
3. For each non-Corps project listed under "Phase I: Experience" factor, offerors should send Client Authorization Letters and Contractor Performance Report (See Section 00500) to each reference listed in the proposal to assist in the timely processing of the past performance evaluation. In an appendix, provide a copy of issued letters with the offeror's proposal.

4. New Companies: For new companies entering the marketplace (without relevant company experience) it will be the quality of the past performance of their key management personnel (**AM#3 of the Primary Design Construction Team**), and consultants that will indicate the risk of good performance and become the basis of the past performance evaluation. Identifying how long key personnel stayed on their contracts and how well they managed their portion of the referenced contracts will be of great importance in the evaluation process.

(AM#3) **E. Financial Capacity**:

Submit a letter of current bonding capacity from a Bonding Company. This letter will not count towards the aforementioned page limitation.

1.9.2 Phase II – Design and Cost/Price Proposal Preparation

VOLUME I – PRELIMINARY DESIGN PROPOSAL

The purpose of the Preliminary Design Proposal is:

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

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

A. Design Proposal

1. The design proposal shall include, as a minimum, the following descriptive narratives, manufacturer's catalog data, and graphic information:

a. Narratives

(1) General Description

(a) Provide brief description of the facility addressing the overall design, materials components, and engineering. **DO NOT INCLUDE DESIGN CALCULATIONS.** Include the following:

(i) Basic site layout and the rationale behind the site design. Address existing site features, site demolition requirements, new utilities, site improvements, force protection requirements, camera (CCTV) layouts, landscaping, and irrigation.

(ii) Building's architectural configuration and the rationale behind the design. Address relationship of the site and site activities to the building. Address exterior and interior building materials. Discuss the compatibility of the proposed design and materials with the Fort Polk Installation Design Guide.

(iii) Building(s)' interior configuration, to include general discussion on interior finishes, including those in the library, classrooms, offices, general administrative areas, and common areas (copy rooms, break/vending areas, conference rooms, restrooms). Discuss use of common areas within the facility. **DO NOT PROVIDE COLOR BOARDS.**

(iv) NOT USED

(v) Structural system and the rationale behind the selection of the proposed system, including identification of major structural materials and systems.

(vi) Heating, Ventilation and Air Conditioning system and rationale behind the selection of the proposed system.

(vii) Fire protection system and the rationale behind the selection of the proposed system.

(viii) Exterior power distribution systems and the rationale behind the selection of the proposed system. Discuss service to the building and location. Identify type of wire. Identify whether aerial or underground.

(ix) Interior power distribution systems and the rationale behind the selection of the proposed system. Identify electrical characteristics of power supply (phase, voltage, KVA). Provide description of panels, protection devices and typical loading of circuits. Identify type of wire.

(x) Exterior lighting system and the rationale behind the proposed system. Address exterior lighting locations, illumination levels for each area, and lighting controls.

(xi) Interior lighting system and the rationale behind the selection of the proposed system. Address illumination levels for each area, emergency lighting, and lighting controls.

(xii) Exterior communications service to the facility. Discuss the proposed method for relocating existing underground communications line.

(xiii) Interior communications systems (telephone, data, cable TV, sound transmission) and the rationale behind the selection of each system.

(b) Describe the energy-efficient and/or energy-saving features proposed for this project.

(c) Discuss maintenance and accessibility considerations in the selection and layout of the mechanical and electrical systems.

(d) Identification of proposed methods of meeting security requirements.

(e) If the design proposal includes any deviations from the RFP requirements, including functional or adjacency requirements, identify the deviation, provide justification for the deviation, and describe the benefit/improvement that the deviation provides to the facility. (See Section 00150, paragraph "DESIGN FREEDOM".)

(f) Identify all proposed betterments. (See Section 00800, clauses entitled "DESIGN-BUILD CONTRACT ORDER OF PRECEDENCE" AND "PROPOSED BETTERMENTS".)

(2) Conceptual Considerations

(a) Discuss the overall architectural theme for this facility. Include in your discussion how the overall facility design, orientation and overall site layout contribute to the town center concept envisioned for the future development of this area of Fort Polk. Describe the aesthetics and ambiance proposed for the interior areas of the facility. **DO NOT PROVIDE COLOR BOARDS.**

(b) Provide a detailed narrative explaining the operational concept for the library and education center, to include the following information. Diagrams and/or flow charts may be provided to supplement the narrative.

- (i) Discuss patron flow through the facility, to include facility entrances, lobby/waiting area(s), restrooms, ...
- (ii) Discuss layout and flow through the facility for an operational perspective, to include: deliveries and distribution from the loading dock, use of the facility during regular and night hours and proposed future expansion capabilities.

b. Manufacturer Catalog Data

Manufacturer catalog data shall include industry standard quality indicators for the specific material or equipment and that will be used to establish the proposed construction quality during proposal evaluation. Data may be in the form of CSI standard product information formats Manu-Spec and Spec-Data, and/or manufacturer's specifications and details. Furnish data, arranged by CSI Divisions, on:

- (1) Windows
- (2) Doors
- (3) Interior finishes, to include floors, base, walls, ceilings, toilet partitions, lavatory tops
- (4) Exterior finishes, to include walls, roof, and soffits
- (5) Interior and exterior light fixtures, including identification of where each proposed fixture type will be used
- (6) Any other catalog data deemed pertinent

c. Graphic Information

Furnish preliminary drawings and schematics to illustrate the proposal. If a plan does not fit on one standard size drawing sheet at the scale specified, provide an overall plan to fit on one standard size drawing sheet plus individual sheets at the scale specified.

- (1) Site Layout Plan, minimum scale 1" = 100', showing:
 - (a) Building location
 - (b) Service drives and parking
 - (c) Location of site features (i.e. landscaping, sidewalks, lighting, mechanical and electrical equipment, dumpsters)
 - (d) Set-backs
- (2) Utility Layout Plan, minimum scale 1" = 100', showing:
 - (a) Proposed utility locations
 - (b) Electrical equipment
- (3) Grading Plan, minimum scale 1" = 100', showing:
 - (a) Finished floor elevation
 - (b) Proposed slopes
 - (c) Proposed drainage
- (4) Architectural Floor Plans, minimum scale 1/8" = 1', with all areas identified, showing:
 - (a) Gross area of building; exterior and interior dimensions; size of areas; critical and basic dimensions.
 - (b) Area calculations
 - (c) Door and window openings, including door swings
 - (d) Preliminary finish schedule
 - (e) Plumbing fixture locations, including drinking fountains
 - (f) Furniture layout, with seating capacity indicated
- (5) Exterior Elevations (all views), minimum scale 1/8" = 1', showing:

- (a) Fenestrations and material indications.
 - (b) Critical and basic dimensions.
 - (c) Exterior finish materials.
- (6) Building Sections (one transverse and one longitudinal), minimum scale 1/8" = 1', showing:
- (a) Space for structural and HVAC systems.
 - (b) Clearances.
 - (c) Materials.
 - (d) Building and grade to 5 foot line.
 - (e) Sloped roof and flat roof intersections.
 - (f) Crawl space (if proposed).
- (7) Typical Exterior Wall Sections including foundations, minimum scale 3/4" = 1', indicating materials, key vertical dimensions, and clearances.

(AM#4)

d. Sustainable Design. Using the Sustainable Project Rating Tool (SPiRiT), provide a self-assessment of the sustainability features of the facility (see Volume IV ATTACHMENTS for the Sustainable Project Rating Tool manual and rating sheets). For each required element and for each point-scored element where you will meet (or exceed) the requirement, provide justification of how you will meet the stated requirement. Justification shall be documented on the non-annotated version of SPiRiT tool (SPiRiT v1.4 (.doc), April 2001) available on the Internet at <http://www.cecer.army.mil/Sustdesign/SPiRiT.cfm>, or use the version that is on the Solicitation CD. Justification shall be inserted in the document immediately after the requirement text for each element. Label the justification as "Justification of Scoring". Scoring shall be summarized on the SPiRiT scoring sheet (SpiRiT v1.4 (.xls), April 2001) available at <http://www.cecer.army.mil/Sustdesign/SPiRiT.cfm> (this file is also located on the Solicitation CD). This scoring summary shall be attached to the front of the SPiRiT tool in the submitted documentation. Goal is minimum Silver level certification. If Silver level certification cannot be attained, discuss the factors that prevent achieving this goal.

B. Preliminary Project Schedule.

A time-scaled logic diagram shall be submitted with the Preliminary Design proposal reflecting the detailed design phase activities and summary level construction activities from Notice to Proceed through final completion, including all option work. Project Schedule shall conform to Section 01320 PROJECT SCHEDULE and may be used for preparation of the Preliminary Schedule required in Section 01320 after award. The following information shall be included as a minimum:

1. Detailed design activities
2. Summary level construction activities
3. Phasing requirements
4. Critical Path
5. Milestones and Constraints
6. Overall Design Duration, in calendar days
7. Overall Construction Duration, in calendar days
8. Overall Proposed Duration, in calendar days

The contractor shall propose the contract durations for Work Item #1, Design and Construction of the new facility. The proposed duration shall not exceed the duration specified in Section 01000, Design and Construction Schedule. The proposed schedule shall support the proposed duration. Upon contract award, the successful offeror's proposed duration shall become the contract duration for Work Item #1. It should be noted that the Government will include provisions in the contract for liquidated damages for each calendar day the Contractor exceeds the contract schedule.

(AM#3)

VOLUME II Pro Forma Requirements

C. (AM#3) Pro Forma Documents

1. Solicitations, Offer and Award. The Standard Form 1442 shall be completely filled out and signed by a principal of the firm authorized to bind the design-build team. Signature(s) must be in long hand.

2. Price Proposal Schedule (AM#3) Prices shall be firm. The offeror's price, to be considered in the competitive negotiation evaluation, shall be the offeror's Total Base Bid, plus all options, as shown on the price proposal schedule. The cost/price proposal will be evaluated separately, after evaluation of design proposal. The cost/price proposal shall consist of the following:

a. Offerors shall complete the Price Proposal Schedule by filling out the pricing data blanks.

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

c. Offerors shall include allowance for weather days in the Cost/Price Proposal and shall schedule any contingency for severe weather in accordance with weather requirements included in Section 01000, DESIGN AND CONSTRUCTION SCHEDULE.

3. Bid Guarantee. The bid guarantee shall be submitted in accordance with Section 00700, Contract Clauses.

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

5. Subcontracting Plan. (Applies to Large Businesses only.) All large businesses shall submit a subcontracting plan with their technical and price/cost proposals. The plan shall be prepared in accordance with FAR 52.219-9. Failure to submit an acceptable subcontracting plan may make the offeror ineligible for award of the contract. The submission of the subcontracting plan is in no way advantageous to large businesses over any small business in the evaluation process. A sample subcontracting plan and scoring checklist are included on the solicitation CD-ROM disk. See Section 00100, paragraph SMALL BUSINESS SUBCONTRACTING PLAN for additional information and Fort Worth District subcontracting floors.

6. Small Disadvantaged Business (SDB) Utilization Plan. (Applies to all Offerors.) Offerors shall submit a SDB Utilization Plan, to include the following information:

a. Identification of each SDB concern proposed and the work each is to perform. (See NOTE below regarding SDB certification.)

b. Targets expressed in dollars and percentages representing each SDB concern's participation of the total contract value.

c. Total target value of all SDB participation, expressed in dollars and percentages of the total contract value.

The offeror is put on notice that any targets represented in submitted proposal will be incorporated into and become part of any resulting contract.

NOTE: All proposed SDB concerns must be certified by the Small Business Administration and listed in the online database PRO-Net. SDB concerns may register in PRO-Net at <http://pronet.sba.gov>.

1.10 CLARIFICATIONS AND FINAL PROPOSAL REVISION

1.10.1 General

Any conflicting criteria which cannot be resolved by the Order of Precedence specified in Section 00800 SPECIAL CONTRACT REQUIREMENTS shall be brought to the attention of the Government by the Offeror as part of the written clarification requirement of the proposal. In the absence of such request for clarification, the Offeror shall perform to the most beneficial criteria as determined by the Government.

1.10.2 Clarifications Prior to Proposal Due Date

In the event that clarifications are required prior to submitting either the Phase I or II proposal, contact the individuals listed in Section 00100, INSTRUCTIONS TO OFFERORS. All RFP holders will be advised of significant clarifications affecting the scope of the project.

1.10.3 Clarifications Submitted with Proposals

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

1.10.4 Final Proposal Revision

If the Contracting Officer determines that discussions are necessary, all offerors in the competitive range will be given an opportunity to submit a final proposal revision. All proposal revisions must be submitted as required in paragraphs 1.5.3.1 and 1.5.3.2.

1.11 PAYMENT FOR PROPOSALS

Those offerors given the opportunity to offer Phase II proposals but not awarded the Design/Build contract are eligible to receive \$25,000 (each) as a proposal development fee. To receive this fee, the eligible offeror must have submitted a Phase II proposal that met the minimally acceptable design criteria, not have withdrawn their proposal prior to award of the Design/Build contract, and agree to give the Government total and unlimited rights to the design submitted in their Phase II proposal. After notification to the unsuccessful offerors in Phase II, a purchase order will be issued to all eligible offerors. Payment will be made upon acceptance by the offeror of the purchase order incorporating the above conditions.

Those offerors who do not want to give the Government total and unlimited rights to their design must state in their proposal that they are waiving their right to receive the proposal development fee.

1.12 NOTICE

Failure to submit all the data indicated in this section may be cause for determining a proposal non-responsive and, therefore, not considered for award.

2 PRODUCTS (NOT USED)

3 EXECUTION (NOT USED)

END OF SECTION

CHAPTER 111**FACILITY PERFORMANCE****PERFORMANCE****A. Basic Function:**

1. Provide built elements and site modifications as required to fulfill needs described in the project program.
2. The complete project comprises the following elements:
 - a. Substructure (A): Elements below grade and in contact with the ground.
 - b. Shell (B): The superstructure, exterior enclosure, and the roofing.
 - c. Interiors (C): Interior construction, stairs, finishes, and fixtures, except fixtures associated with services and specialized equipment.
 - d. Services (D): Mechanized, artificial, automatic, and unattended means of supply, distribution, transport, removal, disposal, protection, control, and communication.
 - e. Equipment and Furnishings (E): Fixed and movable elements operated or used by occupants in the functioning of the project.
 - f. Demolition (F): Removal of unneeded and undesirable existing elements. Storm water pollution prevention at the disturbed site.
 - g. Sitework (G): Modifications to the site, site improvements, and utilities.
3. Code: Make all portions of the project comply with the code. The code referred to herein consists of all applicable local, State, and federal regulations, including those listed below:
 - a. Federal Regulatory Requirements:
 - 1) Americans with Disabilities Act of 1990, as a public accommodation, as implemented in:
 - a) 28 CFR 35, Department of Justice regulations relating to State and local governments, including ADAAG.or UFAS(FED-STD-795).
 - b) 28 CFR 36, Department of Justice regulations, including ADAAG-1994.
 - c) 49 CFR 27, 37, and 38, Department of Transportation regulations, including ADAAG-1994.
 - 2) 29 CFR 1910-1997, Occupational Safety and Health Standards, as a work place.
 - 3) MIL-HDBK-1008C (10 June 1997) Fire Protection For Facilities Engineering, Design and Construction
 - 4) DG1110-3-112 Design Guide For Army Continuing Education System Centers
 - 5) DG1110-5-110 Design Guide For Army Libraries
 - b. State of Louisiana regulatory requirements, which incorporate and/or amend the following:
 - 1) deleted (Am#4)
 - 2) Erosion and sedimentation control regulations.
 - c. Non-Regulatory Criteria Documents: In addition to specific regulatory requirements, the following documents are also incorporated into the definition of "the code" for the purposes of this project, except for administrative provisions contained therein; where referenced, the role of the code official described in the document will be performed by Government.
 - 1) NFPA 70-2002, National Electrical Code.
 - 2) NFPA 101-2000, Safety to Life From Fire in Buildings and Structures.
 - 3) ICC International Building Code, 2000 edition.
 - 4) ICC International Plumbing Code, 2000 edition.
 - 5) ICC International Mechanical Code, 2000 edition.
 - 6) ICC International Fuel Gas Code, 2000 edition.
 - 7) Fort Polk Installation Design Guide
 - 8) SWD Architectural and Engineering Instructions Manual (SWD-AEIM), October 2000
 - d. Occupancy: The primary occupancy of the project, according to the code, is Use Group E (Educational).

- 1) A secondary occupancy, according to the code, is Use Group A (Assembly).
4. Environmentally Responsible Design: In addition to other requirements, provide design and construction that minimizes adverse effects on the exterior environment, enhances the quality of the indoor environment, and minimizes consumption of energy, water, construction materials, other resources, and protection of workers. Design comply with SWD-AEIM, Chapter X11, Environmental Design. All pre-construction permits, notification, licenses and initial operation permits and related fees is in accordance with applicable Federal, state, and local regulations.
 - a. Achieve at least a Silver rating in accordance with Sustainable Project Rating Tool (SPiRiT) which is derived from The U. S. Green Building Council LEED 2.0 (Leadership in Energy and Environmental Design) Green Building Rating System; selection of specific credits to achieve is the responsibility of Contractor unless otherwise indicated; comply with criteria specified in current Sustainable Project Rating Tool (SPiRiT) documentation as well as related criteria specified in other chapters.
 - b. The goals listed below are some of those that are applicable to the project.
 - 1) The goals indicated as "desirable" will be given high priority in evaluating proposals, as specified in Sections 00120 PROPOSAL SUBMISSION REQUIREMENTS and 00150 PROPOSAL EVALUATION AND CONTRACT AWARD.
 - 2) The goals indicated as "if possible" must be achieved if the design and site considerations allow.
 - 3) The goals indicated "as specified" have different requirements specified in other Chapters.
 - c. Site Selection: The site:
 - 1) Is not prime agricultural land, public parkland, lower than 5 feet above the 100-year flood, habitat for threatened or endangered species, or within 100 feet of wetland.
 - 2) Is located in an area of existing development with infrastructure services.
 - d. Water Conservation:
 - 1) Landscaping requiring no potable water for maintenance: Desirable.
 - 2) Reduction of potable water use for sewage conveyance: Required.
 - 3) Reduction of water used by plumbing fixtures, appliances, and equipment, in excess of regulatory requirements: Desirable.
 - e. Energy Conservation:
 - 1) Energy efficiency exceeding minimum by 10 percent: Desirable.
 - f. Conservation of Materials and Resources:
 - 1) Recycling and/or salvaging of construction waste: Required.
 - 2) Use of materials containing recycled content: Desirable.
 - 3) Use of local/regional materials: Desirable.
 - 4) Use of rapidly renewable materials: Desirable.
 - 5) Use of certified wood: Required.
 - g. Indoor Environmental Quality:
 - 1) Smoking will be prohibited in the building.
 - 2) Minimum ventilation performance: Required.
 - 3) Carbon dioxide monitoring and control: Not Required.
 - 4) Use of materials that are low-emitting, non-toxic, and chemically inert: Desirable.
 - 5) Control of sources of indoor pollutants: Desirable.
 - 6) Individual occupant control of environmental systems: If possible.
 - 7) Individual occupant control of lighting systems: Required.
 - 8) Thermal comfort conditions: As specified.
 - 9) Provision of daylighting: As specified.
 - 10) Provision of views to outdoors: Desirable.
 - 11) Humidity control: Required.
 - h. Substantiation:
 - 1) Design Development and Construction Documents Stages: SPiRiT Checklist annotated to show status of design related to specific credits to be achieved and a comprehensive checklist of certification document specified in SPiRiT Reference

Guide annotated to show status of preparation of documentation.

- 2) Design Development and Construction Documents Stages:
 - a) LEED Checklist annotated to show specific credits status of design related to specific credits to be achieved.
 - b) Appropriate documentation relevant to the degree of completion of the design; at subsequent design stages it will not be necessary to repeat submissions of the same documentation unless the design has changed.
 - 3) At Completion: Field tests demonstrating compliance with any criteria that is not possible to substantiate until completion. SPiRiT Certification.
5. In addition to the requirements of this chapter, comply with requirements of Chapter 1 - Program Summary, Chapter 11 - Program, and Chapter 00830 - Design and Construction Procedures.

B. Health and Safety:

1. Prevention of Accidental Injury: As required by code and as follows:
 - a. Safety Glazing: As defined by 16 CFR 1201; provide in locations required by code.
 - b. Other requirements specified in other Chapters.
 - c. Substantiation:
 - 1) Design Development: Identification of safety measures taken, detailed description of design criteria, and structural analysis of load-resisting elements prepared by licensed structural engineer.
 - 2) Construction Documents: For load-resisting elements, structural design calculations and drawings sealed by licensed structural engineer.
2. Lightning Hazard: Design to prevent damage to occupants, structure, services, and contents due to lightning strikes if a lightning protection risk analysis produces a "moderate" or higher risk.
 - a. Provide protection equivalent to that specified in NFPA 780-1997; supplementary strike termination devices, ground conductors, and grounding electrodes are required only where the integral portions of the structure cannot perform those functions.
 - b. Ground Resistance Measurement Methods: As described in IEEE 81-1983.
 - c. Substantiation:
 - 1) Design Development: Description of engineering basis of design, including grounding terminal design.
 - 2) Design Development: If grounding in very shallow or dry soil, or in rock, is required, ground resistance measurements and engineering analysis of ground terminal design.
 - 3) Design Development: Diagrams showing locations of strike (air) terminals and zones of protection; identification of internal components that require bonding to equalize potential.
 - 4) Construction Documents: Engineering analysis of equalization of potential to metal bodies within the structure.
 - 5) Construction Documents: Drawings showing locations and sizes of conductors, bonding of metal bodies, and components; detailed installation specifications.
 - 6) Commissioning: Continuity tests for grounding conductors, equipotential bonding of other systems, and ground terminals; ground resistance test for each ground terminal, or equivalent taking into account related grounding systems.
 - 7) Commissioning: Certification of system complying with UL Master Label requirements.
 - 8) Closeout: Maintenance and inspection procedures.
 - 9) Closeout: Project record data; location of ground terminals, ground resistance and soil conditions at time of test.
3. Health Hazards:
 - a. Design to prevent growth of fungus, mold, and bacteria on surfaces and in concealed spaces.
 - b. Hazardous Construction Materials: Design and construct to comply with the requirements of the code and the following:

- 1) All existing below grade non-friable asbestos and asbestos-containing or lead contaminated materials must be removed entirely from the proposed site using procedures specified by federal, state, and local regulations.
 - 2) No asbestos containing material.
 - 3) Paint proposed for use containing not more than 0.06 percent lead by weight of the non-volatile.
 - 4) Paint for interior use containing no mercurial mildewcide or insecticide.
 - 5) No Class I or Class II ozone depleting substance use for fire suppressants, refrigerants, and solvents.
 - 6) Substantiation:
 - a) Design Development: Identification of methods to be used to comply with requirements; ventilation design calculations. Identification of unusual indoor contaminants or sources and methods to mitigate their effects on occupants.
 - b) Construction Document: Certificates or manufacturer product specification showing material met the requirement. Specifications for abatement of asbestos and lead containing materials.
- c. Indoor Air Quality: Design and construct to comply with the code and the following:
- 1) Acceptable air quality as defined by ANSI/ASHRAE 62-1999.
 - 2) Substantiation:
 - a) Construction Documents: Specifications showing that construction materials are not contaminant sources and do not adversely affect air quality.
 - b) Commissioning: Field measured outside and supply air quantities for each air handler.
 - c) Occupancy: Field testing to show compliance, after full occupancy.
4. Electrically-Operated Equipment and Appliances: UL listed for application or purpose to which they are put; suitable for wet locations listing for exterior use.
- C. Durability:
1. Expected Service Life Span: Expected functional service life of the built portions of this project is 50 years.
 - a. Service life spans of individual elements that differ from the overall project life span are defined in other Chapters.
 2. Animals: Do not use materials that are attractive to or edible by animals or birds.
 3. Insects: Do not use materials that are edible by insects, unless access by insects is prevented.
- D. Operation and Maintenance:
1. Energy Efficiency: Minimize energy consumption while providing function, amenity, and comfort specified.
 - a. Provide energy efficient design using design information from U.S.Army Corps of Engineers Technical Instructions Design Criteria, TI-800-01 20 July 1998.
 - 1) Provide at least 10 percent less energy consumption than that indicated in chapter 11, table 11 of TI-800-01 when performing energy budget analysis.
 - b. Substantiation:
 - 1) Construction Documents: Detailed listing of design criteria and design analysis showing compliance, prepared by a licensed mechanical engineer.
 2. Ease of Operation: Provide facility, equipment, and systems that are easily operated by personnel with a reasonable level of training for similar activities.
 - a. Minimize the need for specialized training in operation of specific equipment or systems; identify all equipment and systems for which the manufacturer recommends or provides training programs.
 - b. Train Government's personnel in operation of equipment and systems; see Chapter 00830

for additional requirements. See Section 01770 CONTRACT CLOSEOUT for additional requirements.

ELEMENTS AND PRODUCTS

- A. In addition to requirements specified in other chapters, provide products and elements that comply with the following.
- B. Elements Made Up of More Than One Product:
1. Where an element is specified by performance criteria, use construction either proven-in-use or proven-by-mock-up, unless otherwise indicated.
 - a. Proven-In-Use: Proven to comply by having actually been built to the same or very similar design with the same materials as proposed and functioning as specified.
 - b. Proven-by-Mock-Up: Compliance reasonably predictable by having been tested in full-scale mock-up using the same materials and design as proposed and functioning as specified. Testing need not have been accomplished specifically for this project; when published listings of independent agencies include details of testing and results, citation of test by listing number is sufficient (submission of all test details is not required).
 - c. The Contractor may choose whether to use elements proven-in-use or proven-by-mock-up, unless either option is indicated as specifically required.
 - d. Where test methods accompany performance requirements, use those test methods to test the mock-up.
 - e. Exception: Where a design analysis is specified, or allowed by the Government, substantiation of proven-in-use or proven-by-mock up construction is not required.
 2. Where a type of product is specified, without performance criteria specifically applicable to the element, use the type of product specified.
 3. Where more than one type of product is specified, without performance criteria specifically applicable to the element, use one of the types of products specified.
 4. Where a type of product is specified, with applicable performance criteria, use either the type of product specified or another type of product that meets the performance criteria as proven-in-use or proven-by-mock-up.
 5. Where more than one type of product is specified, with applicable performance criteria, use either one of the types of products specified or another type of product that meets the performance criteria as proven-in-use or proven-by-mock-up.
 6. Where neither types of products nor performance criteria are specified, use products that will perform well within the specified life span of the building.
- C. Products:
1. Where a product is specified only by a manufacturer name and model number/brand name, use only that model/brand product.
 2. Where the properties of a product are specified by description and/or with performance criteria, use products that comply with the description and/or performance criteria.
 3. Where manufacturers are listed for a particular product, use a product made by one of those manufacturers that also complies with other requirements.
 4. Builders' Hardware:
 - a. All hardware, including hinges, closers, locksets, exit devices, door hold open devices, and door stops, shall be grade 1 in accordance with the Builders Hardware Manufacturers Association ANSI/BHMA Standards.
 - b. Lock Trim: Lock trim shall be cast, forged, or heavy wrought construction of commercial plain design. In addition to meeting the test requirement of BHMA A156.13, knobs, lever

handles, roses, and escutcheons shall be 0.050 inch (1.27mm) thick, if unreinforced. If reinforced, the outer shell shall be 0.035 inch (0.89 mm) thick and the combined thickness shall be 0.070 inch (1.78 mm) except that knob shanks shall be 0.060 inch (1.52 mm) thick. Knob diameter shall be 2-1/8 to 2-1/4 inches (54 to 57 mm). Lever handles shall be of plain design with ends returned to no more than 1/2 inch (10 mm) from the door face.

- c. Lock Cylinders and Cores (Mortise, Rim and Bored)
 - 1) Lock cylinders shall comply with BHMA A156.5. Lock cylinder shall have not less than seven pins.
 - 2) Cylinders shall have key removable type cores.
 - a) Disassembly of knob or lockset shall not be required to remove core from lockset.
 - b) All locksets, lockable exit devices, and padlocks shall accept the same interchangeable cores.
 - 3) Provide a master keying system.
 - 4) Provide a construction master keying system .
 - a) Use the manufacturer's standard construction key system.
 - 5) Keying: Locks shall be keyed in sets or subsets in accordance with the approved schedule. Change keys for locks shall be stamped with change number and the inscription "U.S. Property - Do Not Duplicate." The keys shall be furnished to the Contracting Officer arranged in a container in sets or subsets as scheduled.
 - 6) Keys shall be supplied as follows:
 - a) Locks: 3 change keys each lock.
 - b) Master keyed sets: 4 keys each set.
 - c) Construction keys: 4 total.
- d. Special Requirements for Fort Polk, Louisiana
 - 1) Lock cylinders and cores: Cylinders and cores for locksets other than those for mechanical rooms shall be manufactured by Best Lock Corporation to extend the existing Post keying system. Locksets for mechanical rooms only shall be keyed to the existing Post utilities master keying system, consisting of locksets manufactured by Arrow Lock Co., Keyway K-7; furnish keys "0" bitted.
 - 2) Keying: Locks shall be furnished with the manufacturer's standard construction cores and key system. Permanent cylinders, cores, keys, and the lock set-up code shall be sent to the Contracting Officer by registered mail or other approved means.

- 5. Gypsum Board Products: Gypsum Board Products shall not contain asbestos.

SUBSTANTIATION

A. Definition: Substantiation is any form of evidence that is used to predict whether the design will comply with the requirements or to verify that the construction based on the design actually does comply. Proposal substantiation requirements are specified in Division 1 Sections 00120 PROPOSAL SUBMISSION REQUIREMENTS and 00150 EVALUATION FACTORS FOR AWARD. During Design Development and Construction Documents, requirements to submit substantiation are primarily intended to forestall use of designs or constructions that will not comply. At any time before completion of construction, substantiation is presumed to be only a prediction and may subsequently be invalidated by actual results.

- 1. Regardless of whether substantiation is specified or not, the actual construction must comply with the specified requirements and may, at the Government's discretion, be examined, inspected, or tested to determine compliance.
- 2. Substantiation submittals will not be approved or accepted, except to the extent that they are part of documents required to be approved or accepted in order to proceed to the next stage of design or construction. However, approval or acceptance of substantiation will not constitute approval or acceptance of deviations from the specified requirements unless those deviations are specifically identified as such on the submittal. See Division 1 Sections 01015 DESIGN REQUIREMENTS AFTER AWARD and 01330 CONSTRUCTION SUBMITTAL PROCEDURES for definitions of "approved" and "accepted" submittals.

3. The Government accepts the responsibility to review substantiation submittals in a timely manner and to respond if they are unacceptable.
- B. In addition to the requirements stated in other chapters, provide the following substantiation of compliance at each stage of the project:
1. See also Division 1 Sections 01015 DESIGN REQUIREMENTS AFTER AWARD and 01330 CONSTRUCTION SUBMITTAL PROCEDURES for submittal requirements.
- C. Design Analyses (including Engineering Calculations):
1. Where a design analysis or calculation is specified without identifying a particular method, perform analysis in accordance with accepted engineering or scientific principles to show compliance with specified requirements, and submit report that includes analysis methods used and the name and qualifications of the designer.
 2. Submit design analyses at the end of Design Development and Construction Document stages as required in Division 1 Section 01016 DESIGN DOCUMENT REQUIREMENTS .
- D. Products:
1. Where actual brand name products are not identified by the Government, identify the products to be used.
 2. In the Proposal:
 - a. See Division 1 Section 00120 PROPOSAL SUBMISSION REQUIREMENTS for substantiation requirements.
 3. During Design Development:
 - a. Where more than one product type is identified for a particular system, assembly, or element, identify exactly which type will be used.
 - b. For each product type, provide descriptive or performance specifications; early submittals may be brief specifications, but complete specifications are required prior to completion of construction documents.
 - c. For each product type, identify at least one manufacturer that will be used.
 - d. For major manufactured products that are commonly purchased by brand name, and any other products so indicated, provide manufacturer's product literature on at least one actual brand name product that meets the specifications, including performance data and sample warranty.
 4. During Construction:
 - a. Identify actual brand name products used for every product, except commodity products specified by performance or description.
 - b. Where a product is specified by performance requirements with test methods, and if so specified, provide test reports showing compliance.
 - c. Provide manufacturer's product literature for each brand name product.
 - d. Provide the manufacturer's certification that the product used on the project complies with the contract documents.
 - e. Builders' Hardware:
 - 1) **Hardware and Accessories:** Manufacturer's descriptive data, technical literature, catalog cuts, and installation instructions. Spare parts data for locksets, exit devices, closers, electric locks, electric strikes, electro-magnetic closer holder release devices, and electric exit devices, after approval of the detail drawings, and not later than 3 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.
 - 2) **Hardware Schedule:** Hardware schedule listing all items to be furnished. The schedule shall include for each item: the quantities; manufacturer's name and catalog numbers; the ANSI number specified, sizes; detail information or catalog cuts; finishes; door and frame size and materials; location and hardware set identification

- cross-references to drawings; lock trim material thicknesses; lock trim material evaluation test results; corresponding reference standard type number or function number from manufacturer's catalog if not covered by ANSI or BHMA; and list of abbreviations and template numbers.
- 3) **Electronic Access Systems:** Detail drawings for hardware devices for computerized keying systems, magnetic cards, keyless push button access control systems, and other electrical hardware devices showing complete wiring and schematic diagrams and other details required to demonstrate proper function of units.
 - 4) **Certificates of Compliance:** The hardware manufacturer's certificates of compliance stating that the supplied material or hardware item meets specified requirements. Each certificate shall be signed by an official authorized to certify in behalf of the product manufacturer and shall identify quantity and date or dates of shipment or delivery to which the certificates apply. A statement that the proposed hardware items appear in BHMA L & R Directory, BHMA Closer Directory and BHMA Exit Devices Directory directories of certified products may be submitted in lieu of certificates.
 - 5) **Buy American Act:** Furnish a separate certificate of compliance attesting that hardware items conform to the Section 00700 Contract Clauses pertaining to the Buy American Act.
- f. Gypsum Board Products: Submit certification that gypsum board products, such as gypsum wallboard, gypsum backing board, cementitious backer units, and joint treating materials do not contain asbestos.
5. Before End of Closeout:
- a. Provide copies of all manufacturer warranties that extend for more than one year after completion.

END OF CHAPTER 111

CHAPTER D7

TELECOMMUNICATIONS

PERFORMANCE

A. Basic Function:

1. Provide the following telecommunication services:
 - a. Voice and Data (D71): Infrastructure for voice and data transmission.
 - b. Sound Reinforcement (D72): Public address system in library.
 - c. Television (D73): Television (CATV & Satellite) cabinet, cabling, and outlets.
2. Where telecommunications elements also must function as elements defined within another element group, meet the requirements of both element groups.
3. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance, Chapter D - Services, and Chapter G3 - Site Services.

B. Health and Safety:

1. Electrical Hazards: Design in accordance with all NFPA standards that apply to the occupancy, application, and design.
 - a. Control access to spaces housing telecommunication components by providing a lockable door into room.
2. Emergency Systems: Provide a UPS for when normal power is interrupted, for the following:
 - a. Systems and areas as required by code.
 - b. All quadraplex receptacles in telecommunication room(s).

C. Durability:

1. Enclosures: As required to protect equipment from environment in which it is installed, complying with NEMA 250-1997.
 - a. Interior, Other Locations: Type 1.

D. Operation and Maintenance:

1. Capacity: Design systems to deliver required performance while operating within their intended ratings.
2. Power Consumption and Efficiency:
 - a. Comply with requirements for energy efficiency of electrical equipment in ASHRAE 90.1-1999.

PRODUCTS

A. Provide the following:

1. Telecommunication Room(s). Room(s) shall be located centrally in the area(s) it serves. Room(s) shall be located such that maximum horizontal copper cable distance from the patch panel through the structured cabling system to the furthest outlet does not exceed 300 feet (90 m). A minimum of one room shall be provided per floor.
 - a. Plywood Backboards. Backboards shall be 3/4" (21 mm) thick, 8 feet (2440 mm) tall and shall completely cover as a minimum the width of two walls within each telecommunication room. Backboards shall be finished with a fire resistant coating and rigidly attached to the wall to support all attached equipment.
 - b. Equipment Racks. If a single telecommunication room is provided (allowed only in a single story facility) then sufficient racks shall be installed to accommodate all contractor provided rack mounted equipment, and an additional 3 spare racks shall be installed for equipment to be provided by others. In addition, sufficient space shall be provided to accommodate a

55 inch wide by 43.5 inch deep cabinet for the ADLP classroom servers to be provided and installed by others. If more than one telecommunication room is provided then each room shall be provided with sufficient racks to accommodate all contractor provided rack mounted equipment. In addition, the primary telecommunications room shall be provided with 2 additional spare racks and the secondary rooms shall be provided with one additional spare rack. The room closest to the ADLP classrooms shall also be sized to accommodate the 55 inch by 43.5 inch cabinet mentioned above. Racks shall be floor mounted open frame type, shall be centered in the room as much as possible and shall have a minimum working space of 3 feet (915 mm) on all four sides. Minimum working space also applies to ADLP server cabinet. Adjacent racks may share working space. Racks shall be 19 inches (480 mm) wide and 7 feet (2.1 m) tall. Racks shall be welded steel relay racks with uprights to mount equipment. Uprights shall be 3 inches (75 mm) deep channel, 1-1/4 inches (32 mm) wide, drilled and tapped 12-24 in a 1/2 inch (13 mm) pattern. Racks shall be provided with a standard top crossmember, and predrilled base plate to allow floor fastening. Racks shall be clear coated. A floor surface mounted quadraplex receptacle shall be provided adjacent to the dedicated space allocated for the government installed ADLP server cabinet. Receptacle shall be on a dedicated circuit.

- 1) Cable Guides. Cable guides shall be specifically manufactured for the purpose of routing cables, wires and patch cords horizontally and vertically on equipment racks. Cable guides shall consist of ring or bracket-like devices mounted on rack panels for horizontal use or individually mounted for vertical use. Cable guides shall mount to racks by screws and/or nuts and lockwashers.
- c. Cable Rack. A channel type cable rack shall be provided to provide distribution between the backboards, equipment racks, riser conduits, and the distribution cable tray.
- d. Climate Control. Each room shall be independently climate controlled capable of providing cooling year round (24 hours/day, 365 days/year) to protect all installed electronic equipment. Room(s) shall be provided with positive atmospheric pressure to exclude dust.
- e. Single Jack Outlet. Each room shall be provided a wall outlet for voice mounted near the door at a height of 4 feet (1220 mm).
- f. Grounding. A # 6 AWG bare copper conductor shall be used as a grounding conductor. All grounding conductors listed below shall be connected to the facility's primary grounding electrode system in accordance with EIA/TIA 607. When penetrating walls or floors grounding conductor shall be placed in a 3/4 inch (21mm) conduit.
 - 1) Plywood Backboard. 10 feet (3000 mm) of the grounding conductor shall be coiled up on plywood backboard.
 - 2) Equipment Racks. All equipment racks shall be grounded.
 - 3) CATV and Satellite cabinets. 3 feet of grounding conductor shall be coiled up inside cabinets.
- g. Fiber Optic Patch Panels. Panel(s) shall be modular with ST connectors. Panel quantity as required per design. Panels shall be a complete system of components by a single manufacturer, and shall provide termination, splice storage, routing, radius limiting, cable fastening, storage, and cross-connection. Patch panels shall be 19 inch (480 mm) rack mounted panels. Patch panels shall provide strain relief for cables. Panels shall be labeled with alphanumeric x-y coordinates. Patch panel connectors and couplers shall be the same type and configuration as used elsewhere in the system.
- h. Copper Patch Panels. Panels shall be Category 5e modular with RJ-45 connectors as required to terminate all twisted pair copper cables within the facility. Panels shall consist of eight-position modular jacks, with rear mounted type 110 insulation displacement connectors, arranged in rows or columns on 19 inch (480 mm) rack mounted panels. Jack pin/pair configuration shall be T568B per ANSI/TIA/EIA-568-A. Jacks shall be unkeyed. Panels shall be labeled with alphanumeric x-y coordinates. The modular jacks shall conform to the requirements of ANSI/TIA/EIA-568-A, and shall be rated for use with Category 5e cable in accordance with ANSI/TIA/EIA-568-A-5 and shall meet the Link Test parameters as listed in TIA/EIA TSB 67 and supplemented by ANSI/TIA/EIA-568-A-5.

- i. Patch Cords.
 - 1) RJ-45, CAT 5e, 5 foot patch cords as required to patch out all RJ-45 connections between hubs (supplied and installed by others) and distribution equipment. Patch cords shall be cable assemblies consisting of flexible, twisted pair stranded wire with eight-position plugs at each end. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Patch cords shall be wired straight through; pin numbers shall be identical at each end and shall be paired to match T568B patch panel jack wiring per ANSI/TIA/EIA-568-A. Patch cords shall be unkeyed. Patch cords shall be factory assembled. Patch cords shall conform to the requirements of ANSI/TIA/EIA-568-A-5 for Category 5e. Cords are contractor provided, user installed.
 - 2) ST, duplex, single mode, 5 foot patch cords as required to patch out all ST connections between hubs (supplied and installed by others) and distribution equipment. Patch cords shall be cable assemblies consisting of flexible optical fiber cable with connectors of the same type as used elsewhere in the system. Optical fiber shall be the same type as used elsewhere in the system. Patch cords shall be complete assemblies from manufacturer's standard product lines. Cords are contractor provided, user installed.
- j. Terminal Blocks. Provide as required to accommodate 300PR copper cable. Terminal blocks shall be wall mounted wire termination units consisting of insulation displacement connectors mounted in plastic blocks, frames or housings. Blocks shall be type 110 which meet the requirements of ANSI/TIA/EIA-568-A, and shall be rated for use with Category 5e cable in accordance with ANSI/TIA/EIA-568-A-5 and shall meet the Link Test parameters as listed in TIA/EIA TSB 67 and supplemented by ANSI/TIA/EIA-568-A-5. Blocks shall be mounted on standoffs and shall include cable management hardware. Insulation displacement connectors shall terminate 22 or 24 gauge solid copper wire as a minimum, and shall be connected in pairs so that horizontal cable and connected jumper wires are on separate connected terminals. Blocks shall be mounted on plywood backboard.
- k. Fiber Optic (FO) Backbone Cable: 12 strand FO cable as required per design. Singlemode fiber optic backbone cable shall meet the requirements of ICEA S-83-596 and the following: operation at a center wavelength of 1310 and 1550 nm; core/cladding diameter 8.3 nominal/125 micrometer; maximum attenuation 2.0 dB/km at 1300 nm and 1.75 dB/km at 1550 nm. Numerical aperture for each fiber shall be a minimum of 0.10. Cable construction shall be tight buffered type. Cable shall be imprinted with fiber count and aggregate length at regular intervals. Individual fibers shall be color coded for identification. Cable shall be rated OFNP per NFPA 70.
- l. Copper Backbone Cable: Backbone cable shall be used for voice only and shall meet the requirements of ICEA S-80-576 and ANSI/TIA/EIA-568-A for **Category 5 (AM#4)** 100-ohm unshielded twisted pair cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Conductors shall be solid untinned copper 24 AWG. Cable shall be rated CMP per NFPA 70.
- m. Protector Modules. Contractor shall provide three (3) 100PR protector modules. Modules shall be of the two-element gas tube type. Modules shall be heavy duty, A>10 kA, B>400, C>65A where A is the maximum single impulse discharge current, B is the impulse life and C is the AC discharge current per ANSI C62.61. The gas modules shall shunt high voltage to ground, fail short, be equipped with an external spark gap and heat coils, and shall comply with UL 497. Modules shall be mounted on plywood backboard in primary telecommunication room.
 - 1) Copper Cable. Incoming 300PR cable shall be terminated on protector modules.
 - 2) Fiber Optic Cables. Incoming 12 strand cable shall be terminated on a patch panel.
- n. Metering Conduit. A 1 inch (27mm) conduit with pull wire between DDC cabinet (cabinet with conduit connection to electrical meter) in mechanical room and plywood backboard in telecommunication room.

- o. CATV Cabinet. Wall mounted of sufficient size to accomodate all home run coax cables from TV outlets and future headend equipment provided and installed by others. Outside coax cable to terminate in this cabinet. Provide wall mounted quadraplex receptacle next to cabinet.
- p. Satellite Cabinet. Wall mounted of sufficient size to accomodate all home run coax cables from sattelite outlets. Outside coax cable to terminte in this cabinet. Provide wall mounted quadraplex receptacle next to cabinet.
- q. PA System Equipment. Provide necessary power and interfacing components in telecommuncation room closest to library.

END OF CHAPTER D7

CHAPTER D71

VOICE AND DATA

PERFORMANCE

A. Basic Function:

1. Provide means of conveying voice and data communication between rooms and spaces in the building and between the building and the Government's communication system as specified and as follows.
 - a. **Furnished and installed by Government: (Am# 0001)**
 - 1) **Telephone sets, controller, and switching software. (Am# 0001)**
 - 2) **LAN hubs, 24 port, 10BASE-T. (Am# 0001)**
 - 3) **File servers. (Am# 0001)**
 2. Provide means of conveying data between computers within the building and between the data transmission network and the Government's LAN system as specified and as follows. (Am# 0001)
 - a. Government's operational computer network is PC- based. (Am# 0001)
 - b. **Connection between installation central server and internal network is part of the data network. Final connections shall be made by the government. (Am# 0001)**
 - c. **Operational network (including voice) outlets are required in the spaces as specified under the attached individual room requirements sheets, and as specified elsewhere. (Am# 0001)**
 - d. **Furnished by Government: (Am# 0001)**
 - 1) Government's operational computer network hardware and software. (Am# 0001)
 - 2) **Non-modem connection to Internet, including interface hardware. (Am# 0001)**
 3. **Integrated systems (telephone and public address systems) performing all functions are required, subject to requirements of code for separated, independent systems. (Am# 0001)**
 4. **Substantiation: (Am# 0001)**
 - a. **Preliminary Design: Outline description of systems, inter-system interfaces, and functions provided. (Am# 0001)**
 - b. **Design Development: Details of each type of input and output device; capacities of systems; manufacturer data. (Am# 0001)**
 - c. **Construction Documents: Detailed layout of input and output device locations. (Am# 0001)**
 - d. **Closeout: Complete functional performance testing as specified in Chapter 00830, under Commissioning. (Am# 0001)**

B. Durability:

1. Moisture Resistance and Thermal Compatibility: Materials that will resist degradation and failure of signals under ambient conditions expected.

C. **Operation and Maintenance: (Am# 0001)**

1. **Power Supplies: As specified in Chapter D51 and as follows: (Am# 0001)**
 - a. **UPS For: (Am# 0001)**
 - 1) **Entire telecommunications system including all government furnished and installed equipment (ie. LAN hubs and servers), 15 minutes. (Am# 0001)**
2. **System Labeling. The communications systems labeling shall be done in accordance with TIA/EIA 606. All outlets and patch panel positions shall be labeled as to their function with a unique identifier code. As a minimum the room number and alpha or numeric designator shall be reflected in the outlet/patch panel labeling. Labeling shall be a minimum 1/4 inch (6 mm) high. (Am# 0001)**
3. **Ease of Maintenance: Provide communications networks that are logically arranged and well-marked consisting of: (Am# 0001)**

- a. Home run copper wiring between each dual jack outlet and patch panels in telecommunication room(s). Wiring consists of two 4-pair cable from each dual jack outlet. (Am# 0001) (Am# 0004)
- b. Conduit and cable tray system between each outlet and telecommunication room(s) for all home run wiring. (Am# 0001)
- c. Point-to-point connections between each data input and output point and hub location telecommunication room(s). (Am# 0001)

PRODUCTS (AM# 0001)

- A. Raceway. All telecommunication wiring shall be installed in raceways consisting of the following: (Am# 0001)
 1. Ladder Cable Tray. NEMA VE 1 cables trays shall form a wireway system, and shall be of nominal 6 inch (150 mm) depth. Cable trays may be constructed of aluminum, copper-free aluminum, or zinc-coated steel. Trays shall include splice and end plates, dropouts, and miscellaneous hardware. Edges, fittings, and hardware shall be finished free from burrs and sharp edges. Fittings shall have not less than the load-carrying ability of straight tray sections and shall have manufacturer's minimum standard radius. Trays shall be of nominal 18 inch (450 mm) width. Rung spacing shall be on 12 inch (300 mm) maximum centers. Cable trays shall originate above telecommunication room(s) and traverse above all corridors. (Am# 0001)
 2. Conduit. Conduit shall be 1 inch (27 mm) minimum. Conduit shall be provided between outlet and cable tray. (Am# 0001)
- B. Communication Cabling: (Am# 0001)
 1. Use the following: (Am# 0001)
 - a. Copper cable. Horizontal cable shall meet the requirements of ICEA S-80-576 and ANSI/TIA/EIA-568-A for Category 5e 100-ohm unshielded twisted pair cable. Cable shall be labeled-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Conductors shall be solid untinned copper 24 AWG. Cable shall be rated CMP per NFPA 70. (Am# 0001)
 - b. Deleted. (Am# 0001) (Am# 0004)
 - c. Backbone Cable: See Chapter D7, Telecommunications. (Am# 0001)
- C. Connecting Hardware: (Am# 0001)
 1. Use the following: (Am# 0001)
 - a. 8-pin modular jacks for copper cable. Jacks shall be the same category as the cable they terminate and shall meet the requirements of ANSI/TIA/EIA-568-A. Jack pin/pair configuration shall be T568B per ANSI/TIA/EIA -568-A. Jacks shall be unkeyed. Jacks shall meet the Link Test parameters as listed in TIA/EIA TSB 67 and supplemented by ANSI/TIA/EIA-568-A-5. (Am# 0001)
 - b. Fiber optic cable connectors. Connectors shall be ST type with ceramic ferrule material with a maximum insertion loss of 0.5 dB. Connectors shall meet performance requirements of ANSI/TIA/EIA-568-A. Connectors shall be field installable. Connectors shall utilize adhesive for fiber attachment to ferrule. Connectors shall terminate fiber sizes as required for the service. (Am# 0001)
 - c. Wall outlets. All wall mounted outlets shall be flush mounted unless noted otherwise. Dual jack outlet assemblies shall consist of modular jacks assembled into duplex outlet assemblies in double gang covers. (Am# 0004). Faceplates shall be provided and shall be ivory in color, stainless steel or impact resistant plastic. Electrical boxes for outlets shall be 4-11/16 inch (117 mm) square by 2-1/8 inches (53 mm) deep with minimum 3/8 inch (9 mm) deep single or two gang plaster ring as required. (Am# 0001)
 - d. Floor boxes. All floor boxes shall be flush mounted. Jacks, connectors, and power receptacles shall be installed in boxes such that they are hidden when cover plate is in place. Boxes shall be large enough to accommodate all potential connections to the jacks, connectors, and power receptacles. Box covers shall be metal. Plastic shall not be used. Boxes shall contain both the required telecommunication

jacks and connectors as specified in the attached room requirements sheets and a duplex receptacle. (Am# 0001)

END OF CHAPTER D71

CHAPTER F

DEMOLITION

PERFORMANCE

A. Scope of Work:

1. Remove all existing construction and utilities that are not required for the design off Government controlled property.
 - a. See Chapter 00830 for elements to be removed prior to start of construction.
 - b. The following existing elements must be removed even if removal is not actually necessary for the design:
 - 1) Foundation walls and footings anywhere on the project site down to at least 3 feet (910 mm) below finished grade.
 - 2) Concrete slabs on grade.
 - 3) Pavements and curbs.
 - 4) Manholes and covers.
 - 5) Curb inlets and catch basins.
 - 6) Underground storage tanks.
 - 7) Underground petroleum products piping.
 - 8) Fences and gates.
 - 9) Utility meters and other equipment and exposed piping.
 - 10) Creosote-treated wood utility poles.
 - 11) All abandoned pipes, ducts, and conduits, whether above or below ground.
 - 12) Utilities that are asbestos-containing materials and lead-containing materials.
2. Relocate existing construction and utilities as required for the design.
3. The following probable health hazards exist on the site:
 - a. Asbestos or asbestos-containing materials, in the form of:
 - 1) Fireproofing.
 - 2) Pipe and fittings at buried utility pipes.
 - b. Lead-containing material, on the following surfaces:
 - 1) Existing probable lead pipe and fittings are buried utilities at the proposed site..
4. Where requirements of another element group also apply to demolition operations, meet the requirements of that element group as well.
5. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance, Chapter G - Sitework, and Chapter G1 - Site Preparation.

B. Amenity and Comfort:

1. See Chapter 00830 for noise control and dust control.
2. Public Amenity: Conduct operations so as to cause minimum annoyance of the occupants of adjacent facilities.
3. Use physical barriers to protect existing elements to remain; see Chapter 1 for specific elements required to remain.

C. Health and Safety: See Chapter 00830 for additional requirements.

1. Storm Water Pollution Prevention
 - a. Storm water pollution prevention is stipulated by the Clean Water Act. EPA requires construction site 2.0 hectares (5.0 acres) in size or larger to obtain a National Pollution Discharge Elimination System (NPDES) in accordance with Federal Register, Volume 63, Number 128, July 6, 1998.
 - b. Storm Water Pollution Prevention Plan (including both narrative and drawings to delineate

the locations to establish control structures shall be required . Reference a summary guidance issued by EPA Developing Pollution Prevention Plans and Best Management Practices, EPA 833-R-92-001, dated October 1992. See Division 1 Section 01410 ENVIRONMENT PROTECTION.

- c. Specification Section 01420 OUTLINE OF A BASIC STORM WATER POLLUTION PREVENTION PLAN shall be edited as the narrative. Reference a summary guidance issued by EPA Developing Pollution Prevention Plans and Best Management Practices, EPA 833-R-92-001, dated October 1992 for additional information.
- d. Implementation of storm water pollution prevention shall be in accordance with the approved section 01420 OUTLINE OF A BASIC STORM WATER POLLUTION PREVENTION PLAN and as stated herein.
- e. Erosion control structures shall be established prior to each major event of activities at the disturbed construction site. The site shall be routinely inspected and maintained. Control structures shall be repaired or additional structures shall be placed (if needed) to minimize sediment in storm runoff. The SWPPP is a living document and shall be updated as necessary to minimize storm water pollution at the disturbed construction site.
- f. A designated person, storm water pollution prevention inspector shall be responsible to oversee storm water pollution prevention activities during the course of construction until permanent stabilization and acceptance of work by the Contracting Officer. The inspector's responsibilities shall, as a minimum, include inspection, maintenance, repair, implement new control structures (if needed), keeping inspection and maintenance records, updating the living SWPPP document and erosion and sediment control drawings, implementation of the best management practices, and performing work to fulfill all requirements in the approved Section 01420 OUTLINE OF A BASIC STORM WATER POLLUTION PREVENTION PLAN.

D. Durability:

1. Maintain temporary and permanent erosion and sediment controls during demolition operations or replace as soon as demolition or relocation is complete.

E. Operation and Maintenance:

1. Comply with requirements of utility providers.
2. Locations of Existing and Abandoned Utilities: Recorded or marked in such a manner that they can be easily located during and after completion of construction.

METHODS OF CONSTRUCTION

A. Do not use any of the following methods:

1. Explosive demolition.
2. Burning to include the disposal of refuse and debris.

END OF CHAPTER F

CHAPTER G12

EARTHWORK

PERFORMANCE

A. Basic Function:

1. Modify the site grades and soils as required for construction of buildings and utilities, for proper functioning of the project, and as indicated in the project program.
2. Principal finished site earthwork elements required include:
 - a. Roadways.
 - b. Parking lots.
 - c. Permanent erosion control structures as required.
3. Where earthwork elements also must function as elements defined within another element group, meet the requirements of both element groups.
4. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance, Chapter G - Sitework, Chapter G1 - Site Preparation, Chapter G28 - General Civil Design and Site Requirements and Chapter F-Demolition.

METHODS OF CONSTRUCTION

A. Changing of Grade Levels:

1. Use one or more of the following methods:
 - a. Grading.
 - b. Balanced cut and fill, with no excess soil to be removed.
 - c. Removal of excess soil from site.
 - d. Removal of rock from site.
 - e. Importation of fill from off site.

B. Excavation:

1. Use one or more of the following methods:
 - a. Machine excavation.
 - b. Hand excavation.

C. Contractor:

1. Borrow and spoil areas will be located off the post. The primary haul route will be from Highway 467, east on Louisiana Avenue and south on Colorado Avenue. The secondary route will be north on Highway 467, east on BellRichard Avenue and north on Colorado. The Contractor's staging area will be located immediately south of, and adjacent to, the construction site.

D. Permanent Erosion Control Structures:

1. Use one of the following:
 - a. Permanent downdrain structures, where concentrated water runoff is likely to damage slopes.

END OF CHAPTER G12

CHAPTER G21**PAVEMENTS AND SURFACING****PERFORMANCE****A. Basic Function:**

1. Provide exterior pavements and surfacing, as required by the project program and by code, that are adequate in extent and sufficiently durable to accommodate without damage the types of traffic that can be reasonably anticipated for the facility type and intended user population.
2. Pavements and surfacing comprise the following elements:
 - a. Exterior paved or surfaced areas such as roadways, driveways, parking lots, walkways, and sports surfaces.
 - b. Exterior steps and ramps not connected to buildings, including handrails and stair nosings.
 - c. Appurtenances for roadways and driveways, including curbs, gutters, guardrails, pavement markings, and parking bumpers.
 - d. Signs, including traffic signals, "stop," "yield, and directional signs, and parking space marking and identification.
3. Roadways and Driveways: Provide paved, or granular surfaces as required for vehicular access to the project site and to various functional areas requiring vehicular access, including main entrance, parking areas, freight docks, loading and unloading zones, and drive-up service windows.
 - a. Comply with recommendations of AASHTO "A Policy on Geometric Design of Highways and Streets", 1994.
 - b. Traffic Lanes and Directional Markings: Permanent and highly visible, minimum width of 4 in (100 mm).
4. Parking Areas: Provide paved surfaces as required for vehicular parking.
 - a. Space Markings: Permanent and highly visible, minimum width of 4 in (100 mm).
 - b. Parking Signage: As required by code and project program.
5. Walkways, Pedestrian Ramps, and Exterior Stairs: Provide paved surfaces as required for pedestrian movement on the site without damage to landscaping.
 - a. Minimum Widths: Sized to allow comfortable two-way traffic.
 - b. Handrails, Railings, or Protective Walls: Required when pedestrian surfaces are more than 12 in (300 mm) above adjacent grade.
6. Where pavements and surfacing are integral with elements defined within another element group, meet requirements of both element groups.
7. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance, Chapter G - Sitework, Chapter G2 - Site Improvements, Chapter G28 - GENERAL CIVIL DESIGN AND SITE REQUIREMENTS and Attachment I- GEOTECHNICAL REPORT.

END OF CHAPTER G21

CHAPTER G3**SITE SERVICES****PERFORMANCE****A. Basic Function:**

1. See Chapter D for basic requirements for services.
2. Provide the following site services:
 - a. Water Supply (G31): Means of supplying water for all purposes required in buildings and on site. See Chapter D2 for additional requirements.
 - b. Sanitary Sewer (G32): Means of removing liquid waste generated in buildings on site. See Chapter D2 for additional requirements.
 - c. Storm Sewer (G33): Means of removing rainwater runoff from buildings and site areas. See Chapter D2 for additional requirements.
 - d. Site Elements of Energy Supply: See Chapter D31 for means of receiving, storing, and distributing natural gas for energy-using services.
 - e. Site Elements of Heating and Cooling Distribution: See Chapter D35 for means of conveying heating water and chilled water to all buildings on site.
 - f. Electrical Power (G34): Adequate supply of power for project functions. See Chapter D5 for additional requirements.
 - 1) Provide underground electrical distribution system for all buildings on site.
 - g. Site Elements of Artificial Lighting: See Chapter D6 and D62.
 - h. Site Elements of Telecommunications: In addition to the following see Chapters D7, D71, D72, and D73.
 - 1) Telecommunications. Telecommunication utilities shall be underground and may occupy the same trench as primary or secondary electrical feeders provided they are located not less than 1 foot (300mm) to the side or 6 inches (150mm) above electrical conduits or conduit encasements. The contractor shall provide trenching, concrete encased ducts, cabling, placement, and backfill for the exterior telecommunication distribution system. The contractor shall tie into an existing manhole as specified on the attached site plan. Existing spare cables will be identified by the Ft. Polk Directorate of Information Management (DOIM). New duct system shall penetrate existing manhole by core drilling. As a minimum the contractor shall provide new manhole(s), a 4-way 4 inch (103mm) concrete encased duct system (one duct containing 4-1 inch (27mm) inner ducts) between existing manhole and first new manhole, a 4-way 4 inch (103mm) concrete encased duct system (one duct containing 4-1 inch (27mm) inner ducts) between new manholes, and a 2-way 4 inch (103mm) concrete encased duct system (one duct containing 4-1 inch (27mm) inner ducts) between last new manhole and building's primary telecommunication room. Maximum distance between manholes shall be 500 feet (152 m). Contractor shall provide a 300PR #24 AWG copper cable in one of the new 4 inch (103mm) ducts between the existing manhole and the building's primary telecommunication room. Contractor shall also provide a 12 strand single mode fiber optic cable in one of the 27mm inner ducts between the existing manhole and the building's primary telecommunication room. The contractor shall splice all new cables into existing cables as directed by the Ft. Polk Directorate of Information Management (DOIM). Splicing shall occur within above-mentioned existing manhole. All spare conduits shall be provided with a pull wire. **The point of contact for the Ft. Polk DOIM is Mr. Wilford Parker, telephone Office: 337-531-1623, Mobile: 337-658-1537. (AM#4)**
 - 2) Routing and Location. Except for crossings, communications ducts shall not be located under streets or sidewalks. For crossings under any street, it shall be the Contractor's responsibility to provide proper coordination and obtain all necessary

permits, approvals, etc., before installation. All duct crossings under streets shall be concrete encased. If jacking and boring is used under existing roads, the required steel sleeve encasing the individual ducts shall be filled with concrete and shall have cathodic protection.

- 3) Ducts. Ducts shall be non-reinforced concrete encased, non-metallic PVC conduits, thin-wall type. Minimum size shall be 4 inch (103mm) except inner ducts shall be 1 inch (27mm).
 - a) Burial Depths. The ducts shall be buried 900 mm (minimum) and shall be sloped, 100mm per 30m (minimum). Depending on the contour of the finished grade, the high-point may be a manhole, or between manholes. Ducts shall be provided with end bells whenever duct lines terminate in manholes.
 - b) Duct Markers. Concrete markers shall be provided at approximately 61m intervals and at each change in direction. Metallic/magnetic warning tape buried 300mm below the surface shall be installed above the ducts.
- 4) Manholes. Strength of manholes and their frames and covers shall be designed for H20 wheel load and shall conform to the requirements of IEEE C2. Precast-concrete manholes shall have the required strength established by ASTM C 478, ASTM C 478M. Frames and covers shall be made of gray cast iron and a machine-finished seat shall be provided to ensure a matching joint between frame and cover. Cast iron shall comply with ASTM A 48, Class 30B, minimum. Minimum interior dimensions of manholes shall be 12 feet (3.7m) long x 6 feet (1.8m) wide x **7 feet (2.2m) high (AM#4)**. Manholes shall be provided with a 3/4" (15.9mm) x 10 feet (3.1m) ground rod, a sump, pulling irons, and cable racks on both long walls (spaced 2 feet (600mm) apart on center) with a minimum of eight (8) hooks containing porcelain insulators per rack. Manhole cover shall be labeled "TELEPHONE". **Each new manhole will have a neck of 6 inches in order for dirt cover. (AM#4)**
- 5) Television. Cable television utilities may occupy the same trench as primary or secondary electrical feeders provided they are located not less than 1 foot (300mm) to the side or 6 inches (150mm) above electrical conduits or conduit encasements and provided this is acceptable to the local CATV company. If the local CATV company has other installation standards, those shall be adhered to. The contractor shall provide a RG-11 coaxial cable inside one of the new 1 inch (27mm) inner ducts described in previous paragraph and also inside an existing duct system as shown on site plan. Cable shall originate in existing manhole #7 as shown on the site plan and terminate at a wall mounted box located inside the facility's primary telecommunications room.
- 6) Telecommunications Cables.
 - a) Copper Cable. Copper cables shall be manufactured per REA Bulletin 1753F-205 (PE-39) or REA Bulletin 1753F-208. An 8 mil (0.2 mm) coated aluminum or 5 mil (0.12 mm) copper metallic shield shall be provided.
 - (1) Copper Cable Splices. All cables greater than 25 pairs shall be spliced using modular splicing connectors, which accommodate 25 pairs of conductors at a time. The correct connector size shall be used to accommodate the wire gauge of the cable to be spliced. The connectors used shall be listed in RUS REA Bulletin 1755I-100.
 - b) Fiber Optic Cable. Fiber optic cable shall be specifically designed for outside use with tight or loose buffer construction. The tight buffer optical fiber cable shall consist of a central glass optical fiber surrounded by a soft intermediate buffer to allow for thermal expansions and proper fitting of the secondary buffer. The loose buffer optical fiber cable shall have the glass optical fiber within a filled loose tube. All fiber optic cables used shall conform to the requirements of RUS REA Bull 1753F-601 (PE-90) including any special requirements made necessary by a specialized design.
 - (1) Cable Cores. A central, nonmetallic core member shall be included to serve

as a cable core foundation to reduce strain on the fibers, but not to serve as a pulling strength member.

- (2) Optical Fiber. Single-mode optical fibers shall be Class IV.
 - (3) Shielding or Other Metallic Covering. A copper, copper alloy, or copper and steel laminate metallic covering or shield shall be provided per RUS REA Bull 1753F-601 (PE-90).
 - (4) Fiber Optic Splices. Each fiber optic splice shall be physically protected by a splice kit. The kit shall be specially designed for the splice.
 - (5) Fiber Optic Splice Organizer. The splice organizer shall be suitable for housing fiber optic splices in a neat and orderly fashion. The splice organizer shall allow for a minimum of 3 feet (1 m) of fiber for each fiber within the cable to be neatly stored without kinks or twists. The splice organizer shall accommodate individual strain relief for each splice. The splice organizer shall allow for future maintenance or modification, without damage to the cable or splices. All required splice organizer hardware, such as splice trays, protective glass shelves, and shield bond connectors shall be provided in the organizer kit.
 - (6) Performance Requirements. The fiber optic cable shall comply with the specified mechanical performance requirements while used in buried and underground duct applications where the temperature varies from minus 5 to plus 140 degrees F (minus 20 to plus 60 degrees C). Optical performance degradation shall be less than 5 percent of the optical performance requirements in the temperature range of minus 5 to plus 140 degrees F (minus 20 to plus 60 degrees C). The fiber optic cable shall not be damaged in storage where the temperature may vary from minus 40 to plus 148 degrees F (minus 40 to plus 65 degrees C).
 - i. Site Elements of Security Controls: See Chapter D9 and D92.
3. Where site services elements must also function as elements defined within another element group, meet requirements of both element groups.
 4. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance, Chapter D - Services, and Chapter G - Site Work.
- B. Amenity and Comfort:
1. Leakage: Provide distribution systems which are leak-free.
 2. Accessibility: Provide clearances around components that are adequate for service and use.
- C. Structure:
1. Concealed or Buried Piping and Components: Design cover or concealment so that they are not subjected to damaging stresses due to applied loads.
- D. Durability:
1. Corrosion Resistance: Prevent corrosion by using corrosion-resistant materials, by preventing galvanic action, by preventing contact between metals and concrete and masonry, and by preventing condensation on metals.
 - a. Metals Considered Corrosion-Resistant: Aluminum, stainless steel, brass, bronze, cast iron, ductile iron, malleable iron, hot-dipped galvanized steel, chrome-plated steel, cadmium-plated steel, and steel coated with high-build epoxy or coal tar-based paint.
 - b. Underground Elements: Provide supplementary protection for underground metal pipes, sufficient to prevent corrosion completely, for the service life of the element without maintenance.
 - 1) 3 inches (150 mm) of concrete cover is considered to be permanent protection.

- 2) Bituminous or other waterproof coating or wrapping is considered permanent protection unless cathodic protection is required and unless underground element is subject to movement due to structural loads or thermal expansion or contraction.
 - 3) Provide cathodic protection if any of the following is true; coatings or wrappings will not be considered sufficient protection for elements falling under these criteria:
 - a) Metal elements are submerged or buried in a soil environment known to cause corrosion on similar nearby structures.
 - b) Metal elements are submerged and buried in a soil environment in which stray DC electrical currents are present.
 - c) Metal piping carrying petroleum products or other hazardous or toxic materials is buried or otherwise installed without means of visual observation of entire exterior surface of piping.
 - 4) See Chapter D94 for cathodic protection requirements.
2. Resistance to Accidental Damage and Abuse:
- a. Provide barriers or protected locations for services, to prevent damage due to vehicular traffic.
 - b. Buried Components: Minimum of 24 inches (610 mm) below surface of ground.
 - c. Underground Piping: Watertight and rootproof.
- E. Operation and Maintenance:
1. Capacity:
 - a. Water and Drainage: As required by code and as specified in Chapter D2.
 - b. Heating, Cooling, and Ventilating: Provide site services sufficient to maintain interior environment within ranges specified in Chapter 111.
 - c. Fire Protection: As required by code and as specified in Chapter D4.
 2. Ease of Use: Provide easy access to and working clearances around system components.
 3. Ease of Maintenance:
 - a. Piping: Provide means of isolating portions of piping system, so that small portions may be shut down leaving the remainder in operation, by using isolation valves located so that drainage of the entire system is not required for repair.
 4. Maintenance Service: Maintain services as specified in Chapter 00830, including periodic inspections, routine maintenance recommended by manufacturers, and repair and replacement of defective elements; maintenance is required only for systems so specified.

END OF CHAPTER G3

SECTION 01016

DESIGN DOCUMENT REQUIREMENTS

09/2001

AMENDMENT NO. 0004

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.

ACI INTERNATIONAL (ACI)

ACI SP-66 (1994) ACI Detailing Manual

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1 (2000) Structural Welding Code - Steel

INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS (ICBO)

ICBO Bldg Code (1997) Uniform Building Code (3 Vol.)

MILITARY HANDBOOKS (MIL HDBK)

MIL HDBK 1008C (10 June 1997) Fire Protection For Facilities Engineering, Design and Construction

US ARMY CORPS OF ENGINEERS, SOUTHWESTERN DIVISION (SWD)

SWD-AEIM (October, 2000) Architectural and Engineering Instructions Manual (SWD-AEIM)

1.2 RELATED SECTIONS

00570 CONTRACT DEFINITIONS
00830 DESIGN AND CONSTRUCTION PROCEDURES
00840 REFERENCED DOCUMENTS

1.3 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:

SD-05 Design Data

Design Data Checklists; .

Include the Fire Protection, Code Analysis, and Handicapped Checklists (Attachments A, B, and C) at the end of this Section with the Design Analysis and submit with the design submittals. Design Analysis shall include a section discussing Environmental Design, indicating issues and considerations during project programming stage, and design features in the final design.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 DRAWINGS

Prepare, organize, and present drawings in the format specified. Provide drawings complete, accurate, and explicit enough to show compliance with the Contract requirements and to permit construction. The layout of individual sheets and the organization of the assembled set shall follow and communicate a logical sequence. General information shall be presented first, progressing to more detailed information. When assembling details, begin in the upper left-hand corner of the sheet with letters progressing to the right and down. Drawings illustrating systems proposed to meet the requirements of the Contract performance specifications shall reflect proper detailing for each such system to assure appropriate use, proper fit, compatibility of components, and coordination with the design analysis and specifications required by this section. Coordinate drawings to ensure there are no conflicts between design disciplines and between drawings and specifications. For specific drawing requirements, see paragraphs: DESIGN DEVELOPMENT (60 PERCENT PRELIMINARY DESIGN) REQUIREMENTS and CONSTRUCTION DOCUMENTS (100 PERCENT DESIGN) REQUIREMENTS.

The following subparagraphs cover general drawing requirements and supplement those specified in SWD-AEIM, Chapter VIII DRAWINGS.

3.1.1 CADD Drawings

The Contractor shall ensure that all delivered CADD digital files and data (e.g., base files, reference files, cell/block libraries) are compatible with the Government's target CADD system and operating system, which is Bentley Systems MicroStation, version 5 or SE, running on Microsoft Windows 95/NT, and adhere to the standards and requirements specified. The term "compatible" means that data is in native digital format i.e. .dgn, and can be accessed directly by the target CADD system without translation, preprocessing, or postprocessing of the digital data files. It is the responsibility of the Contractor to ensure this level of compatibility.

3.1.2 CADD Standards

CADD drawings shall be prepared in accordance with the applicable general and discipline-specific provisions for drawing formats, title blocks, borders, level/layer assignments, line colors, line weights, and line types of the "Tri-Service A/E/C Standards" and the "SWD Architectural and Engineering Instruction Manual (AEIM), Chapter VIII, "Drafting Standards."

The CADD standards for design of this project, including seed/prototype files containing the Government's preset standard settings and electronic reference files containing the Government's standard border/title block sheets, are located at the following Web site:

<http://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp>.

The Contractor shall submit a written request for approval of any deviations from the Government's established CADD standards. No deviations will be permitted unless prior written approval of such deviation has been received from the Government.

3.1.3 Size of CADD Drawings

Overall Size of CADD drawings shall be SI AI (594 mm by 841 mm (23.39 by 33.11 inches)), at the trim line. Full size drawings shall be submitted for all design submittals. SI working units and the District's standard file-naming convention shall be used.

3.1.4 .CAL Files

In addition to copying the electronic CADD drawing files to the Submittals' CD-ROM disk, include the drawings in .cal format so that the drawings may be viewed on screen using MaxView Reader that is located on the Solicitation and Contract CD-ROM disk. Include a "sendable" compiled Project.svd index file, created with MaxView Author, so that the drawings may be viewed by double-clicking on this file. MaxView's web site is <http://www.maxview.com>. Keep the CADD files and the .cal files in separate folders.

3.1.5 Drawing Format

Title block shall include, as a minimum, project title and location, sheet title, and sequence number. For each design submittal, each Contractor-prepared drawing shall bear the printed name and signature of the registered architect or appropriate registered engineer responsible for the work portrayed on that drawing and proposed to meet the Contract requirements. For the final submittal, each Contractor-prepared drawing shall bear the stamp or seal and signature of the registered architect or appropriate registered engineer responsible for the work portrayed on that drawing and proposed to meet the Contract requirements.

3.1.6 Drawings Sequence

Arrange drawings by design discipline in accordance with the SWD-AEIM, Chapter VIII, Appendix A, Plate D1, Standard Arrangement Of Drawings.

3.1.7 Drawings Required

As a minimum, the construction drawings shall consist of the following:

- a. Cover or Title Sheet
- b. Index of Drawings (each technical discipline shall have a separate drawing legend sheet located in front of each respective section), Legend, and Abbreviations
- c. Civil/Site Drawings, including Utility Drawings (Water Supply, Wastewater, Gas, Electrical, Fiber and Communication)
- d. Soil Boring Locations and Logs of Borings
- e. Turfing and Landscaping Drawings, including Irrigation Layout Drawings

- f. Architectural Drawings
- e. Interior Design Drawings
- f. Food Service Equipment Drawings
- g. Structural Drawings
- h. Mechanical Drawings
- i. Fire Protection Drawings
- j. Electrical Drawings (including communications, security and fire alarm)
- k. Lightning Protection
- l. Environmental Drawings
- m. Schedules - e.g. Doors, Windows, Interior Finishes, Equipment

3.1.8 Drawing Scales

Work shall be drawn at the scales listed below. All disciplines should use the same scale for plan sheets. Scale for all drawings and delineation will permit complete legibility. A graphic bar or checkerboard scale will be provided on each sheet near the lower left hand corner of th sheet. Unless specified elsewhere, conventional scale standards are as follows:

	<u>METRIC (SI) (ENGLISH)</u>
Site Plans (Buildings)	No smaller than 1:200 (No smaller than 1-inch = 30 feet)
Floor Plans (Note 1)	1:50 to 1:100 (1/4-inch to 1/8-inch = 1 foot)
Roof Plans	1:100 (1/8-inch = 1 foot)
Exterior Elevations	1:100 (1/8-inch = 1 foot)
Interior Elevations	1:50 (1/4-inch)
Cross Sections	1:50 to 1:100 (1/4-inch to 1/8-inch)
Wall Sections (Note 3)	1:20 (3/4-inch = 1 foot)
Stair Details	1:20 (3/4-inch = 1 foot)
Details (Note 2)	1:5 or 1:10 (3 inches or 1 1/2 inches = 1 foot)
Reflected Ceiling Plans	1:100 (1/8-inch = 1 foot)
Interior Toilet Elevations	1:20 (3/4-inch = 1 foot)
Wall Types	1:5 or 1:10 (3 inches or 1 1/2 inches = 1 foot)

Notes:

1. Scale of composite plans shall be as required so that the entire facility is drawn on one sheet without break lines.

2. The details shall be large enough to show all fixtures, accessories, equipment, materials, manner of construction, clearances required for proper maintenance, and complete dimensions. Toilet rooms and Equipment rooms are examples of the kind of spaces which shall be

drawn as a Detail Plan. All details containing sheet metal flashing shall be 1:5 (3 inches = 1 foot).

3. May be 1:20 if pertinent details are shown at larger scale.

3.1.9 North Arrows

North arrows shall be oriented the same direction on all plan sheets and by all disciplines, including site and civil drawings. Plan north shall be "up" or to the left on the drawings. Indicate true north on composite plan drawings.

3.1.10 Legends and Symbols

Standard material symbols used on the drawings shall be provided as a separate legend drawing located just in front of the drawings in the set. Add additional material symbols to the Legend Sheet as needed for the project.

The standard symbols used for amendments (a triangular box) or contract modifications (a type of circular box, see the chapter on Drafting Criteria) shall not be used for any other purpose, and care must be taken to avoid using similar appearing but technically different symbols.

3.1.11 Key Plans

Provide key plans whenever the site or floor plan occupies more than one sheet of drawings. Locate the Key Plans at a uniform location on all site and floor and roof plan sheets to show the interrelationship between the building portions. Orient key plans in the same direction as the floor plan on all plan type drawings of all disciplines. All key plans shall be the same size and same location on the drawings.

3.1.12 Building Composite Plans

When required because of size of the building footprint, provide composite floor plans for the architectural, structural, mechanical, fire protection, life safety, and electrical disciplines. Include match lines for combining individual portions of floor plans. For mechanical plans, provide composite plumbing and heating, air conditioning, and ventilation (HVAC) plans showing plumbing and HVAC systems for each level. For plumbing composite sheets, building outline and pertinent HVAC equipment shall be half-toned with plumbing system at standard lineweight. For HVAC composite sheets, building outline and pertinent plumbing equipment shall be half-toned with HVAC equipment at standard lineweight. Do not provide construction notes on these plans. Include a key plan and room schedule legend on the composite plan sheets.

3.1.13 Schedules

Schedules shall be clear and complete. Furnish as many columns as necessary to present the essential information. Do not use the "Remarks" column as a substitute for an information column. Normally a single item shall be presented on each schedule line. Other scheduling methods as standard with the Architect-Engineer may be used if approved by written authorization from the Contracting Officer.

3.1.14 Notes

Notes may be placed on drawings to reduce the amount of repetitive drafting, provided that clarity is not lost. General notes should be placed at the right-hand edge of the sheet and, if possible, should be located on the first sheet in the set. Notes that pertain to each drawing should be placed on each drawing. Keyed notes are permitted. General notes may be provided on a separate sheet if space does not exist on the Abbreviation and Legend sheets.

3.1.15 Dimensions

Dimensions shall be complete, accurate, and fully coordinated. Use slashes, not arrowheads or dots. Dimensions should be to points easily measurable in the construction, and shall be laid so as not to eliminate refiguring in the field. Dimensions should be tied-in to column lines, etc., to facilitate checking. Plan dimensions for frame construction should be to face of stud (or sheathing) for exterior walls, to one face of stud for interior partitions, and to centerline of openings. For masonry construction, dimensions shall be to one or both nominal faces of masonry and to jambs of openings.

- a. Horizontal dimensions shall occur on the plans and vertical dimensions on sections and elevations.

3.1.16 Standard Drawings

Standard Drawings, when furnished for site adaptation, will generally be utilized without basic architectural change. Portions of the drawings not pertinent to the project will be deleted. Specific instructions will be given when design changes are required.

3.1.17 Sketches

All sketches presented during the design phase shall be reduced to 216 mm by 280 mm (8-1/2" by 11") and included in the design analysis to document the design options and decisions evaluated during the design process.

3.2 CONSTRUCTION SPECIFICATIONS

3.2.1 Editing Construction Specifications

The Contractor shall use Corps of Engineers' UFGS Guide Specifications. Specification paragraphs and subparagraphs shall not be rewritten to lessen the quality of the original guide specification sections. Only bracketed choices and inapplicable items may be deleted unless the changes are required to bring the specification into conformance with the performance specifications of the Contract. The Contractor shall complete the editing of all options in these specifications. Where designer notes are provided, the Contractor shall edit the choice in accordance with the recommendations and guidance of the Notes. **The specifications shall clearly identify, where appropriate, the specific products chosen to meet the requirements of the Contract (manufacturers' brand names and model numbers or similar product information). The Contractor shall be responsible for coordinating references, along with the Contract performance requirements, to specific specification sections (number and title) within the construction specifications.** See additional requirements in paragraphs DESIGN DEVELOPMENT (60 PERCENT DESIGN REQUIREMENTS) and CONSTRUCTION DRAWINGS (100 PERCENT DESIGN) REQUIREMENTS of this Section and in Section 01015 DESIGN REQUIREMENTS AFTER AWARD, paragraph DESIGN DOCUMENTS.

3.2.1.1 Required Modifications to Commercial Guide Specifications

- a. Indicate the guide specification series (e.g. CSI SpecText, MasterSpec, SpecLink) in either the header or footer of each section.
- b. Change references to the "Architect" or "Engineer" to "Contracting Officer" and "Owner" to "Government".
- c. Change references to "Section 01300" or "Section 01300 SUBMITTALS" to "Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES."

3.2.1.2 Additions

If the Construction Specifications do not cover a feature that is in the project, insert additional requirements in their proper locations to adequately cover the feature of work. Additions shall not lessen the quality of materials indicated by the specifications. If a new material is added, it shall be properly referenced in "REFERENCES," "MANUFACTURERS," "MANUFACTURED UNITS," "MATERIALS," "SUBMITTALS," "TESTS," and "INSTALLATION" paragraphs, as applicable.

3.2.1.3 Deletion of Inapplicable Text Material

Delete all inapplicable text material to tailor the specifications to fit the project. After deletion has been made of all inapplicable paragraphs, subparagraphs, choices, and schedules from the body of the guide specifications (including but not limited to the correction of lists in "SUBMITTALS," "TESTS," and "INSTALLATION" paragraphs), delete all nonapplicable references listed in the preceding "REFERENCES" and "MATERIALS" paragraphs.

3.2.1.4 References to Specification Sections

The Contractor shall be responsible for coordinating references, along with the Contract requirements, to specific specification sections (number and title) within the project specifications. Revise section references (title and number) to reflect the titles and numbers of specification sections used.

3.2.1.5 Construction Submittals

The Contractor is responsible for all submittals. See Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES for the definition of Government Approved and For Information Only (FIO) submittals. All submittals shall be "FIO" unless otherwise specified. Submittals noted in the UFGS guides as "G" shall be changed to "For Information Only".

3.2.2 Division 1 Sections

Include Division 1 specifications sections contained in this Contract as part of the project specifications without change.

3.2.3 Format For Construction Specifications

Submit the construction specifications, including cover page and project table of contents, printed with a word processor. Use the Corps of Engineers Specsintact with SGML, Version 3.0 or higher, software. DO NOT submit sections that were created as straight MSWord documents. Any MSWord sections must be created using MS Word For Windows software with the

Specsintact WordSpec Macro installed and engaged. These Word documents must be formatted using the Specsintact menu bars that WordSpec installs on the MSWord desktop. Otherwise, Word documents will not be compatible with Specsintact and WordSpec will not be able to convert the sections to Specsintact for producing the submittal register. Use If any commercially available guide specifications are used and are from a relational database system such as BSD SpecLink, then export the sections to Rich Text Format (RTF) word processing files to convert the sections to MS Word documents for those users who are specified to receive MS Word copies of the specifications.

The Corps of Engineers Specsintact and Wordspec software can be downloaded from the Internet at the following address:

[http://kscdl2.ksc.nasa.gov/specsintact/.](http://kscdl2.ksc.nasa.gov/specsintact/)

The Corps of Engineers UFGS guide specifications (SI SGML format), the Lighting Fixture Standard Drawing 40-06-04 Details, and Design Criteria (e.g. Army Technical Manuals (TM's), Engineering Manuals, Engineering Technical Letters, Engineer Circulars, Engineer Pamphlets, Design Guides, and Military Handbooks) can be downloaded from the Internet at the following address:

[http://www.hnd.usace.army.mil/Techinfo/Engineer Publications or Support Documents](http://www.hnd.usace.army.mil/Techinfo/Engineer%20Publications%20or%20Support%20Documents)

The guides can only be downloaded in Winzip *.zip files. These are downloadable executable files.

Specsintact software, the UFGS guide specifications, and design criteria manuals can also be obtained from the current version of the Construction Criteria Base CD, issued by the National Institute of Building Sciences, telephone number 202/289-7800, fax number 202-289-1092, internet address is:

<http://www.nibs.org>.

Fort Worth District guide specifications and the District supplements to the UFGS guide specifications are located on the Internet at the following address:

<http://www.swf.usace.army.mil/links/e&c/ec-a/>

Print hard copies using laser printer and good quality white paper. For the design submittals, editing of the Construction Specifications shall be shown by using redlining (underlined text) for text insertions and strikeouts for text deletions. The corrected 100 percent specifications with review comments incorporated shall be cleaned up (markings for insertion and deletions removed) and submitted in both hard copy and on CD-ROM disk. Carbon copies are not acceptable.

3.2.3.1 Format

Format shall be the Construction Specification Institute (CSI) 16-Division, 3-Part Section format and match that used by the UFGS guide specifications.

Sections which are not in the UFGS and Fort Worth District guide specification series shall be numbered in accordance with CSI MasterFormat.

No two sections shall have the same section number.

3.2.4.2 Cover Page

The Cover page shall be similar to the Contract Cover page and shall include:

- a. Project title, activity and location
- b. Construction contract number
- c. Construction Contractor's name and address
- d. Design firm's name and address
- e. Names of design team members responsible for each Contractor prepared technical discipline of the project specification
- f. Name and signature of a Principal of the design firm
- g. The Table of Contents shall list the 16 Divisions contained in CSI format and the specification section numbers and titles contained in the project specification. Do not list in the Table of Contents CSI Divisions that are not required for the project.

3.2.4 Construction Submittals

All construction submittals shall be in accordance with Section 01330, "CONSTRUCTION SUBMITTAL PROCEDURES."

3.2.5 Submittal Register

An electronic version of the ENG Form 4288 is located on the Solicitation and Contract Award CD-ROM disks in folder "Subreg." This version is the Specsintact DOS Submittal Register program and includes a Readme.txt file. Copy the files to the computer's C:\ drive, remove the read-only attributes, and then double-click on either file "subreg.exe" or on "submit.bat." This is **not** a Windows-based program so the mouse **does not** work. Editing instructions are on-screen, such as press the "F5 (add)" and then the "E" keys to create new empty submittals, the "PgDn" key to complete editing, and the "A" key to accept. For each submittal, fill in the Section Number, Activity Number if applicable, Paragraph Number, Description, Type of Submittal (e.g. SD-01 through SD-11(See Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES)), Classification (e.g. G or FIO), and the Contractor's proposed submittal date. Fill in columns "a" through "o" on the ENG Form 4288 and submit a copy of the "Subreg" folder with the updated files and a hard copy of the register as required for the various design submittals. Unless Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES allows a submittal to be Government approved ("G"), all submittals shall be "FIO" for Information Only (Contractor Approved) items. A blank MS Excel version of the Form 4288 Submittal Register is also included in the "Subreg" folder and may be used if allowed by the Contracting Officer.

3.3 DESIGN ANALYSES

Prepare design analyses (basis of design and calculations) for each design discipline. Specific requirements relative to the technical content to be provided are specified in the paragraphs DESIGN DEVELOPMENT (60 PERCENT PRELIMINARY DESIGN) REQUIREMENTS and CONSTRUCTION DRAWINGS (100 PERCENT DESIGN) REQUIREMENTS. The design analyses shall be a presentation of facts to demonstrate that the concept of the project is fully understood and that the design is based on sound engineering. The design analysis for each discipline shall be in accordance with Chapter IX of the SWD-AEIM.

3.4 COMMON DESIGN DEFICIENCIES

The work involved in making corrections due to common deficiencies becomes lost effort and time for both the designer and the reviewer. Carefully compare the design and contract documents with all requirements at several points in the design process to avoid unnecessary changes at a later date. Some of the requirements which are most often overlooked include:

a. Requirements of the COE 2, Southwestern Division's ARCHITECTURAL AND ENGINEERING INSTRUCTIONS MANUAL (SWD-AEIM) have been repeatedly overlooked in the past.

b. Failure to incorporate the Fort Worth District's supplemental local requirements to the UFGS guide specifications.

c. Not using correct abbreviations or terminology on the drawings. Abbreviations must match what is used on the standard abbreviation sheet and terminology must match what is used in the standard technical guide specifications.

d. Not using the correct scales, north arrow designation, section cut system, or incomplete dimensioning on the drawings.

e. Not providing sufficient space for door operation hardware at doors which swing into a wall running perpendicular to the opening. 100 mm minimum is required between edge of door frame and perpendicular walls.

f. Not providing correct and complete Design Analysis information written in the present tense. The Design Analysis will be written following the format indicated herein. A separate Fire Protection section in the Design Analysis with input from all disciplines is one area which is often overlooked and shall be included.

g. Not correctly presenting or coordinating (to avoid interference) features of Fire Protection, Noise Control, and Physical Security.

h. Not correctly referencing and cross referencing building sections, wall sections, details, etc.

i. Failure to read and use technical notes in editing the Guide Specifications.

j. Failure to coordinate all disciplines prior to submittal of projects for review.

k. Improper use of fire-retardant wood. Fire-retardant wood is combustible; its use in buildings that are of noncombustible construction is extremely limited (see UBC for the minor allowable uses). Because of the potential for severe degradation, fire retardant plywood shall not be used in a roof or roofing system, or in structural applications.

l. Incorrectly listing trade names in door hardware specifications in lieu of ANSI numbers and failure to correctly specify hardware finishes.
m. Control joints in CMU walls and brick expansion joints in face brick are not shown on both architectural plans, elevations and structural plans, or are inconsistent. Note also control joint locating and coordination for floor tile per Tile Council of America recommendations.

n. Failure to delete all publications which do not apply to the particular project.

o. North is not oriented the same direction on all sheets (civil, site, arch).

3.5 DESIGN CERTIFICATION

The Contractor shall provide certification for each design submittal in accordance with paragraph SUBMISSION OF CONSTRUCTION DRAWINGS, SPECIFICATIONS AND DESIGN ANALYSES, subparagraph "Certifications," of Section 01015 DESIGN REQUIREMENTS AFTER AWARD.

3.6 DESIGN DEVELOPMENT (60 PERCENT PRELIMINARY DESIGN) REQUIREMENTS

Preliminary design documents shall include all applicable plans, details, and specifications specified in the paragraph DESIGN DETAILS, drawn to 60 percent completion or more, unless otherwise indicated. The documents shall include all design and items required to be 100 percent complete. Identify and resolve conflicts in the design requirements, between the design requirements and the Contractor's design proposal, or those due to lack of thorough understanding of the nature and scope of work prior to submittal of the 60 percent design. Drawings, design analysis, and specifications will be reviewed for compliance with the Contract design requirements at this design submittal. Submit the following:

3.6.1 Rendering

The Contractor shall prepare an architectural rendering for inclusion with the 60 percent Design Submittal. The rendering will be in full color, represent the final exterior color and material selections, approximately 500 mm by 600 mm in size, on illustration board, matted and framed with non-glare glass, and with project title on mat. The perspective shall be from an eye-level or low-level aerial point of view that will highlight the most attractive features of the project. The Contractor shall furnish one preliminary black-and-white sketch of the proposed rendering to the Contracting Officer, along with three (3) proposed exterior color schemes, for review and acceptance prior to proceeding with the color version.

3.6.2 Drawings

Furnish all drawings that are required for the 100 percent submittal. Except for site work, outside utilities, and building foundation drawings, all drawings shall be developed to approximately 60 percent completion. Site work, outside utilities, and building foundation drawings shall be 100 percent complete. The drawings shall be fully coordinated with the design analysis and specifications.

3.6.3 Specifications

Provide all specification sections required for 100 percent submittal. Specifications for site work, and utilities, and foundation (Division 2

and those applicable in the other Divisions) shall be 100 percent complete.

All other specifications required for the completion of the building, turfing, and landscaping shall be at least mark-ups of the required technical and trade sections. Include the identification of the "author" of the industry guide specifications used, any mandatory guide specifications required in this Contract, and a project table of contents listing all sections to be included in the project.

3.6.4 Submittal Register

Prepare a Submittal Register as specified in Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES and paragraph CONSTRUCTION SPECIFICATIONS, subparagraph "Submittal Register," of this Section. Submittals for site work, utilities, and building structure shall be 100 percent complete. Submittals for all other work shall be developed to the extent required to support the level of design included in this submittal. Submit a copy of the "Subreg" folder with the updated files and program and four hard copies of the register with this design submittal.

3.6.4 Design Analysis

The design analysis shall give the basis for design for all disciplines and should establish specific goals, objectives, and priorities for the design of this project. Identify, explain, and document use of design criteria and how the design meets goals, objectives, and priorities. The design analysis shall comply with SWD-AEIM, Chapter IX, and include narrative description and analysis of all building systems, appropriate checklists, calculations, and catalog cut sheets of equipment used in the design.

(Am#4) 3.6.5 Sustainable Project Rating Tool (SPiRiT)

In accordance the substantiation requirements for Volume II DESIGN AND PERFORMANCE REQUIREMENTS, PERFORMANCE REQUIREMENTS Chapter 111 FACILITY PERFORMANCE, paragraph "Environmental Responsible Design," update the Contractor's Proposal's Sustainable Project Rating Tool (SPiRiT) sheets, indicating the status of design related to the listed elements to be achieved and any problems in achieving these elements.

3.6.6 Substantiation Requirements

See Volume II DESIGN AND PERFORMANCE REQUIREMENTS, PERFORMANCE REQUIREMENTS Chapters.

3.6.7 Commissioning Plan

See Section 00830 DESIGN AND CONSTRUCTION PROCEDURES, paragraph COMMISSIONING for requirements.

3.6.8 Civil Design

The drawings shall be 100 percent complete, ready for start of construction. Drawings shall fully describe the type and the scope of work required. Include all necessary and required details, be thoroughly checked, and be fully coordinated with the Construction Specifications and all other Construction Documents.

3.6.9 Landscaping Design

Provide Landscaping Plan, including sprinkler system layout, and any

details required for this level of design.

3.6.10 Architectural Design

60 percent architectural drawing submittal shall be a complete set of architectural drawings without large scale details. All other drawings shall be complete except referencing of the large scale details. Room finish schedule, and door, window, and louver schedules, shall all be complete except for references to details.

3.6.11 Interior Design

Provide SID/CID Notebook(s) and design analysis.

3.6.12 Structural Design

Provide details and notes for required structural work. Building structural members shall be at least outlined. Provide elevation views, sections, and details necessary to illustrate the design at a 60 percent level of completion. Roof framing plan(s) shall show sufficient details to clearly indicate the type of framing system used, size, and spacing of members and their elevations.

3.6.13 Mechanical Design

Provide plans, piping diagrams, sections, flow diagrams, details, schedules, and control diagrams/sequences as necessary to define the required design intent at this level of design. Floor plans shall use the architectural floor plans as a basis, with the building outline half-toned.

Unless otherwise indicated, all floor plans shall be drawn at a minimum 1:100 (1/8-inch = 1'-0") scale and shall show room names and numbers. Provide preliminary mechanical room sections to ensure that major equipment items, piping, and ductwork will fit as designed. For the 60 percent submittal, all supply and return mains shall be shown as double-lined although branch ducts, takeoffs, and ductwork to diffusers may be single-lined. Piping 6 inches and larger shall be shown as double-lined for the 60 percent submittals.

Complete Attachment C for mechanical room sizing.

3.6.14 Electrical Design

Fully coordinate the 60 percent design drawings with the design analysis. Provide sufficient plans, single-line diagrams, riser diagrams, details, and schedules as necessary to define the required design intent for this level of design. Indicate all circuits, circuit breakers or fuse locations, panelboards, and PDUs known at this level of design.

3.6.15 Fire Protection Design

Provide the Life Safety Plan and the Fire Protection site and floor plans, complete. Fire protection details shall be sufficient for this level of design.

3.6.16 Environmental Design

Provide drafts of the following items for the preliminary submittal:

- a. Environmental Survey Sampling Plan (if applicable)

- b. Stormwater Pollution Prevention Plan (SWPPP)
- c. Plans for SWPPP including Erosion and Sediment Control Plans and Erosion and Sediment Control Structures and Details
- d. Design Analysis provides for the preliminary design and final design submittal. It shall address environmental issue and considerations for the project during programming stage and design features. Discussion shall at least include the following,

1.0 APPLICABLE REFERENCES

2.0 CULTURAL AND NATURAL RESOURCES

- 2.1 National Environmental Policy Act Compliance Document
- 2.2 Protection of Historic Properties & Guidance
- 2.3 Protection of Cultural Properties & Guidance
- 2.4 Protection of Threatened and Endangered Species and Their Critical Habitats & Guidance
- 2.5 Wetland and Floodplains & Guidance

3.0 WATER QUALITY AND PREVENTION OF WATER POLLUTION

- 3.1 Water Supply & Guidance
- 3.2 Municipal Wasterwater & Guidance
- 3.3 Industrial Wastewater & Guidance
- 3.4 Storm Water & Guidance (& construction documents to be prepared)

4.0 AIR QUALITY AND PREVENTION OF AIR POLLUTION

Design Issues & Guidance (Design Features & construction document to be prepared)

5.0 SOLID WASTE

- 5.1 Design Issues & Guidance

6.0 HAZARDOUS, TOXIC, AND RADIOLOGICAL WASTE (HTRW) (one sub-paragraph for each issue & constrction document to be prepared)

7.0 FEDERAL, STATE AND LOCAL PERMITS, LICENSES, NOTIFICATIONS, PRE-CONSTRUCTION PERMITS AND REGISTRATION (one sub-paragraph for each issue)

3.7 CONSTRUCTION DOCUMENTS (100 PERCENT DESIGN) REQUIREMENTS

All documents shall be 100 percent complete, ready for start of construction.

3.7.1 Drawings

The drawings shall be complete, ready for start of construction, and include all necessary and required details, be thoroughly checked, and fully coordinated with the construction specifications and all other Construction Documents. The final drawings shall include all the requirements and drawings defined for the 60 percent submittal plus any additional detail drawings required for complete 100% design. Drawing scale shall match architectural drawing requirements. Plans shall be legible at full-size. Previous comments and applicable criteria changes shall have been incorporated into the design.

3.7.2 Submittal Register

Prepare a complete a Submittal Register using ENG Form 4288 "Submittal Register" as specified in Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES and paragraph CONSTRUCTION SPECIFICATIONS, subparagraph "Submittal Register," of this Section, listing submittals for all specification sections that require submittals. Submit four hard copies and on a CD-ROM disk the updated submittal register files and program for this design submittal and the final submittal.

3.7.3 Specifications

The construction specifications shall be complete, ready for start of construction, fully coordinated with the drawings and design analysis, and include all work. Specifications shall be in final form for construction and include all changes requested during the 60 percent review stage.

3.7.4 Design Analysis

The Design Analysis shall include the basic information presented in the previous submittal, corrected to reflect changes in content made in response to review comments. Outline specifications shall be omitted from the Final Design Analysis as the information is included on the final drawings and construction specifications. The design analysis shall be written in the present tense and will comply with SWD-AEIM, Chapter IX.

(Am#4) 3.7.5 Sustainable Project Rating Tool (SPiRiT)

In accordance the substantiation requirements for Volume II DESIGN AND PERFORMANCE REQUIREMENTS, PERFORMANCE REQUIREMENTS Chapter 111 FACILITY PERFORMANCE, paragraph "Environmental Responsible Design," update the Contractor's Sustainable Project Rating Tool (SPiRiT) sheets, indicating the status of design related to the listed elements and the achievement level of the various goals listed in Volume II DESIGN AND PERFORMANCE REQUIREMENTS, PERFORMANCE REQUIREMENTS Chapter 111 FACILITY PERFORMANCE, paragraph "Environmental Responsible Design." Provide certification of achievement of the specified rating.

3.7.6 Substantiation Requirements

See Volume II DESIGN AND PERFORMANCE REQUIREMENTS, PERFORMANCE REQUIREMENTS Chapters.

3.7.7 Interior Design

Update the drawings, building related interior design (SID), Comprehensive Interior Design (CID), and the SID/CID Notebooks as required as a result of the 60 percent review.

3.7.8 Mechanical Design

All ductwork shall be double-lined. Piping 6 inches and larger shall be shown as double-lined.

3.7.9 Commissioning Plan

See Section 00830 DESIGN AND CONSTRUCTION PROCEDURES, paragraph COMMISSIONING for requirements.

3.8 DESIGN DETAILS

Drawings shall include the applicable plans, details, and requirements specified in the SWD-AEIM and those specified below.

3.8.1 Demolition

Show new work and demolition work on separate drawings. The type and the scope of removal work intended shall be clear from an inspection of the documents. Keyed notes for removal will be allowed.

a. Site Demolition Drawings (Removal Plan)

The removal plan shall show the existing physical features and condition of the site before construction. Include the field survey to show all above and below ground utilities; buildings, drives, roads and parking areas, walks, and vegetation; and such facilities as retaining walls, underground storage tanks, foundations, and existing contours. Physical features shall be indicated and noted: to be removed, to remain, or to be relocated.

3.8.2 Civil Design

The drawings shall be complete, fully describing the type and the scope of work required. Include all necessary and required details, thoroughly checked, and fully coordinated with the Construction Specifications and all other Construction Documents. Include the following as applicable:

- Cover Sheet and index of drawings
- Location and vicinity map including haul routes
- Site plan and details
- Grading and drainage plan
- Utility plan with profiles and details
- Pavement plan and details
- Soils boring logs
- Landscaping plans and details

a. Location Plan and Vicinity Map

A Vicinity Map consists of a small scale drawing of the project location, similar to a road map. A Location Plan consists of a small scale drawing showing the Government property or reservation limit with the construction project site shown. Show the Contracting Officer-approved Contractor access and haul routes, load limits on bridges along haul routes, and the designated waste and/or borrow areas. Upon request, a reproducible base sheet will be provided by the Fort Worth District for the Contractor's use in preparing the Location Plan.

b. Site Plan

Show all the site layout information necessary to field locate the building, walks, parking lots, and all other appurtenances to be constructed for the project. All site related work to be constructed will be located by dimensions. Identify all site related items such as curbs, pavements, walks, courtyards, bollards, trash enclosures, and retaining walls. Unless otherwise specified, site plans shall be at a scale of 1:400, 1:500, or 1:600 (1" = 20' or 1" = 30'). Existing or proposed contours shall not be shown on this Plan. The Site Plan, prior to adding the dimensions, shall serve as the base sheet to the other Plans, such as the Utilities Plan, Grading and Drainage Plans and the Landscape Plan. The

Site Plan will show all existing physical features and utilities within and adjacent to the work site that will remain after the proposed construction has been completed. Include free zones, construction limits, storage areas, etc.

Show the building orientation and horizontal dimensional relationships to streets, walks, property lines, easements, fences, and other structures. Space between structures will provide open areas in accordance with good land-use planning and due consideration of future development plans. Maintain fire clearance separations for access for equipment acceptable to the installation (i.e. Installation Fire Chief). Show geometric features of all roads, streets, sidewalks and parking areas. Provide details of all site features.

c. Grading and Drainage Plan

Provide a preliminary grading and drainage plan at a scale of 1:400, 1:500, or 1:600 (1" = 20' or 1" = 30') unless otherwise specified. Indicate new and existing grading contours at 300 mm (1-foot) contour intervals. Provide spot elevations in sufficient numbers so that interpolation between contours is not required. Some examples are: corners of paved areas and parking lots, low points, high points, flow lines of ditches and swales, changes in degree of slope and grading at building corners to insure positive drainage from the facility.

Indicate finished floor elevation of new building(s). Finished floor elevations shall be a minimum of 300 mm (12 inches) above the highest point of the outside finished grade and slope away from the building. Grade contours shall be at 240 mm intervals and spot elevations shall be provided at all site development features.

Show layout of the new and existing storm drainage systems, if applicable, including existing and new storm drainage flows, ditches, swales and piped systems.

Provide the appropriate top of structure elevations and pipe invert elevations of both the new and existing drainage system.

d. Erosion Control Plans

Erosion control plans shall show locations of all sediment basins, diversion ditches, areas to receive rock blanket, and other erosion control structures, indicating the approximate drainage areas each will serve. Indicate the materials, construction, and capacity of each structure.

e. Composite Utilities Plan With Profiles And Details

If required, provide a Composite Utilities Plan at a scale of 1:400, 1:500, or 1:600 (1" = 20' or 1" = 30'). Indicate locations of new and existing utilities. Plans shall show layout of the new and existing storm drainage, gas, sanitary sewer, fire protection, electrical, communication, water, steam, and any other utility systems which need to be provided for. Include new and existing contours. Show mains and distribution lines as well as all appurtenances such as meters, manholes, and valves.

f. Grading Sections

Grading sections through the new building showing finished and existing grades may be provided to supplement the required grading plan.

g. Pavement Plan and Details

Provide pavement plans for all parking lots, roads, equipment pads and sidewalks. Include cross sections of all paving designs and include details of curbs, gutters, pads, sidewalks, stairs, inlets and other features.

h. Soils Boring Logs

Provide logs of soil borings provided by the geotechnical engineer.

3.8.3 Landscaping

Provide a Landscape Plan showing trees, shrubs, ground covers, seeded and sodded areas. The Landscape Plan shall be prepared by a Licensed Landscape Architect. [The landscape plan shall be in accordance with the Installation Design Guide. Select and specify types of plant materials that are locally grown, commercially available, and acclimated to the project environment. Include a plant materials schedule or listing which lists the botanical names, common names, key, size, and the method of transplanting for each landscape element. The landscape plan shall also show all unsurfaced ground areas disturbed by construction within the project limits with these areas shown to be seeded, sodded, or mulched as required. Include designs and details for required site furnishings and accessories.

The Contractor shall provide designs and details as necessary for required site furnishings and accessories.

a. Sprinkler Irrigation Systems

Provide a sprinkler irrigation plan, designating the trees, shrubs, bushes, ground cover, and lawn area to be irrigated. Provide flow and pressure requirements. Include appropriate details.

3.8.4 Architectural Design

a. Floor Plans

Provide double line floor plan(s) of the entire building(s), drawn at the largest scale practicable to include the entire building or floor level on a single sheet. The building footprint may be of a size that will require the floor plans to be divided into multiple areas. Floor plans shall be scaled double-line drawings showing the functional arrangement, structural column or bay indicators, material patterns, location of all openings and plumbing fixtures. Section cuts, wall types, notes and leaders, general notes, and dimensions shall be complete. The plans shall indicate room numbers and titles, door swings, door and window numbers and types. Provide door, window, louver, and other schedules as required. Show a north arrow on each floor plan. Include enlarged toilet room and stair plans. The first floor plan sheet shall include a gross area tabulation comparing the actual square footage with the authorized square footage of the facility. Fully justify architect-engineer suggestions for plan improvement. Include:

Overall, Control, Opening, and complete dimensioning
Room Names and Numbers
Wall and Building section cuts

Door Swings and Numbers
Window Types
Square Footage
General Notes

Where major structural elements are included as parts of architectural detailing, do not indicate sizes. Define these elements as part of the structural design documents. Major elements of mechanical and electrical equipment affecting space allocation shall be shown on the architectural plan to the extent practicable and coordinated with other respective disciplines. When applicable, Government-furnished and Contractor-installed, or Government-furnished and installed, items shall be shown as dashed lines.

b. Reflected Ceiling Plans

Reflected ceiling plans shall include all notes, complete legends and pocheing patterns of materials to be used. Provide reflected Ceiling Plans for all spaces in the building(s). Reflected ceiling plans shall show the ceiling tile layout and location of gypsum wallboard and other ceiling types where applicable. Show all light fixtures, air diffusers, grilles, registers, exit lights, public address speakers, fire alarm strobe lights, sprinkler head layout, ceiling mounted equipment access panels or removable ceiling tile and grid elements, smoke and heat detectors, wall fire ratings, ceiling mounted equipment removal pathways, ceiling mounted television mounts, and other ceiling mounted items. The fixtures and other equipment shall be laid out in a regular pattern symmetrical with the ceiling tile grid, or symmetrical with the room centerlines, columns, windows, or other feature that dominates. All ceiling mounted items shown shall be fully coordinated with all other disciplines.

c. Roof Plan

Roof plan shall be complete showing slopes, locations for roof and overflow drains, equipment, and walkways. Coordinate elements located on the roof with all disciplines.

d. Building Elevations

Provide all building elevations complete showing the appearance and architectural treatment. Elevations shall be dimensioned to show story height, total height and relation to grade. Indicate critical elevations such as top of finish floor and top of steel.

e. Building Sections

Include building cross section and longitudinal sections to show general interior volumes, framing method, relationship to adjacent structures, and height of ceilings and partitions. Identify materials used and necessary dimensions.

f. Wall Sections

Drawings shall include all wall section [and stair section] conditions [including enclosed corridor(s) showing vertical control elevations] and dimensions. Label all materials. Cut sections should through doors, windows, and other critical wall section locations. Wall sections shall not be broken. Include additional details when necessary to illustrate abutting adjacent buildings and important or unusual features. All

horizontal dimensions shall occur on the plans and vertical dimensions on the sections and elevations.

g. Room Finish Schedules

Include signage.

h. Door, Window, and Louver Schedules

Door schedule shall include door and frame types and references to door details and hardware sets. Window and louver schedules shall indicate window and louver types, sizes, and references to details.

i. Fire Ratings

Clearly indicate wall ratings and fire hazards as required by the National Fire Protection Association Codes (NFPA). See Military Handbook MIL HDBK 1008C, particularly Section 2.1 Basic Criteria and Section 2.1.2 Partitions.

In addition to the wall rating criteria required by the Codes, provide a minimum of one-hour rated wall assembly around all Janitors Closets, Store Rooms, Mechanical and Electrical Rooms or Closets. Wall fire ratings shall be graphically shown by a continuous symbol or pattern within the wall on the reflected ceiling plan and/or on a Fire Protection/Life Safety Plan. When other functions coexist with the fire protection functions, their integration shall be clearly indicated with an analysis that describes how both functions will be served. Provide a separate, composite type floor plan which makes an accurate presentation of these various features and functions. By authorized written permission, where the building and features being shown are unusually simple, this information may be included on other drawings. Rated wall details shall include the design number of the testing laboratory certifying the rating.

j. Modular Design

Use modular design practices for the design of all masonry buildings or components of buildings. Dimensions shall be figured to whole or half-unit lengths (in increments of 100 mm) in order to reduce on-site cutting of masonry. Units less than 102 mm long shall be avoided.

k. Room and Door Numbering

The Room and Door Numbering system shall be consistent for all buildings designed under any one contract. Room numbering shall start at the main entrance and proceed clockwise around functional areas.

l. Facility Elevation

The elevation of the first floor shall be indicated as 100 000 mm (100 feet) and shall be a minimum of 300 mm above finish grade. Elevation for other floors, footings, etc., shall be related to this figure. Sea level elevations shall not be shown on the building drawings. Show elevations of the first floor above sea level on the grading plan (Civil).

m. Access to Utilities

All utilities within the building, such as piping, ductwork, and electrical work, shall be concealed in finished areas unless otherwise specified in the Program and Performance Requirements. Provide plumbing chases in toilet areas. Carefully figure the clear space above ceilings and the size

of chases to accommodate piping slopes and connections, ductwork crossovers, and fittings, HVAC piping and valve service spaces, and similar situations. Provide access to valves, cleanouts, etc. Space provided for utilities systems shall be adequate but not excessive.

3.8.5 Interior Design

Furnish Comprehensive Interior Design (CID) Package, including floor plans, finish and color schedules, interior design analysis, and sample/color boards, in accordance with SWD-AEIM, Chapter III, paragraph "Interior Design." SID refers to the building related exterior and interior finishes. CID includes the SID interior design package and the design, selection, arrangement, and color coordination of the furniture, furnishings, and art work. On the floor plan(s), show furnishings that are not considered part of the Contract, such as Government-furnished, Government-installed items, by the use of dashed lines and designated as "Not-In-Contract" (NIC). Use the design analysis to explain the desired image or visual appearance of the interior of the facility.

3.8.5.1 Submittal Requirements for SID/CID Notebooks (Color/Finish Sample Boards)

a. Furnish 4 sets of color/finish board(s) with attached samples of the proposed building-related finish materials mounted on 215 mm by 280 mm by 1.5 mm (8-1/2 inch by 11 inch by 1/16 inch) thick mat board in three-ring notebooks. Epoxy glue, hot-melt glue, or contact cement shall be used to attach samples; Scotch tape, double-backed tape, or rubber cement will not be acceptable. Heavy samples shall be mechanically fastened. Photographs or colored photocopies are acceptable only for illustrating furniture, furnishings, and art work; not for material and color samples.

b. The notebooks shall be labeled on the outside spine and front cover with the phase percentage, CID, project title and location, Contract number, date, and the Contractor's name and address.

c. Sequence and Content of CID Submittal

The sequence and content of CID Submittals shall be as follows:

- (1) Title Page.
- (2) Table of Contents.
- (3) Narrative of Interior Design Objectives.
- (4) Exterior Elevation Drawing.
- (5) Exterior Building Material Legend.
- (6) Exterior Building Material Color Board(s).
- (7) Room Finish Schedules.
- (8) Interior Color Placement Plan.
- (9) Interior Color Boards (according to color placement plan).

Each sample shall indicate color, texture, and finish; and, if patterned, shall be large enough to define full pattern. Samples shall

be identified as to type of material, area of installation, manufacturer, and transmittal number under which certification of the material represented will be submitted in accordance with the requirements of Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES.

- (10) Interior Floor Plan(s) And Furniture Layout, including an index keyed to the furniture, furnishings, and art work illustration sheets..
- (11) Signage Location Plans(s).
- (12) Interior Signage Color Boards.
- (13) Not Used.
- (14) Furniture and Furnishings Illustration Sheets, for all rooms.
- (15) Art Work Placement Plan and Illustration sheets, including specifications, for all rooms.

3.8.6 Structural Design

Drawings shall include foundation plans and details, floor framing plans for each floor when applicable, floor slab plans, and roof framing plans.

- a. Show the location of all in-wall columns or pilasters.
- b. Foundation and slab plans shall show the size and location of all foundation elements, such as foundation walls, grade beams and footings. Elevations for footings shall be indicated on the plan. Plans for slabs-on-grade and exterior stoop slabs at building entrances shall show location and type of joints, slab thicknesses and reinforcing, elevation of slab surfaces, and any other design features, such as equipment bases, heavy Lab equipments, isolated foundations and the in-slab electrical raceway, which affect the slab design.
- c. The sizes, locations, and elevations of footings shall be shown.
- d. Coordinate slab plans with the Electrical sheets and indicate the locations of in-slab electrical raceway trench ducts or similar items.
- e. Show concrete slab-on-grade thicknesses and sections.
- f. Show proposed treatment of special foundations and other unique or complex features and details.
- g. Provide elevation views, sections, and details necessary to illustrate the design.
- h. Roof framing plans shall show sufficient details to clearly indicate the type of framing system used, size, and spacing of members and their elevations.
- i. Drawings shall include overall building plan dimensions, north arrows, and design notes.
- j. Grid Systems, Dimensions, and Floor Elevations

Each foundation and slab plan and roof framing plan shall have an alpha-numeric grid system aligned with any in-wall columns or pilasters, or with load bearing and non-load bearing walls, as applicable. The same grid system shall be used for all plan views. Each plan view shown shall have all necessary dimensions. On plan views, the dimensions shall define the location of grid lines, offsets, and all structural elements, as well as the overall sizes of the structure. The finish elevation of the floor slab shall be indicated as 100 000 mm (100 feet), and elevations for foundations, walls and roof members shall be referenced to this basic elevation.

k. Plan Sheets

(1) Foundation and Slab Plans

Foundation and slab plans shall show the size and location of all foundation elements, such as foundation walls, grade beams and footings. Elevations for footings shall be indicated on the plan. Plans for slabs-on-grade and exterior stoop slabs at building entrances shall show location and type of joints, slab thicknesses and reinforcing, elevation of slab surfaces, and any other design features, such as equipment bases, heavy Lab equipments, isolated foundations and the in-slab electrical raceway, which affect the slab design.

(2) Roof Framing Plans

Roof framing plans shall be provided for all parts of the structure. Plans shall show the size, spacing, and location of all roof framing members, their supporting in-wall columns, pilasters or walls, all auxiliary members such as bracing and bridging, and the size and location of all major openings through the roof. Plans shall show support system for satellite dishes.

l. Elevation Views, Sections and Details Sheets

Elevation views, sections, and details necessary to illustrate fully the design shall be provided. Some requirements peculiar to the various structural materials are described below.

(1) Concrete

Include elevation views as necessary, plus sections and details to show the outlines of concrete cross-sections, reinforcing bar arrangements, concrete cover for rebar, installation of embedded items, and joint construction. All lap splice and embedment lengths for reinforcing bars shall be clearly indicated on the drawings. A sill detail for each foundation condition at exterior and interior doors shall be provided.

(2) Masonry

Wall reinforcing shall be located and identified on plans, in section cuts, elevation views, or in schedules. When required, include structural elevations to clarify the construction requirements for masonry reinforcement, especially the reinforcement around wall openings. Listed below are some frequently required masonry details, most of which are shown in ICBO Bldg Code and SWD-AEIM. Details may be extracted from other sources and incorporated into the final drawings.

Edit the details to reflect the specific requirements of this project.

(3) Structural Steel, Steel Joists, and Steel Decking

Structural steel connections shall be fully detailed and shown on the drawings. The anchorage of beams, trusses, joists, and steel deck to walls or other bearings, and the extra framing or reinforcement required at deck openings shall also be detailed. Notes, details, or schedules on the drawings shall indicate the steel deck attachment method to be used, and shall give the size and spacing for perimeter, side lap, intermediate supports and end lap attachments. Welded connections shall be detailed using standard weld symbols illustrated in AWS D1.1. All applicable weld sizes, spacing, types, contours, and finishes shall be shown.

(4) Cold-Formed Steel Studs

Cold-formed steel connections shall be fully detailed and shown on the drawings. The anchorage of studs to top and bottom runners, of top and bottom runners to supporting members, and the extra framing at openings shall also be detailed. Notes, details, or schedules on the drawings shall indicate the steel stud and runner dimensions, spacing, and attachments.

m. Schedules

(1) Foundation Schedules

Foundation schedules for footings or grade beams shall be included as applicable. The schedule shall include all pertinent information required for the foundation system being used.

(2) Framing Schedules

For concrete framing, beam, and column schedules shall conform to the requirements of the ACI SP-66. For structural steel framing, provide a column schedule complete with design loads at splices, if any, and at column bases, plus a tabulation of the loads, shears, moments and/or axial loads to be resisted by the beams and their connections.

n. Equipment Loads

All equipment loads which exceed 80 kg and are not supported by concrete slab-on-grade, shall be identified on the drawings by showing equipment locations, total weights, and reaction loads at support points.

o. Notes

(1) Design Notes

Under the heading "Designer's Notes," the structural drawings shall contain notes which begin:

"The structural design was prepared using the following data:".

The data then listed shall include the structural loading criteria used for design, such as roof and floor live loads, snow load design

parameters, wind speed and wind load design parameters, seismic design parameters (Zone Z, I, R_w, C, and S values), allowable soil bearing pressures (as recommended by the foundation analysis), foundation design depth, design wind uplift pressures for steel joists and other data pertinent to future alterations. Also, to be listed are the ASTM designations and stress grades of the applicable structural materials: steel, masonry, concrete for each usage, reinforcing bars, and bolts.

(2) General Notes

Other notes, which direct the work to be performed, the materials to be used, etc., shall be grouped under the heading of "General Notes." Include in these notes a description of the building's structural system, if necessary.

3.8.7 Mechanical Design

Provide plans, piping diagrams and isometrics, mechanical room sections, water and air flow diagrams, details, schedules, control diagrams, sequence of operations, etc. as necessary to define the required design intent. Floor plans shall use the architectural floor plans as a basis, with the building outline half-toned. Large-scale plans of congested areas shall be provided. Coordinate with architectural design for provision of access panels for all concealed valves, traps and air vents, etc. Unless otherwise indicated, all floor plans shall be drawn at a minimum 1:100 (1/8-inch = 1'-0") scale and shall show room names and numbers. Drawings shall include, but not limited to, the following:

a. Mechanical Abbreviation, Legend, and General Notes Sheet

This sheet shall include all mechanical abbreviations and symbols that will be used on the drawings. Include mechanical general installation notes that are required to clarify the construction intent that may not be readily apparent in the specifications or on the drawings. Symbols shall be grouped into sections; as a minimum, provide sections for Plumbing and HVAC. Control drawing symbols shall be shown on a separate drawing.

b. Plumbing Drawings

Plumbing Plans: Plumbing plans show show the design and layout of the domestic hot and cold water distribution systems; make-up water piping; soil, waste and vent piping; and storm water drainage system. Include routing of piping systems from the connections within the structure to a point 1.5 meters (5 feet) outside the structure. The grade of all drain lines shall be calculated and invert elevations established. All plans shall show plumbing fixtures. All electrical panels and equipment and pertinent HVAC equipment (e.g. chillers, expansion tanks, boilers, AHU's, pumps) shall be outlined in half-tone on the plumbing plans. Plans may be drawn at 1:100 (1/8 inch = 1 foot) scale as long as legibility is not compromised. Plumbing fixtures and drains shown on the drawings shall be designated by the same identification system used in the Construction Specification Plumbing Fixture Schedule. Soil, waste, vent and storm drainage piping shall be shown on separate sheets from cold and hot water distribution piping and make-up water piping. Provide a roof plan show roof drains and sanitary vent penetrations. Include the following:

(1) Enlarged toilet room plans showing all fixtures, water,

waste, and vent piping for each toilet area.

(2) Plumbing water and waste/vent riser diagrams for each toilet area. Provide plumbing water and waste/vent riser diagrams for each toilet area.

(3) Enlarged mechanical and boiler room plumbing plans, drawn at a minimum 1:50 scale, showing layout of all plumbing equipment and piping within the rooms. To show spatial relationships, indicate the location of HVAC equipment, gas service, condenser water or chilled water entrances, fire protection entrance and risers, and electrical panels or equipment located in the room.

(4) Plumbing details, including those for roof and overflow drains, and schedules.

c. Mechanical HVAC Drawings, Details, and Schedules

Show on mechanical HVAC drawings, all items of mechanical equipment, including boiler room equipment, chilled water equipment, condenser water equipment, air handling units, air distribution and exhaust systems, etc., to clearly illustrate all HVAC system designs, and to determine proper space allocation within the intent of the architectural layout requirements. Plans and sections shall be developed sufficiently to ensure that major equipment items, piping, and ductwork cause no interference with structural members, electrical equipment, etc. Provide Schedules for each item of mechanical equipment. Provide installation details showing specification requirements such as isolation and balancing valves, thermometers, pressure gauges, equipment pads, strainers, vents, hangers, and vibration isolation for each item of mechanical equipment. Include enlarged mechanical and boiler room floor plans showing the layout of all HVAC equipment, piping, and ducts located within the rooms and dedicated access space for items requiring maintenance; and drawn at a minimum 1:50 (1/4 inch = 1'-0") scale. Provide mechanical and boiler room sections to show equipment and components, ductwork connections and routing, and relationship to adjacent structural features. Provide chilled and hot water system flow diagrams, showing chillers, cooling towers, piping, pumps, boilers, and all connected cooling and heating equipment. Show associated GPM flow rates. Provide airflow diagrams showing CFM quantities for outside air, return air, and supply air; supply-air side of each diagram shall be broken down into zones, with each zone supply, return, and relief/exhaust CFM quantities identified. The following HVAC drawings shall be provided:

Mechanical HVAC Plans: Mechanical HVAC plans shall show the design and layout of the hot water piping distribution system and equipment, chilled water piping distribution system and equipment, condenser water piping distribution system and equipment, air supply and distribution systems, and ventilation and exhaust systems. Air supply and distribution systems shall show all ductwork, including supply and return mains, branch ducts, and terminal unit (single and dual duct VAV and CV boxes) takeoffs; ductwork to diffusers; diffusers, grilles, and registers; and fire and fire/smoke dampers.

d. HVAC Control Drawings

Provide a one-line control diagram showing DDC interface points, detailed sequence of operations, and DDC control points list for all mechanical equipment and systems in accordance with SWD-AEIM, Chapter V.

3.8.8 Electrical Design

Provide plans, electrical and UPS room sections, single-line diagrams, riser diagrams, details, and schedules as necessary to define the required design intent. Coordinate the electrical and communications design with the design for other disciplines. Floor plans shall use the architectural floor plans as a basis with the building outline half-toned. Unless otherwise indicated, all floor plans shall be drawn at a minimum 1:50 (1/4-inch = 1'-0") scale and shall show room names and numbers. Include the following as applicable:

- a. Electrical Abbreviations and Legends
- b. Drawing Notes
- c. One-Line Diagram

Detail the complete electrical system with a simplified one-line diagram. The diagram shall show ratings of major equipment including short circuit ratings. Use standard symbols for electrical equipment including, but not limited to, switchgear, sectionalizing cabinets, transformers, generators, uninterruptible power systems (UPS), switchboards, panel boards, power distribution units (PDUs), motor control centers (MCCs), motor starters. Include switchgear fuses or circuit breaker ratings; transformer ratings (including K-ratings) and connection configuration; switchboard ratings (including metering); panelboard current and ampere interrupting current (AIC) ratings; PDU ratings (including isolation transformers and K-ratings), raceway and conduit sizes and material type; MCC ratings; motor starter ratings; and conductor and ground type, size, and insulation ratings.

- d. Riser Diagrams
- e. Power Plan

Detail the electrical wiring for outlets, including raised floor receptacles, other than lighting. Identify rooms by name and number. When applicable, include a power cable tray plan and communications tray plan, detailing the underfloor cable tray components, outlets, and routing.

- f. Lighting Plan

Detail the electrical wiring and switching for lighting. Identify rooms by name and number.

- g. Lighting Fixture Schedule
- h. Panelboard and PDU Schedules

Detail the circuits and circuit breakers or fuse locations in various panelboards, including panelboards in power distribution units (PDUs). Panelboard schedules shall include the designation, location, mounting (flush or surface), number of phases and wires, voltage, capacity and total connected and demand load. Indicate the trip rating, frame size, interrupting rating, and number of poles for each circuit breaker in the panelboards. List the circuit number, circuit description, and load for each branch circuit. Include estimated maximum demand for each panel and for entire building and other relative information.

i. Emergency Systems

Detail the electrical requirements for emergency systems such as emergency generator, UPS, emergency lighting, and fire alarm system (coordinate with fire protection plans).

j. Site Plan

Detail the connection of pad-mounted switchgear, pad-mounted sectionalizing cabinets, vaults, and underground electrical and communications ducts. Show utilities the underground electric lines and communications ducts will cross.

k. Communications System

Detail the conduit and raceways required to support communications and audio/visual systems requirements, including, but not limited to intercoms, security, cable television, computer data, data transmission (local area network), and telephone.

l. Security System

Detail security camera and, alarm requirements, and riser diagrams.

m. Lightning Protection System

Detail the lightning protection system including air terminal types and locations; cross and down conductor material, sizes and connections; ground rod material, sizes, and locations; ground counterpoise materials, sizes, and routing, and test well construction and locations. Show locations of all air terminals, roof conductors, down conductors, ground rods, and counterpoise.

n. Grounding System

Show locations for and detail grounding electrode; grounding conductor and bond materials, sizes, and locations; and isolation grounds.

o. Cathodic Protection System

Detail test point construction and locations, sacrificial anode systems, impressed current systems, etc.

p. Miscellaneous Details

Provide communications manhole details, electric vault details, special light fixture details, etc.

3.8.9 Fire Protection Design

Provide plans, diagrams, sections, and details as necessary to define the required design intent. Floor plans shall use the architectural floor plans as a basis, with the building outline half-toned. Unless otherwise indicated, floor plans shall be drawn at a minimum 1:100 (1/8 inch = 1'-0") scale and shall show room names and numbers. Drawings shall include, but not limited to, the following:

a. Fire Protection Plans

Show the following on the fire protection plans:

- fire service entry and size to a point 1525 mm (5 feet) outside of building;
- back flow preventer and size;
- system riser and size;
- zone risers, fire department connection, alarm bell, detectors, zones, room by room occupancy hazards and ceiling types per zone in tabular format, general description of system, applicable NFPA codes listing, sprinkler type per ceiling and application;
- water demand data, including design density, hose allowance, and design area for each applicable occupancy hazard; and
- a note stating that system shall be hydraulically designed.

Plans shall not show sprinkler piping or heads, unless it is necessary for coordination or system definition in special applications.

b. Fire Protection Details

Include the following fire protection details:

- mechanical riser diagram, including all pipe sizes;
- electrical riser diagram;
- any necessary sections to show routing of piping or sprinkler head locations, fire service entrance detail, exterior wall and slab penetration details, hydraulic design data from flow test provided by Government, hydrant designations from flow test, and fire protection symbols list.

c. Site Plan

Include:

- underground fire service main routing and size, from point of connection at existing water main, to building entry point;
- and fire hydrant locations used in flow test.

Label fire hydrants to match flow test designations shown on drawings and described in design analysis.

d. Life Safety Plan

Show:

- location of fire separation walls, column, floor and roof protection,
- path of travel for emergency egress and panic exits,
- access to building for fire fighting,
- rated doors and windows,
- requirement for mechanical and electrical penetrations through fire separation walls and floors,
- placement of fire extinguishers, and
- occupancy types.

3.8.10 Environmental Design

Provide the following items to include annotated comments on preliminary design submittal:

Environmental Survey Sampling Plan for Abatement Items (if applicable)

Stormwater Pollution Prevention Control Plan

The Contractor shall submit for Government review and approval a project specific narrative or Detailed Storm Water Pollution Prevention Plan (SWPPP) developed in accordance with Section 01410 ENVIRONMENT PROTECTION, and Section 01420 OUTLINE OF A BASIC STORM WATER POLLUTION PREVENTION PLAN.

The Contractor shall also provide Erosion and Sediment Sontrol Plans depicting types and location of control structures and provide Erosion and Sediment Control Structures and Details to be used. The narrative shall describe when and where these storm water controls will be implemented during the various phases of construction of the new facility.

Design Analysis

The Contractor shall reference above requirements for preliminary design submittal in 3.6.16 and prepare a Chapter in the Design Analysis entitled: "Environmental Protection Compliance". This Chapter shall summarize how the project complies with all environmental laws and regulations. As a minimum, the Chapter shall include the following:

- a. The Permitting and/or Approving Authority(ies).
- b. Construction/Operating Permits, Notices, Reviews and/or Approvals required. If, when checking with the agencies, a permit, notice or approval is not required, include a copy of the telephone conversation memorandum or letter from the agency.
- c. Time required by the permitting agency(ides) to process the application(s) and issue the permits.
- d. Fee schedule including filing/application fees, review fees, emissions fees, certification testing, etc.
- e. Monitoring and/or compliance testing requirements.
- f. Actual Environmental regulations governing the applications, exemptions, variances, etc. or at a minimum a brief summary of the regulation and title.

3.9 ATTACHMENTS

Attachments A, B, and C follow this page.

3.9.1 ATTACHMENT A

CODE ANALYSIS

UNIFORM BUILDING CODE (UBC) AND NFPA "LIFE SAFETY CODE" ANALYSIS

LIFE SAFETY AND FIRE PROTECTION IS AN INTEGRAL PART OF EVERY FACILITY DESIGN. RECOGNIZED CODES AND ACCEPTED SAFETY STANDARDS SHALL BE FOLLOWED IN THE DESIGN OF ALL FACILITIES. OF THE VARIOUS CODES AND SAFETY STANDARDS THE NATIONAL FIRE PROTECTION ASSOC. (NFPA) "LIFE SAFETY CODE" SHALL TAKE PRECEDENCE. ALL APPLICABLE REQUIREMENTS OF THE LIFE SAFETY CODE SHALL BE INCORPORATED INTO EACH DESIGN. FOR TYPE OF CONSTRUCTION, FIRE AREA LIMITATIONS, AND ALLOWABLE BUILDING HEIGHTS THE DESIGN SHALL FOLLOW THE UNIFORM BUILDING CODE (UBC).

CHECK LIST

PROJECT NAME _____ DATE _____

LOCATION _____

3.9.1.1 UNIFORM BUILDING CODE ANALYSIS

a. OCCUPANCY CLASSIFICATION (See Table 5A):

Area:	Classification:
(GROUP: _____):	Div. _____
(GROUP: _____):	Div. _____
(GROUP: _____):	Div. _____

PRINCIPAL OCCUPANCY _____

OTHERS (SPECIFY) _____

b. TYPE OF CONSTRUCTION :

c. OCCUPANCY SEPERATION REQUIRED (SEE TABLE 5-B):

_____	TO	_____	=	_____	HRS
_____	TO	_____	=	_____	HRS
_____	TO	_____	=	_____	HRS
_____	TO	_____	=	_____	HRS

d. FIRE RESISTANCE OF EXTERIOR WALLS: (SEE TABLE 5-A)

NORTH _____

SOUTH _____
EAST _____
WEST _____
OTHER _____

e. OPENINGS IN EXTERIOR WALLS: (SEE TABLE 5-A)

NORTH _____
SOUTH _____
EAST _____
WEST _____
OTHER _____

f. MAX. ALLOWABLE FLOOR AREA (SEE TABLE 5-C):

ALLOWABLE:

IF SPRINKLERED: _____

ALLOW. AREA INCREASES _____

CALCULATED ACTUAL FLOOR AREA:

Floor Square Footage

Totals:

g. MAX. ALLOWABLE HEIGHT (SEE TABLE 5-D):

METERS (FEET): _____

STORIES: _____

Proposed Height of Building: _____

Actual No. of Stories: _____

h. COMMENTS:

DESIGNER: _____

3.9.1.2 NFPA 101 "LIFE SAFETY CODE"

a. CLASSIFICATION OF OCCUPANCY:

HAZARD OF CONTENTS:

LOW _____

ORDINARY _____

HIGH _____

b. FIRE RESISTIVE REQUIREMENTS:

EXTERIOR WALLS: _____ HRS _____

INTERIOR WALLS: _____ HRS _____

STRUCTURAL FRAME: _____ HRS _____

VERTICAL OPENINGS: _____ HRS _____

FLOORS: _____ HRS _____

ROOFS: _____ HRS _____

EXTERIOR DOORS: _____ HRS _____

EXTERIOR WINDOWS: _____ HRS _____

BOILER ROOM ENCLOSURE _____ HRS _____

OTHER (LIST) _____ HRS _____

_____ HRS _____

_____ HRS _____

_____ HRS _____

c. MEANS OF EGRESS:

OCCUPANCY LOAD FACTOR: _____

OCCUPANCY	FACTOR	ACTUAL AREA	ACTUAL LOAD
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

d. NUMBER OF EXITS REQUIRED:

e. MINIMUM WIDTH OF EXITS:

CALCULATED: _____

ACTUAL: _____

f. MAXIMUM ALLOWABLE TRAVEL DISTANCE TO EXIT:

WITH SPRINKLERS: _____

g. EXIT DOORS:

MINIMUM WIDTH ALLOWED: _____

MAXIMUM LEAF WIDTH ALLOWED: _____

WIDTH REQUIRED FOR NO.OF OCCUPANTS: _____

h. EXIT CORRIDORS:

MAX. COMMON PATH OF TRAVEL: _____

MINIMUM ALLOWABLE WIDTH: _____

REQUIRED TO HAVE EXIT AT EACH END OF CORRIDOR?

DEAD END CORRIDORS ALLOWED? _____
MAXIMUM LENGTH: _____
WALL FIRE RESISTANCE REQUIRED: _____

DOORS & FRAME FIRE RESISTANCE REQUIRED:

i. STAIRS:

MINIMUM WIDTH _____ FOR OCCUP. LOAD OF _____
MAX. RISER ALLOWED: _____
MINIMUM TREAD ALLOWED: _____

LANDINGS:

MIN. SIZE: _____
MAX. VERTICAL DIST. BETWEEN LANDINGS: _____

REQUIRED HEIGHT OF RAILINGS:

HANDRAILS:

REQUIRED AT EACH SIDE? _____
INTERMEDIATE RAIL REQUIRED? _____

HEIGHT ABOVE NOSING _____
INTERMEDIATE RAIL REQUIRED? _____
MAX. SPACE ALLOWED BETWEEN RAILS: _____

STAIR ENCLOSURE REQUIRED? _____

STAIR TO ROOF REQUIRED? _____

STAIR TO BASEMENT REQUIRED? _____

j. HATCHWAY ACCESS TO ROOF REQUIRED? _____

k. LADDER ACCESS TO ROOF REQUIRED?

l. HORIZONTAL EXIT REQUIREMENTS:

m. PROTECTION OF OPENINGS NEAR EXTERIOR STAIR EXIT DOORS:

n. SMOKEPROOF ENCLOSURE REQUIRED:

o. RAMPS:

MAX. SLOPE TO USE AS EXIT _____
HANDRAILS REQUIRED? _____

p. COMMENTS:

DESIGNER: _____

FOLLOWING IS A LIST OF ADDITIONAL "NFPA" CODES THAT ARE COMMONLY USED. INDICATE WHICH OF THESE CODES ARE USED AND ADD THOSE REQUIREMENTS TO THIS ANALYSIS.

- NFPA 10 FIRE EXTINGUISHERS, PORTABLE
- NFPA 75 COMPUTER/DATA PROCESSING FACILITIES
- NFPA 80 FIRE DOORS AND WINDOWS
- NFPA 88A PARKING STRUCTURES
- NFPA 409 AIRCRAFT HANGARS
- AFM 88-4 DATA PROCESSING FAC. DESIGN AND CONST.
- AF ETL 89-3 FIRE PROTECTION CRITERIA FOR ELECTRONIC

Typed Name and Signature of the
Licensed Architect/Engineer of Record
Professional Seal of the Licensed Architect/Engineer of Record

3.9.2 ATTACHMENT B

ADA ARCHITECTURAL DESIGN CHECKLIST

Project Name: _____

Project Location: _____

Design Phase: _____

ITEM

INCORP N/A

LATER

NO.

1. Established with the Base/owner of the facility the requirements for handicap accessibility. _____

2. Received a waiver for no handicap accessibility requirements on the facility. _____

3. Facility is designed utilizing:
 - New Construction Criteria _____
 - Building Alteration Criteria _____
 - Historic Building Preservation Criteria: _____

4. Accessible Route (egress/corridors/halls/aisles).
 - Provided minimum fire egress routes. _____
 - Provided minimum site accessible routes. _____
 - Provided proper clearance widths. _____
 - Provided proper floor level changes. _____
 - Provided proper floor materials. _____
 - Provided protection from protruding objects. _____

5. Ramps:
 - Maximum slopes less than 1:12 _____
 - Maximum run less than 30 feet for 1:12 slopes _____
 - 40 feet for 1:16 slopes _____
 - Minimum clear width exceeds 914mm. _____
 - Provided proper edge protection. _____
 - Provided handrails of proper configuration and diameter. _____
 - Provided proper handrail extensions at top and bottom of ramp. _____

 - Provided handrails at proper mounting heights. _____
 - Provided proper landings. _____
 - Provided proper cross slope on ramp surface. _____

ITEM
 INCORP
 N/A
 LATER
 NO.

6. Stairs:

- Protected the space below stairs from access by the blind. _____
- Provided handrails of proper configuration and diameter. _____
- Provided proper handrail extensions at top and bottom of stairs. _____

- Provided handrails at proper mounting heights. _____
- Provided treads greater than 280mm in width. _____
- Provided Proper nosings. _____

7. Elevators:

- Provided buttons and lanterns at the proper mounting height. _____
- Provided Braille characters. _____
- Provided proper door widths. _____
- Provided proper clearance inside elevator car. _____

8. Doors And Hardware:

- Provided proper door widths. _____
- Provided proper clearance on both sides of jambs. _____
- Entrance vestibules provided with adequate clearances. _____
- Provided levers on locksets and exit hardware. _____
- Provided closers with mechanical adjustments. _____
- Provided accessible thresholds. _____
- Provided protection plates on doors heavily used by wheel chair bound people. _____

ITEM
 INCORP N/A LATER
 NO.

- 9. Toilet Facilities:
 - Provided proper floor clearance through out the toilet rooms. _____
 - Provided minimum number of required accessible fixtures. _____
 - Provided accessible toilet stalls. _____
 - Provided stall doors with correct direction of swing. _____
 - Provided accessible water closets. _____
 - Provided grab bars at accessible water closets. _____
 - Provided grab bars with correct configuration and dimension. _____
 - Provided accessible sinks/lavatories. _____
 - Provided accessible urinals. _____
 - Provided accessible water coolers and fountains. _____
 - Provided accessible mirrors. _____
 - Provided accessible toilet accessories at required locations. _____
 - Provided all fixtures and accessories at proper mounting heights and clearances. _____
 - Provided insulated or protected exposed pipes at lavatories. _____

- 10. Shower/Tub Facilities:
 - Provided the minimum number of accessible showers/tubs. _____
 - Provided showers/tubs with grab bars. _____
 - Provided showers/tubs with seats as required. _____
 - Provided controls mounted at the proper height and location. _____
 - Provided proper clearances and dimensions in showers/tubs. _____
 - Provided proper floor clearance through out shower/tubs rooms. _____
 - Provided doors with correct direction of swing and clearance. _____

ITEM NO.		INCORP	N/A	LATER
11.	Storage:			
	- Provided accessible cabinets, shelves, closets, and drawers as required.	_____	_____	_____
	- Provided proper clearance, mounting heights, and reach provisions.	_____	_____	_____
12.	Telephones and Vending:			
	- Provided the minimum number of required accessible public telephones.	_____	_____	_____
	- Provided proper floor clearance around telephone.	_____	_____	_____
	- Phone and controls mounted at proper heights and within reach.	_____	_____	_____
	- Provided vending machines on an accessible route.	_____	_____	_____
	- Provided vending machines with accessible clearances and protruding object safe guards.	_____	_____	_____
13.	Fixed Or Built-in Seating And Tables:			
	- Provided the minimum number of accommodations for accessibility in areas which required fixed furniture.	_____	_____	_____
	- Provided proper floor clearance around furniture.	_____	_____	_____
	- Provide proper knee space at tables.	_____	_____	_____
	- Provided tables and counters with proper top surface heights.	_____	_____	_____
14.	Assembly Areas:			
	- Provided the minimum number of accessible seating spaces.	_____	_____	_____
	- Provided seating which is easily accessible to emergency egress.	_____	_____	_____
	- Provided companion seating.	_____	_____	_____
	- Integrated and dispersed accessible seating with the rest of the seating.	_____	_____	_____
	- Provided accessible dressing rooms.	_____	_____	_____
	- Provided level floor surface at accessible seat locations.	_____	_____	_____
	- Provided clear ground or floor space at accessible seat locations	_____	_____	_____
	- Provided access to all performing areas and associated spaces.	_____	_____	_____

ITEM NO.		INCORP	N/A	LATER
15.	Dining Halls And Cafeterias:			
	- Provided the minimum number of accessible dining spaces.	_____	_____	_____
	- Provided accessible counters and bars.	_____	_____	_____
	- Provided accessible aisles between tables or walls.	_____	_____	_____
	- Provided clear floor space at accessible dining locations.	_____	_____	_____
	- Provided accessible food service lines meeting minimum clearances and reaches.	_____	_____	_____
	- Provided accessible tableware and condiment areas.	_____	_____	_____
	- Provided raised speaker platform with protected edges.	_____	_____	_____
16.	Medical Care Facilities:			
	- At least 10% of the general patient rooms are accessible.	_____	_____	_____
	- Provided the number of accessible patient rooms as required for specialized treatment, long term care, or alterations of existing patient rooms.	_____	_____	_____
	- Provided at least one accessible entrance with weather protecting canopy or roof overhang.	_____	_____	_____
	- Provided minimum clearances within the patient rooms and around the beds.	_____	_____	_____
	- Provided accessible patient toilet/bath rooms.	_____	_____	_____
17.	Business And Mercantile:			
	- Provided at least one accessible sales counter, services counter, teller, information window, etc.	_____	_____	_____
	- Security bollards when provided, do not prevent access or egress to people in wheel chairs.	_____	_____	_____
18.	Libraries:			
	- Provided access to all reading and stack areas, reference reference rooms, reserve areas, and special facilities or collections.	_____	_____	_____
	- Provided at least 5% or a minimum of one of each element or fixed seating, tables, or study carrels as accessible	_____	_____	_____
	- Provided at least one lane of check out areas as accessible.	_____	_____	_____
	- Provided adequate clearance and reach distances at card catalogs and magazine displays.	_____	_____	_____
	- Provide stacks with minimum clear aisle width.	_____	_____	_____

ITEM NO.		INCORP	N/A	LATER
19.	Temporary Lodging:			
	- All common and public use areas are accessible.	_____	_____	_____
	- Provided accessible units, sleeping rooms, and suites.	_____	_____	_____
	- Provided sleeping accommodations for persons with hearing impairments.	_____	_____	_____
	- Provided a dispersed class and a range of room options.	_____	_____	_____
	- Provided accessible rooms in ADAL projects.	_____	_____	_____
	- Provided an accessible route to accessible sleeping rooms.	_____	_____	_____
	- Provided accessible clearance widths within sleeping rooms and around beds.	_____	_____	_____
	- Provided accessible doors within accessible sleeping rooms.	_____	_____	_____
	- Provided accessible fixed or built-in furniture and storage units.	_____	_____	_____
	- Provided accessible controls throughout accessible units.	_____	_____	_____
	- Where provided as part of an accessible unit each of the following were provided as accessible: living area, dining area, at least one sleeping area, patio/terrace, balcony, toilet/bath, and carport/garage/parking.	_____	_____	_____
	- Where provided as apart of an accessible unit, the kitchen, kitchenettes, wet bars, or similar amenities were also provided with accessible features.	_____	_____	_____
	- Provided visual alarms, notification devices, and accessible telephones.	_____	_____	_____
	- Provided accessible doors and doorways designed to allow passage into and within all sleeping units or other covered units.	_____	_____	_____

20. Transportation Facilities:

(This section covers Air, Rail, and Bus public transportation facilities. See Section 10 of the ADA Guide for specific requirements for these facilities)

3.9.3 ATTACHMENT C

MECHANICAL ROOM SIZE FORM

**NOTE: Mechanical Systems Design Documents and Guides -
Mechanical Room Size Form**

**At the final design stage, the mechanical designer shall
fill out this Mechanical Room Size Form and include it in
the final design calculations.**

The information submitted on this sheet shall be placed in a data base for future use on similar DoD, COE project. (The data base shall be used to help determine appropriate mechanical room sizes). Include this sheet in the final design calculations.

Project:

Location:

Engineer:

Gross floor area of building:

Gross square footage includes (the entire building) stairs, corridors, etc.

Floor area of mechanical room:

Percent of gross building area is the mechanical room size:

Type of facility:

Sources of energy (E, G, S):

Mechanical equipment:

List of equipment outside the mechanical room and location:

Is the mechanical room too small?

Does the User think the mech room is too small? (Y, N, Don't know)

Additional remarks:

Abbreviations:

- AC - air compressor
- AHU - air handling unit
- B - boiler
- CU - air cooled condensing unit
- DF - direct fired
- DX - direct expansion chilled water heat exchanger
- E - electric

FC - fan coil unit
FP - fire protection
G - natural gas or propane
HX - heat exchanger
LC - liquid chiller
MUA - make up air unit
UH - unit heater
ST - domestic hot water storage tank
S - steam

-- End of Section --

SECTION 01770

CONTRACT CLOSEOUT

04/2001

AMENDMENT NO. 0004

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.

MILITARY SPECIFICATIONS (MIL)

MIL-M-9868E Microfilming of Engineering Data, 35mm, Requirements For

TRI-SERVICE CADD/GIS TECHNOLOGY CENTER (TSC)

TSC-01 A/E/C CADD Standard Manual (Current Release as of Contract Award date)

U.S. ARMY CORPS OF ENGINEERS (COE)

COE-02 ARCHITECTURAL AND ENGINEERING INSTRUCTIONS MANUAL (SWD-AEIM), Southwestern Division (Current issue as of Contract Award date)

1.2 PAYMENT

Contract closeout activities such as, but not limited to, operation and maintenance manuals, record drawings, warranty requirements, equipment warranty identification tags, and inventories, real property maintenance records, payrolls, and shop drawing submittals, are subsidiary activities of the contract work; separate payment will not be made for any activity unless otherwise specified. Final contract payment will not be made until completion and approval of all contract closeout activities.

1.3 HVAC TESTING

The HVAC Testing that the Contractor schedules after substantial completion pursuant to paragraph entitled "Testing of Heating and Air-Conditioning Systems" of Section 01000 CONSTRUCTION SCHEDULE has a value to the Government of 10 percent of the value of the equipment to be tested. The Contractor shall reserve that amount to be paid on any equipment that will require testing after substantial completion pursuant to the above referenced specification paragraph.

1.4 OPERATION AND MAINTENANCE MANUALS

The Contractor shall be responsible for the preparation, coordination, execution and submittal of all operation and maintenance manuals (O & M Manuals), including spare parts lists, special tools, inventories of equipment manuals and maintenance instructions, and shall conduct all

training for operating and service personnel. Operation and maintenance manuals shall cover all system installations provided in this contract and shall be in sufficient detail to facilitate normal maintenance and troubleshooting by persons with minimum experience with the installed equipment.

1.4.1 Submittal Requirements

All of the above listed items required in the technical specifications shall be submitted to the Contracting Officer not less than 90 days prior to the scheduled contract completion date. Fully developed and approved operation and maintenance manuals shall be provided 30 days prior to scheduling training for operating and service personnel. The Contractor shall coordinate the content of each instruction period required in the technical specifications with the Contracting Officer's Representative prior to the actual start of the training period.

1.4.1.1 Video taping of Training for Operating and Service Personnel

Each instruction or training period as discussed above, shall be video taped in VHS FORMAT by the Contractor. The taping shall include the entire session(s). The original video tape(s) shall be labeled and turned over to the Contracting Officer. The video camera and tapes utilized by the Contractor, shall be of a quality to enable clear and understandable playbacks of the recorded events.

1.4.1.2 Draft O & M Manuals

On those systems where complete and comprehensive operation and maintenance manuals cannot be fully developed until the system(s) is checked, tested, and/or balanced, and the checking, testing, and/or balancing has not been done when submittals are required, a proposed draft of those system manual(s) shall be submitted. 10 percent of the each subsequent scheduled progress payment will be retained until the complete O & M Manuals submittal package have been submitted and approved. Submit fully developed O & M Manuals of the drafts for approval after the systems have been checked, tested, and/or balanced.

1.4.1.3 Commencement of Warranty of Construction

Failure to submit all specified O & M manuals, spare parts listings, spare parts, special tools, inventories of installed property, and training video tapes in a timely manner will be considered as delaying substantial completion of the work. Commencement of warranty under the Contract Clause WARRANTY OF CONSTRUCTION will not occur until all these items are delivered and approved by the Contracting Officer, but not earlier than the date of final acceptance of the work by the Government. When the O & M Manuals with drafts are approved they will not constitute a reason for delaying the start of the warranty period.

1.4.2 Government Possession of Work

The Government may take possession of any completed or partially completed work as provided for under Contract Clause entitled "USE AND POSSESSION PRIOR TO COMPLETION." If the installed equipment and/or systems thereto, have not been accepted by the Government due to the Contractor's failure to submit the above specified items, the Contractor shall operate and maintain such plant or system at no additional cost to the Government until such time that the specified items have been received, approved and any

subsequent testing, check-out and/or training has been completed.

1.5 PREPARATION AND SUBMISSION OF OPERATION AND MAINTENANCE MANUALS

This paragraph establishes general requirements for the preparation and submission of equipment operating, maintenance, and repair manuals as called for in the various sections of the specifications. Specific instruction(s) relating to a particular system or piece of equipment shall be incorporated into the manuals in accordance with the applicable technical specification.

1.5.1 General Requirements

Furnish operations and maintenance manuals on CD-ROM disk along with a single hard copy. Documents on the CD-ROM disk shall be in portable document format (.pdf); all printed and graphic documents, drawings, and illustrations shall be legible. Hard copy requirements are specified below.

1.5.1.1 Hard Cover Binders

The manuals shall be permanently bound and have a hard cover. The following identification shall be inscribed on the cover: the words "EQUIPMENT OPERATING, MAINTENANCE, AND REPAIR MANUAL:" and the name, building number, location, and indication of utility or systems covered. Manuals shall be approximately 216 mm by 279 mm (8-1/2 by 11 inches) with large sheets folded in and capable of being easily pulled out for reference. All manuals for a single facility must be similar in appearance.

1.5.1.2 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.

1.5.1.3 Title Page

The title page shall show the name of the preparing firm (designer or contractor) and the date of publication.

1.5.1.4 Table of Contents

Provide in accordance with standard commercial practice.

1.5.2 Equipment Operating, Maintenance, and Repair Manuals

1.5.2.1 General

Separate manuals shall be provided for each utility system as defined hereinafter. Manuals shall be provided in the number of copies specified in the applicable technical section. Manuals shall include, in separate sections, the following information for each item of equipment:

a. Performance sheets and graphs showing capacity data, efficiencies, electrical characteristics, pressure drops, and flow rates. Marked-up catalogs or catalog pages do not satisfy this requirement. Performance information shall be presented as concisely as possible and contain only data pertaining to equipment actually installed.

b. Catalog cuts showing application information.

c. Installation information showing minimum acceptable requirements.

d. Operation and maintenance requirements. Include adequate illustrative material to identify and locate operating controls, indicating devices and locations of areas or items requiring maintenance.

(1) Describe, in detail, starting and stopping procedures for components, adjustments required to obtain optimum equipment performance, and corrective actions for malfunctions.

(2) Maintenance instructions describing the nature and frequency of routine maintenance and procedures to be followed. Indicate any special tools, materials, and test equipment that may be required.

e. Repair information including diagrams and schematics, guidance for diagnosing problems, and detailed instructions for making repairs. Provide troubleshooting information that includes a statement of the indication or symptom of trouble and the sequential instructions necessary. Include test hookups to determine the cause, special tools and test equipment, and methods for returning the equipment to operating conditions. Information may be in chart form or in tabular format with appropriate headings.

f. Parts lists and names and addresses of closest parts supply agencies.

g. Names and addresses of local manufacturers representatives.

1.5.2.2 Facility Heating Systems

Information shall be provided on the following equipment: Boilers, water treatment, chemical feed pumps and tanks, converters, heat exchangers, pumps, unit heaters, fin-tube radiation, air handling units (both heating only and heating and cooling), and valves (associated with heating systems).

1.5.2.3 Air-Conditioning Systems

Provide information on chillers, packaged air-conditioning equipment, towers, water treatment, chemical feed pumps and tanks, air-cooled condensers, pumps, compressors, air handling units, and valves (associated with air-conditioning systems).

1.5.2.4 Temperature Control and HVAC Distribution Systems

a. Provide the information described for the following equipment:

Valves, fans, air handling units, pumps, boilers, converters, and heat exchangers, chillers, water cooled condensers, cooling towers, and fin-tube radiation.

b. Provide all information described for the following equipment:

Control air compressors, control components (sensors, controllers, adapters, and actuators), and flow measuring equipment.

1.5.2.5 Exterior Electrical Systems

Information shall be provided on the following equipment: Power

transformers, relays, reclosers, breakers, and capacitor bank controls.

1.5.2.6 Interior Electrical Systems

Information shall be provided on the following equipment: Relays, motor control centers, switchgear, solid state circuit breakers, motor controller, and EPS lighting systems, control systems (wire diagrams and troubleshooting flow chart), and special grounding systems.

1.5.2.7 Energy Management and Control System

The maintenance manual shall include descriptions of maintenance for all equipment, including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.

1.5.2.8 Domestic Water Systems

The identified information shall be provided on the following equipment: Tanks, unit process equipment, pumps, motors, control and monitoring instrumentation, laboratory test equipment, chemical feeders, valves, switching gear, and automatic controls.

1.5.2.9 Fire Protection Systems

Information shall be provided on the following equipment: Alarm valves, manual valves, regulators, foam and gas storage tanks, piping materials, sprinkler heads, nozzles, pumps, and pump drivers.

1.5.2.10 Fire Detection Systems

The maintenance manual shall include description of maintenance for all equipment, including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

1.5.2.11 Plumbing Systems

Information shall be provided on the following equipment: Water heaters, valves, pressure regulators, backflow preventors, piping materials, and plumbing fixtures.

1.5.2.12 Cathodic Protection Systems

Information shall be provided on the following material and equipment: Rectifiers, meters, anodes, anode backfill, anode lead wire, insulation material and wire size, automatic controls (if any), rheostats, switches, fuses and circuit breakers, type and size of rectifying elements, type of oil in oil-immersed rectifiers, and rating of shunts.

1.5.2.13 Generator Installations

Information shall be provided on the following equipment: Generator sets, automatic transfer panels, governors, exciters, regulators, starting systems, switchgear, and protective devices.

1.5.2.14 Miscellaneous Systems

Information shall be provided on the following: Communication and ADP systems, security and intrusion alarm, elevators, material handling, active solar, photovoltaic, and other similar type special systems not otherwise

specified.

1.6 RECORD DRAWINGS

Record drawings shall be a record of the construction as installed and completed by the Contractor. They are a record of all deviations, modifications, or changes from contract set of drawings (the accepted 100% design drawings), however minor, which were incorporated in the work. They include all the information shown on the contract set of drawings, any Contractor-original drawings, all additional work not appearing on the contract drawings, and all changes which are made after final inspection of the contract work.

1.6.1 Contractor-Original Record Drawings

Contractor-original record drawings are those drawings drawn by the Contractor, after acceptance of the 100% design documents and the start of construction, to further explain the Contract documents such as subcontractor submittals for fire protection/detection, communication, and other systems, and accepted Contractor's solutions to problems. Submit these drawings as full-size reproducible sheets and CADD files. CADD files shall conform to the Working CADD file requirements specified in paragraph "Final Record Drawings."

1.6.2 Preliminary Record Drawings

The Contractor shall mark up both a reproducible set and a set of prints to show as-built conditions. These two sets, hereafter called preliminary record drawings, or singly, reproducibles or prints, shall be kept current and available on the jobsite at all times, except as noted below. A member of the Contractor's Quality Control Organization shall be assigned responsibility for the maintenance and currency of the preliminary record drawings. This assignment and any reassignment of duties concerning the maintenance of the record drawings shall be promptly reported to the Contracting Officer's representative for approval. All changes from the contract drawings which are made in the work or additional information which might be uncovered in the course of construction, including uncharted utilities, shall be accurately and neatly recorded as they occur by means of details and notes. All changes and/or required additions to the preliminary record drawings shall be clearly identified in a contrasting color and which is compatible with reproduction of the preliminary record drawings. Preliminary record drawings shall be updated by Friday of each week. During periods when the reproducibles are being copied and are therefore not available at the jobsite, the Contractor shall continue posting all required data to the prints. The Contractor shall minimize the time that the reproducibles are away from the jobsite and shall update them with all as-built data immediately upon their return. The preliminary record drawings will be jointly inspected for accuracy and completeness by the Contracting Officer's representative and the assigned representative of the Contractor's Quality Control Organization prior to submission of each monthly pay estimate. See paragraph, "Withholding for Preliminary Record Drawings." The record drawings shall show the following information, but not be limited thereto:

a. The location and description of utility lines or other installation of any kind or description known to or found to exist within the construction area. The location of exterior utilities includes actual measured horizontal distances from utilities to permanent facilities/features. These measurements shall be within an accuracy range of 150 mm

and shall be shown at sufficient points to permit easy location of utilities for future maintenance purposes. Measurements shall be shown for all change of direction points and all surface or underground components such as valves, manholes, drop inlets, cleanouts, meter, etc. The general depth range of each underground utility line shall be shown (i.e., 900 mm to 1200 mm in depth). The description of exterior utilities includes the actual quantity, size, and material of utility lines.

b. The location and size of all uncharted existing utilities encountered.

c. The location and dimensions of any changes within the building or structure.

d. Correct grade or alinement of roads, structures or utilities if any changes were made from contract drawings.

e. Correct elevations if changes were made in site grading.

f. 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 plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

g. The topography and grades of all drainage installed or affected as a part of the project construction.

h. Options

Where contract drawings or specifications allow options, only the option selected for construction shall be shown on the record drawings.

1.6.2.1 Blue Line or Black Line Prints

Blue line or black line prints shall be full size. All blue or black line prints shall exhibit good readable print with clear, sharp, dark lines, and shall not be smeared, faded, double imaged, or have torn or ragged edges.

1.6.2.2 Prefinal Inspection For Each Item of Work

As part of the prefinal inspection for each item of work, the preliminary record drawings will be reviewed. They shall comply with this specification prior to scheduling the final inspection, and/or prior to substantial completion of the item of work.

1.6.2.3 Preliminary Record Drawing Final Submittal

Prior to scheduling the final acceptance inspection of the last or only bid schedule item of work, the preliminary record drawings shall be completed and delivered to the Contracting Officer's Representative for review and acceptance. If upon review, the drawings are found to contain errors and/or omissions, they will be returned to the Contractor for corrections. Failure of the Contractor to make timely delivery of the preliminary record drawings on any or all items of work will be cause for the Government to delay substantial completion and to assess liquidated damages in accordance with the terms and conditions of the contract.

1.6.2.4 Withholding for Preliminary Record Drawings

Failure by the Contractor to maintain current and satisfactory preliminary record drawings in accordance with these requirements will result in withholding from progress payments 10 percent of the progress payment amount until such time as the record drawings are brought into compliance. This withheld amount will be indicated on monthly payment estimates until the Contractor has fulfilled these contract requirements.

1.6.2.5 Final Inspection

For each interim item of work, furnish a copy of the preliminary record drawings for that item, which the Contractor has reproduced from the approved preliminary record drawing reproduces, to the Contracting Officer's representative at the time of final inspection for that item. At the time of final inspection on the last or only item of work, the Contractor shall deliver a copy of the complete set of the approved preliminary record drawings to the Contracting Officer's Representative.

1.6.3 Final Record Drawings

Upon approval of the preliminary record drawings, the Contracting Officer will return the approved preliminary record drawing prints back to the Contractor. The Contractor will then modify the CADD files as may be necessary to correctly show all the features of the project as it was constructed by bringing the contract set into agreement with the preliminary record drawings, including adding additional drawings and CADD files as may be necessary. The Contractor shall furnish the as-built drawings in the same file format as the Working CADD files. These CADD files are part of the permanent records of this project and the Contractor shall be responsible for the protection and safety thereof until final submittal to the Contracting Officer. Drawings, tracings, or CADD files damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at the Contractor's expense. CADD files will be audited by the Contracting Officer and for accuracy and conformance to the above specified drafting and CADD standards.

1.6.3.1 Drafting

Only personnel proficient in the preparation of engineering drawings and CADD shall be employed to modify the original contract drawings, prepare additional new drawings, and modify the CADD files. All modifications and new drawings shall conform to applicable requirements specified in the paragraph "CADD Standards." The Contractor shall ensure that all delivered CADD digital files and data (e.g., sheet files, model files, cell/block libraries) are compatible with the Government's target CADD system and operating system, and adhere to the standards and requirements specified. The term "compatible" means that data is in native digital format i.e., .dgn (MicroStation) or .dwg (AutoCAD). It is the responsibility of the Contractor to ensure this level of compatibility.

1.6.3.2 CADD Standards

CADD Standards are specified in Section 01016 DESIGN DOCUMENT REQUIREMENTS.

1.6.3.3 Final Revisions

When final revisions have been completed, place the words "REVISED RECORD DRAWING," in letters at least 5 mm high, and the date of completion in the revision block above the latest existing revision notation on each drawing

CADD file.

1.6.3.4 Border Sheets

The border sheet to be used for any new record drawings shall be the same as used on the original drawings.

1.6.3.5 Copies of the Final Record Drawings

Blue line or black line prints shall be full size. All blue or black line prints shall exhibit good readable print with clear, sharp, dark lines, and shall not be smeared, faded, double imaged, or have torn or ragged edges.

1.6.3.6 Submittal Requirements

The Contractor shall submit to the Contracting Officer the final record drawings, consisting of one set of full size blue line or black line prints, one full size vellum reproducible set, and two sets of corrected CADD files on CD-ROM disks; verification that the CADD files have been loaded and work on the designated computer systems and are error- and virus-free; the approved preliminary blue lines; and all required reproduced items. All paper prints, reproducible drawings, and CADD files will become the property of the Government.

(Am#4) a. Sustainable Project Rating Tool (SPiRiT)

Submit a final update of the Contractor's Proposal's Sustainable Project Rating Tool (SPiRiT) sheets, indicating the achievement of the listed elements and the achievement level of the various goals listed in Volume II DESIGN AND PERFORMANCE REQUIREMENTS, PERFORMANCE REQUIREMENTS Chapter 111 FACILITY PERFORMANCE, paragraph "Environmental Responsible Design."
Provide certification of achievement of the specified rating.

1.6.4 Post-Record Drawing Work

In event the Contractor accomplishes additional work which changes the as-built conditions of the facility after submission of the record drawings, the Contractor shall furnish revised and/or additional drawings (hard copy and CADD files), as required to depict as-built conditions. The requirements for these additional drawings, including CADD files, will be the same as for the record drawings included in the original submission.

1.6.5 Payment for Final Record Drawings

The amount listed for Final Record Drawings in the Price Proposal Schedule will be paid to the Contractor upon the Contracting Officer's acceptance of the completed record drawings.

1.7 ADDITIONAL WARRANTY REQUIREMENTS

The warranty requirements specified in this paragraph are in addition to those specified in the Contract Clause WARRANTY OF CONSTRUCTION in Section 00700 CONTRACT CLAUSES.

1.7.1 Performance Bond

It is understood that the Contractor's Performance Bond will remain effective throughout the life of all warranties and warranty extensions. This paragraph is applicable to the Contractor's Warranty of Construction

only and does not apply to manufacturers' warranties on equipment, roofing, and other products.

(a) In the event the Contractor or the Contractor's designated representative fails to commence and diligently pursue any work required under the Warranty of Construction Paragraph within a reasonable time after receipt of written notification pursuant to the requirements thereof, the Contracting Officer shall have a right to demand that said work be performed under the Performance Bond by making written notice on the surety. If the surety fails or refuses to perform the obligation it assumed under the Performance Bond, the Contracting Officer shall have the work performed by others, and after completion of the work, shall make demand for reimbursement of any or all expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

(b) Warranty repair work which arises to threaten the health or safety of personnel, the physical safety of property or equipment, or which impairs operations, habitability of living spaces, etc., will be handled by the Contractor on an immediate basis as directed verbally by the Contracting Officer or the Contracting Officer's authorized representative.

Written verification will follow verbal instructions. Failure of the Contractor to respond as verbally directed will be cause for the Contracting Officer or the Contracting Officer's authorized representative to have the warranty repair work performed by others and to proceed against the Contractor as outlined in the paragraph (a) above.

1.7.2 Pre-Warranty Conference

Prior to contract completion and at a time designated by the Contracting Officer or Contracting Officer's authorized representative, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of Contract Clause WARRANTY OF CONSTRUCTION. Communication procedures for Contractor notification of warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer or Contracting Officer's authorized representative for the execution of the construction warranty shall be established/reviewed at this meeting.

In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor will furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue warranty work action on behalf of the Contractor. This single point of contact will be located within the local service area of the warrantied construction, will be continuously available, and will be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of Contractor's responsibilities in connection with Contract Clause WARRANTY OF CONSTRUCTION.

1.7.3 Equipment Warranty Identification Tags

The Contractor shall provide warranty identification tags on all equipment installed under this contract. Tags and installation shall be in accordance with the requirements of Paragraph: EQUIPMENT WARRANTY IDENTIFICATION TAGS.

1.7.4 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.

1.8 EQUIPMENT WARRANTY IDENTIFICATION TAGS

1.8.1 General Requirements

The Contractor shall provide warranty identification tags on all Contractor and Government furnished equipment which he has installed.

1.8.1.1 Tag Description and Installation

The tags shall be similar in format and size to the exhibits provided by this specification, they shall be suitable for interior and exterior locations, resistant to solvents, abrasion, and to fading caused by sunlight, precipitation, etc. These tags shall have a permanent pressure-sensitive adhesive back, and they shall be installed in a position that is easily (or most easily) noticeable. Contractor furnished equipment that has differing warranties on its components will have each component tagged.

1.8.1.2 Sample Tags

Sample tags shall be submitted to the Contracting Officer's Authorized Representative for review and approval. These tags shall be filled out representative of how the Contractor will complete all other tags.

1.8.1.3 Tags for Warranted Equipment

The tag for this equipment shall be similar to the following. Exact format and size will be as approved by the Contracting Officer's Authorized Representative. The Contractor warranty expires (warranty expiration date) and the final manufacturer's warranty expiration dates will be determined as specified by the Paragraph "WARRANTY OF CONSTRUCTION."

EQUIPMENT WARRANTY CONTRACTOR FURNISHED EQUIPMENT	
MFG _____	MODEL NO. _____
SERIAL NO. _____	
CONTRACT NO. _____	
CONTRACTOR NAME _____	
CONTRACTOR WARRANTY EXPIRES _____	
MFG WARRANTY(IES) EXPIRE _____	

EQUIPMENT WARRANTY GOVERNMENT FURNISHED EQUIPMENT	
MFG _____	MODEL NO. _____
SERIAL NO. _____	
CONTRACT NO. _____	
DATE EQUIP PLACED IN SERVICE _____	
MFG WARRANTY(IES) EXPIRE _____	

1.8.1.4 Duplicate Information

If the manufacturer's name (MFG), model number and serial number are on the manufacturer's equipment data plate and this data plate is easily found and fully legible, this information need not be duplicated on the equipment warranty tag.

1.8.2 Execution

The Contractor will complete the required information on each tag and install these tags on the equipment by the time of and as a condition of final acceptance of the equipment. The Contractor will schedule this activity in the Contractor progress reporting system. The final acceptance inspection is scheduled based upon notice from the Contractor, thus if the Contractor is at fault in this inspection being delayed, the Contractor will, at the Contractor's own expense, update the in-service and warranty expiration dates on these tags.

1.8.3 Payment

The work outlined above is a subsidiary portion of the contract work, and has a value to the Government approximating 5% of the value of the Contractor furnished equipment. The Contractor will assign up to that amount, as approved by the Contracting Officer's Authorized Representative.

1.8.4 Equipment Warranty Tag Replacement

Under the terms of this contract, the Contractor's warranty with respect to work repaired or replaced shall run for one year from the date of repair or replacement. Such activity shall include an updated warranty identification tag on the repaired or replaced equipment. The tag shall be furnished and installed by the Contractor, and shall be identical to the original tag, except that the Contractor's warranty expiration date will be one year from the date of acceptance of the repair or replacement.

1.9 INVENTORY OF CONTRACTOR FURNISHED AND INSTALLED EQUIPMENT

A list of equipment or units of equipment that require electrical power or fuel, or may require removal or replacement such as AHUs, fans, air conditioners, compressors, condensers, boiler, thermal exchangers, pumps, cooling towers, tanks, fire hydrants, sinks, water closets, lavatories, urinals, shower stalls, and any other large plumbing fixtures, light fixtures, etc., shall be made and kept up to date as installed. The list shall be reviewed periodically by the Government to insure completeness and accuracy. Partial payment will be withheld for equipment not incorporated in the list. List shall include on each item as applicable: Description, Manufacturer, Model or Catalog No., Serial No., Input (power, voltage, BTU, etc.), Output (power, voltage, BTU, tons, etc.), Size or Capacity (tanks), and net inventory costs; any other data necessary to describe item and shall list all warrantors and warranty periods for each item of equipment. Final list shall be turned over to the Authorized Representative of the Contracting Officer at the time of the Contractor's quality control completion inspection.

1.10 INVENTORY OF GOVERNMENT FURNISHED CONTRACTOR INSTALLED EQUIPMENT (GF/CI)

A list of all GFE shall be developed starting with equipment items listed in Section 01640 GOVERNMENT FURNISHED PROPERTY; and updated as necessary to reflect contract changes. Equipment items will be as defined under inventory of Contractor furnished equipment above and the list shall include, on each item, as applicable, the same information. The final list shall be turned over to the Contracting Officer's Representative, at the time of the Contractor's quality control inspection.

1.11 REAL PROPERTY MAINTENANCE RECORDS

Prepare DD Form 1354, TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY, so that the bases can update their real property maintenance records, in accordance with the applicable bases' DPW or Base Civil Engineers' (BCE) office. This form shall contain as many of the resource code items with cost and quantity data as can be developed from the task order final documents. Obtain a general list of resource codes with cost and quantity data from the applicable bases' DPW or BCE office. This form and a sample of a completed form are attached to the end of this Section. An electronic file of the form, DD1354.frl, for use with Delrina Perform Pro Form Filler, version 16 Jul 1992, is located on the Solicitation CD-ROM disk. Contractor shall prepare the DD1354 using Delrina Perform Pro Form Filler. Contractor shall obtain DPW or BCE approval of a Draft DD1354 not less than 30 days prior to anticipated Task Order completion date. The Final DD 1354 shall be provided at the Final Inspection for Corps of Engineers and DPW or BCE signature.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --