

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. *(If applicable)* _____

6. ISSUED BY _____ CODE _____ 7. ADMINISTERED BY *(If other than Item 6)* _____ CODE _____

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

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	16B. UNITED STATES OF AMERICA
15C. DATE SIGNED	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. Section 00102 – Pre-Proposal Conference/Site Visitation.- Replace Section 00102 - Pre-Proposal Conference/Site Visitation with the accompanying new Section 00102 - Pre-Proposal Conference/Site Visitation, bearing the notation "ACCOMPANYING AMENDMENT NO. 0001 TO SOLICITATION NO. DACA63-02-R-0007."
2. Section 00800 – Special Contract Requirements.- Replace Section 00800 - Special Contract Requirements with the accompanying new Section 00800 - Special Contract Requirements, bearing the notation "ACCOMPANYING AMENDMENT NO. 0001 TO SOLICITATION NO. DACA63-02-R-0007."

CHANGES TO VOLUME II – DESIGN AND PERFORMANCE REQUIREMENTS

3. Replace the following chapters with the accompanying new chapters of the same number and title, bearing the notation "ACCOMPANYING AMENDMENT NO. 0001 TO SOLICITATION NO. DACA63-02-R-0007:"

CHAPTER 00840 – REFERENCED DOCUMENTS
CHAPTER D – SERVICES
CHAPTER D52 – SERVICE AND DISTRIBUTION
CHAPTER D7 – TELECOMMUNICATIONS
CHAPTER D71 – VOICE AND DATA
CHAPTER D72 – SOUND REINFORCEMENT
CHAPTER D73 – TELEVISION

END OF AMENDMENT

SECTION 00102

PRE-PROPOSAL CONFERENCE/SITE VISITATION
AMENDMENT NO. 0001

PART 1 GENERAL

1.1 PRE-PROPOSAL CONFERENCE/SITE VISITATION

Invitation is extended to all prospective offerors to attend a pre-proposal conference and site visitation for the Design-Build Consolidated Library/Education Center, Fort Polk, Louisiana. The pre-proposal conference has been scheduled for 1:00 p.m. on Tuesday, 5 February 2002, at the Landmark Hotel of Leesville, 3080 Colony Blvd, Highway 171 South, P.O. Box 1570, Leesville, Louisiana USA 71446 ((337) 239-7571). A site visit will immediately follow the conference. **Pre-registration is required to get on Fort Polk for the site visit.** A military bus will transport all pre-registered attendees to and from the project site.

Directions to Landmark Hotel:

From Alexandria Airport: Take Hwy LA 28 West to Leesville. Turn Left on Hwy US 171 S. Travel approximately 4 miles to the hotel, on the right side of the road.

From I-10: Exit Hwy. US 171 N (Deridder exit) to Leesville: Hotel is located on Hwy US 171 on the left side of the road, approximately 3 miles past the entrance road to Fort Polk.

At the pre-proposal conference, Government representatives will highlight specific design/build contract requirements not typically encountered in conventional construction procurements. The objective is to provide an information exchange between potential offerors and the Government to avoid the possibility of misinterpretation of the contract requirements. Accordingly, it is highly recommended that prospective offerors attend the pre-proposal conference and, in the interest of making the conference more meaningful, prospective offerors are urged to present any written questions concerning the project proposal documents, bidding, design and construction requirements or other related matters prior to the conference to **Ms. Barbara Zimmer, via e-mail, at barbara.j.zimmer@swf02.usace.army.mil or by facsimile, at (AM#1) 817-886-6407.** Written questions may be submitted at the beginning of the conference and oral questions may be submitted from the floor, but answers will be limited to the time available. Written queries need not be signed if anonymity is desired. Answers, interpretations, and decisions made at the conference will not become official unless and until verified by an amendment to the Solicitation issued prior to the receipt of proposals.

Following the conference and pursuant to Contract Clause "FAR 52.236-3, Site Investigation and Conditions Affecting the Work," and the Site Visit Clause in Section 00100 INSTRUCTIONS, CONDITIONS, AND NOTICES TO BIDDERS, prospective offerors will be permitted to inspect the site where services are to be performed and to satisfy themselves as to all general and local conditions that may affect the cost of performance of the Contract to the

extent such information is reasonably obtainable. In no event will a failure to inspect the site constitute grounds for withdrawal of a proposal after receipt of proposal or for a claim after award of the Contract.

Potential offerors are requested to advise as to their intent to attend the pre-proposal conference and site visitation by the e-mail address or facsimile telephone number stated above at their earliest convenience. **For the site visit, potential offerors are required to register by furnishing the following information or the offeror will not be allowed access to Fort Polk. Registration must be received no later than 4:00 p.m. CST on February 1, 2002:**

Name

Company name and address

Driver's license (issuing state and number)

Failure to submit the required information however will not preclude the offeror from attending the pre-proposal conference.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

SECTION 00800

SPECIAL CONTRACT REQUIREMENTS (SCR)

Due to the recent conversion from the Standard Army Automated Contracting System (SAACONS) to the new Department of Defense's Standard Procurement System, Procurement Desktop Defense (PD²), the following clauses and other specific contract requirements you may have been accustomed to seeing in Section 0800, Special Contract Requirements, have been moved. The following chart represents those changes.

CLAUSES & OTHER REQUIREMENTS PREVIOUSLY LOCATION IN SECTION 00800		NEW LOCATION
FAR Clauses		
Commencement, Prosecution And Completion Of Work (Apr 1984)	52.211-10	Section 00700
Time Extensions (Apr 1984)	52.211-13	Section 00700
Variation In Estimated Quantity (Apr 1984)	52.211-18	Section 00700
Limitations On Subcontracting (Jan 1991)	52.219-14	Section 00700
Availability Of Funds (Apr 1984)	52.232-18	Section 00700
Availability And Use Of Utility Services (Apr 1984)	52.236-14	Section 00700
Quantity Surveys (Apr 1984)	52.236-16, Alternate I	Section 00700
DFARS Clauses		
Payment For Mobilization And Preparatory Work (Dec 1991)	252.236-7003	Section 00700
Payment For Mobilization And Demobilization (Dec 1991)	252.236-7004	Section 00700
Airfield Safety Precautions (Dec 1991)	252.236-7005	Section 00700
EFARS Clauses		
Equipment ownership and operating expense schedule	52.231-5000	Section 00700
Payment for materials delivered off-site	52.232-5000	Section 00700
Basis for Settlement of Proposals	52.249-5000	Section 00700
Other Specific Contract Requirements		
Time Extensions For Unusually Severe Weather (Oct 1989)		Section 01000
Payment For Utility Services (FAR 36.303(C)(6))		Section 01000
Superintendence Of Subcontractors		Section 01000
Coordination Of Construction With Cemetery Representatives		Section 01000
Damage To Work Alternate A/Alternate B		Section 01000

The clauses represented here may not be included in a particular solicitation, depending on the requirements. This list only represents changes made to the overall policy of clause location.

CORRESPONDENCE IDENTIFICATION

- a. The Contractor shall use a serial numbering system on all formal correspondence sent to the Contracting Officer or his representative. The Contractor will provide one original and two duplicate copies of all correspondence.
- b. The Contractor may use a Request for Information (RFI) system for drawing/specification clarifications, subject to the following conditions:
 1. The Contractor shall use a sequential numbering system for all RFI's separate and apart from the correspondence numbering system.
 2. The Contractor shall provide one original and two copies of all RFI's.
 3. The Contractor shall designate ONE individual responsible person, subject to approval by the Contracting Officer, for reviewing and issuing RFI's.

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4. For projects requiring Network Analysis Systems (NAS), all RFI's shall identify the NAS activities directly or indirectly affected by the RFI on the progress schedule. The Contractor should anticipate a minimum of 10 calendar days for Government review and response.
5. No requests for deviations or variations from the contract by RFI will be allowed. Deviations/variations are to be submitted on ENG Form 4025 as described in Section 01330 Submittal Procedures.
6. The use of RFI's does not relieve the Contractor of the responsibility for reviewing the contract documents and coordinating the work to be performed. If the Contracting Officer determines that the RFI system is being used for other than its intended purpose, the Contracting Officer has the authority to discontinue the use of the RFI's for the remainder of the contract.

EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE

Whenever a contract or modification of contract price is negotiated, the Contractor's cost proposals for equipment ownership and operating expenses shall be determined in accordance with the requirements of EFARS 52.231-5000, EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE. Interested parties may purchase copies of EP 1110-1-8 (Volumes 1 through 12) by phoning (202) 783-3238, or by writing "Superintendent of Documents U.S. Government Printing Office, Washington, D.C. 20402." Major credit cards are accepted. An electronic copy of this publication may be found the US Army Corps of Engineers Publication web site at <http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/cecw.htm>.

PHYSICAL DATA (APR 1984) (FAR 52.236-4)

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

- a. The physical conditions indicated on the drawings and in the specifications are the result of site investigations by surveys **(AM#1) and borings.**
- b. Ground water levels

It has been observed that ground water levels in heavily timbered or grassed areas quite often undergo a significant temporary rise when the area is cleared and/or stripped. This increase in water level can hinder traffic and construction progress in the affected areas. The duration of the ground water rise varies considerably, depending on prevailing weather and/or climatic conditions. Ref: Yearbook of Agriculture, 1957, copy available for inspection in Fort Worth District Office.

- c. **(AM#1) DELETED.**

REQUIRED INSURANCE

Pursuant to FAR 28.307-2, the Contractor shall procure and maintain during the entire period of his performance under this contract the following minimum insurance:

- a. Workers' compensation and employers' liability insurance in compliance with applicable state statutes, with a minimum employers' liability coverage of \$100,000.
- b. Comprehensive general liability insurance for bodily injury in the minimum limits of \$500,000 per occurrence. No property damage liability insurance is required.

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- c. Comprehensive automobile liability insurance covering the operation of all automobiles used in connection with the performance of the contract in the minimum limits of \$200,000 per person and \$500,000 per occurrence for bodily injury and \$20,000 per occurrence for property damage. (See Contract Clause entitled Insurance--Work on a Government Installation)

HAZARDOUS MATERIALS ABATEMENT INSURANCE

- a. If hazardous materials (e.g. asbestos, lead-based paint, polychlorinated biphenyl (pcb) compounds) abatement/removal or any other work with hazardous materials is required under this contract and Comprehensive General Liability Insurance is required, the policy of insurance which covers the hazardous materials abatement/removal or other work with asbestos shall be a "per occurrence" policy as that term used in the insurance industry. A policy issued on a "claims made" basis or any other "short tail" basis will not be accepted.
- b. The Comprehensive General Liability per occurrence policy shall be obtained by the prime Contractor if the hazardous materials abatement work is performed by the prime Contractor's own work force, or by an hazardous materials abatement subcontractor(s), if the hazardous materials abatement work is subcontracted. The Contractor shall insert in the subcontract a requirement for the hazardous materials abatement subcontractor(s) to provide and maintain the insurance required by this paragraph. The Contractor shall maintain a copy of the subcontractor's proof of required insurance, and shall make such copy available to the Contracting Officer upon request.

(AM#1) U.S. ARMY CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-I

Reference Federal Acquisition Regulation (FAR) Clause 52.236-13, Accident Prevention. Engineer Manual (EM) 385-1-I and its changes are no longer available as part of this solicitation/contract but rather is available at <http://www.hq.usace.army.mil> (select Safety and Occupational Health). Consequently, the Contractor shall be responsible for complying with the current edition and all changes posted on the web as of the effective date of this solicitation.

ELECTRONIC SUBMITTAL OF OFFEROR'S PROPOSAL

In accordance with Section 0120, Proposal Submission Requirements, the Offeror is required to submit an electronic copy of the initial proposal and one electronic copy of the final proposal revision, if applicable. In the event any discrepancy is discovered between the printed version of the offeror's submitted proposal and this electronic version, the printed version shall govern.

DESIGN-BUILD CONTRACT-ORDER OF PRECEDENCE - AUG 1997

- a. The contract includes the standard contract clauses and schedules current at the time of award. It also entails: (1) the solicitation in its entirety, including all drawings, cuts and illustrations, and any amendments during proposal evaluation and selection, (2) the successful Offeror's accepted proposal **(AM#1) , and (3) the Government-accepted, Contractor-approved (100%) construction documents**. The contract constitutes and defines the entire agreement between the Contractor and the Government. No documentation shall be omitted which in any ways bears upon the terms of that agreement.
- b. In the event of conflict or inconsistency between any of the provisions of the various portions of this contract, precedence shall be given in the following order:
 - 1. **(AM#1) Contractor-identified, Government-accepted deviations, including betterments, to the Solicitation (i.e. "Request for Proposals")**.

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2. (AM#1) **The Solicitation, including all amendments** (See also Contract Clause: SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION).
3. All other provisions of the accepted proposal.
4. (AM#1) **Government-accepted, Contractor-approved final (100%) construction documents, as defined in Section 01015 DESIGN REQUIREMENTS AFTER AWARD.**
5. Any design products, including but not limited to drawings, specifications, engineering studies and analyses, shop drawings, equipment installation drawings, etc. Design products must conform to all provisions of the contract, in the order of precedence herein.

(AM#1) Failure of any of the reviews to identify a proposed level of quality of systems, equipment or materials that does not meet the minimum criteria of the Request for Proposal documents does not relieve the Contractor of these requirements. If the Government-accepted, Contractor-approved final (100%) construction documents specify a level of quality of systems or materials that exceed any that are specified in the Request for Proposal documents (i.e. betterments), then these new levels shall become the new minimum level of quality requirements. The new minimum requirements shall not be lowered or changed without written Government approval. Changes to Government-accepted, Contractor-approved final (100%) construction documents shall not be made without the Contracting Officer's knowledge and acceptance.

PROPOSED BETTERMENTS – AUG 1997

- a. (AM#1) **The minimum requirements of the contract are identified in the Request for Proposal. All betterments offered in the proposal or the Government-accepted, Contractor-approved final (100%) construction documents become a requirement of the awarded contract, unless specifically excluded.**
- b. (AM#1) **“Betterment” is defined as any material, equipment, component, or system, which exceeds the minimum requirements, stated in the Request for Proposal. This includes all proposed betterments listed in accordance with the “Proposal Submission Requirements” of the Solicitation, and all Government identified betterments, and those included on any of the Government-accepted, Contractor-approved final (100%) construction documents.**
- c. “Government identified betterments” include the betterments identified on the “List of Accepted Project Betterments” prepared by the Proposal Evaluation Board and made part of the contract by alteration, and all other betterments identified in the accepted Proposal after award.

KEY PERSONNEL, SUBCONTRACTORS AND OUTSIDE ASSOCIATES OR CONSULTANTS –AUG 1997

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

RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN - FEB 2000

- a. The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other non-construction services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiency in its designs, drawings, specifications, and other non-construction services and perform any necessary rework or modifications, including any damage to real or personal property, resulting from the design error or omission.

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- b. Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contract shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract. The Contractor shall be and remain liable to the Government in accordance with applicable law for all damages to the Government caused by the Contractor's negligent performance of any of these services furnished under this contract.
- c. The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law.
- d. If the Contractor is comprised of more than one legal entity, each entity shall be jointly and severally liable thereunder.

WARRANTY OF CONSTRUCTION WORK – AUG 1997

- a. In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (i) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.
- b. This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.
- c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of--
 - 1. The Contractor's failure to conform to contract requirements; or
 - 2. Any defect of equipment, material, or workmanship.
- d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.
- e. The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.
- f. If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.
- g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall--
 - 1. Obtain all warranties that would be given in normal commercial practice;
 - 2. Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and
 - 3. Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.
- h. In the event the Contractor's warranty under paragraph (b) of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

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- i. Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.
- j. This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

GOVERNMENT-FURNISHED RFP DRAWINGS, SURVEYS AND SPECIFICATIONS – JUL 2001

- a. The Contractor shall--
 - 1. Check all Government-furnished drawings and surveys immediately upon receipt;
 - 2. Compare all drawings and verify the figures before laying out the work;
 - 3. Promptly notify the Contracting Officer of any discrepancies; and
 - 4. Be responsible for any errors that might have been avoided by complying with this paragraph.
- b. Large-scale drawings shall, in general, govern small-scale drawings. Figures marked on drawings shall, in general, be followed in preference to scale measurements.
- c. Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work, but shall be performed as if fully and correctly set forth and described in the drawings and specifications.
- d. The work shall conform to the specifications and the contract drawings identified as:

CRITERIA DRAWINGS AND SURVEYS	
Design-Build Consolidated Library and Education Center Ft. Polk, Louisiana	
Sequence No.	Title
1	The list of drawings and maps set out in the index on the drawings is hereby incorporated by reference into these specifications.
thru	Schedules included in the drawings are for the purpose of defining requirements other than quantities.
[...]	

CONSTRUCTOR’S ROLE DURING DESIGN – JUN 1998

The Contractor’s construction management key personnel shall be actively involved during the design process to effectively integrate the design and construction requirements of this contract. In addition to the typical required construction activities, the constructor’s involvement includes, but is not limited to actions such as: integrating the design schedule into the Master Schedule to maximize the effectiveness of fast-tracking design and construction (within the limits allowed in the contract), ensuring constructability and economy of the design, integrating the shop drawing and installation drawing process into the design, executing the material and equipment acquisition programs to meet critical schedules, effectively interfacing the construction QC program with the design QC program, and maintaining and providing the design team with accurate, up-to-date redline and as-built documentation. The Contractor shall require and manage the active involvement of key trade subcontractors in the above activities.

RECOMMENDED INSURANCE COVERAGE – JUL 2001

The Design-Build Contractor’s attention is invited to the contract requirements concerning “RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN” and “WARRANTY OF CONSTRUCTION WORK”. These requirements vest in the Contractor complete responsibility for the professional quality, technical accuracy, and coordination of all

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design, drawings, specifications and other work or materials furnish by his in-house or consultant forces. The Design-Build Contractor must correct and revise any errors or deficiencies in his work, notwithstanding any review, approval, acceptance or payment by the Government. The Contractor must correct and change any work resulting from his defective design at no additional cost to the Government. The requirements further stipulate that the Design-Build Contractor shall be liable to the Government for the damages to the Government caused by negligent performance. Though not a mandatory requirement, this is to recommend that the Design-Build Contractor investigate and obtain appropriate insurance coverage for such liability protection.

VALUE ENGINEERING AFTER AWARD – JUNE 1999

- a. In reference to Contract Clause 52.248-3, “Value Engineering – Construction”, the Government may refuse to entertain a “Value Engineering Change Proposal” (VECP) for those “performance oriented” aspects of the Solicitation documents which were addressed in the Contractor’s accepted contract proposal and which were evaluated in competition with other offerors for award of this contract.
- b. The Government may consider a VECP for those “prescriptive” aspects of the Solicitation documents, not addressed in the Contractor’s accepted contract proposal or addressed but evaluated only for minimum conformance with the Solicitation requirements.
- c. For purposes of this clause, the term “performance oriented” refers to those aspects of the design criteria or other contract requirements which allow the Offeror or Contractor certain latitude, choice of and flexibility to propose in its accepted contract offer a choice of design, technical approach, design solution, construction approach or other approach to fulfill the contract requirements. Such requirements generally tend to be expressed in terms of functions to be performed, performance required or essential physical characteristics, without dictating a specific process or specific design solution for achieving the desired result.
- d. In contrast, for purposes of this clause, the term “prescriptive” refers to those aspects of the design criteria or other Solicitation requirements wherein the Government expressed the design solution or other requirements in terms of specific materials, approaches, systems and/or processes to be used. Prescriptive aspects typically allow the Offerors little or no freedom in the choice of design approach, materials, fabrication techniques, methods of installation or other approach to fulfill the contract requirements.

SUBMITTAL OF WORK TO BE PERFORMED BY THE CONTRACTOR – JUL 2001

The Contractor shall furnish the Contracting Officer within 10 days after the award the items of work he will perform with his own forces and the estimated cost of those items. The percentage of work that must be performed by the Contractor is stated in the clause entitled, "Performance of Work by the Contractor."

PROTECTION OF MATERIAL AND WORK – AUG 1997

The Contractor shall at all times protect and preserve all materials, supplies and equipment of every description (including property which may be Government-furnished or owned) and all work performed. All reasonable requests of the Contracting Officer to enclose or specially protect such property shall be complied with. If, as determined by the Contracting Officer, material, equipment, supplies, and work performed are not adequately protected by the contractor, the Government may protect such property and the cost thereof may be charged to the contractor or deducted from any payment due him.

(AM#1) CONTRACTOR'S FINAL (100%) CONSTRUCTION DOCUMENTS

The drawings and specifications referred to in the third sentence of Contract Clause 52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, subparagraph (a), are those drawings and specifications furnished with the Solicitation; this reference does not apply to the accepted Contractor's final (100%) construction documents. Therefore, in addition to this requirement, the Contractor shall keep at the work site a copy of the accepted Contractor's Final (100%) Construction Documents (drawings and specifications, including schedules and color boards) and a complete set of the Contract Documents. The Contractor shall at all times give the Contracting Officer access to these documents as well.

APPROVAL OF MACHINERY AND EQUIPMENT

Reference to Contracting Officer's approval of "machinery and mechanical and other equipment to be incorporated into the work" in Contract Clause 52.236-5 MATERIAL AND WORKMANSHIP, paragraph (b), applies only to machinery and equipment specified in the Solicitation documents.

End of Section 00800

CHAPTER 00840**REFERENCED DOCUMENTS****APPLICABILITY**

- A. The following documents form a part of the Request for Proposal to the extent they are referenced elsewhere herein.

GOVERNMENT REGULATIONS AND PUBLICATIONS

- A. CFR - Code of Federal Regulations, United States Government:
1. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Consumer Product Safety Commission; 1977, with 1984 Revision.
 2. 28 CFR 35 - Nondiscrimination on the Basis of Disability in State and Local Government Services; Final Rule; Department of Justice; Federal Register, July 26, 1991.
 3. 28 CFR 36 - Nondiscrimination by Public Accommodations and in Commercial Facilities; Final Rule; Department of Justice; Federal Register, July 26, 1991.
 4. 29 CFR 1910 - Occupational Safety and Health Standards; Occupational Safety and Health Administration; 1997.
 5. 36 CFR 1191 - Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities; Final Guidelines and Amendment to Final Guidelines (ADAAG); Architectural and Transportation Barriers Compliance Board; Federal Register, July 26, 1991; reprinted compiling all revisions, September 1994.
 6. 49 CFR 27, 37, and 38 - Transportation for Individuals with Disabilities; Final Rule; Department of Transportation; Federal Register, September 6, 1991.
- B. U.S. Government Voluntary Standards:
1. FED-STD-795 - Uniform Federal Accessibility Standards; April 1, 1988 (UFAS).
 2. FS SS-T-312 - Tile, Floor: Asphalt, Rubber, Vinyl, and Vinyl Composition; Revision B, 1974, and Amendment 1, 1979.
 3. FS RR-T-650 - Treads, Metallic and Nonmetallic, Skid Resistant; Revision E, 1994.
 4. FS TT-P-115 - Paint, Traffic (Highway, White and Yellow); Revision F, 1984.
 5. PS 1 - Construction and Industrial Plywood; 1995.
 6. PS 20 - American Softwood Lumber Standard; 1999.
 7. USPS Handbook AS-503 - Standard Design Criteria; United States Postal Service; 2000.
 8. MIL-HDBK-1008C (10 June 1997) Fire Protection For Facilities Engineering, Design and Construction.
 9. SWD Architectural and Engineering Instructions Manual (SWD-AEIM), October 2000.
 10. Installation Design Guide.

MODEL CODE ORGANIZATIONS

- A. BOCA - Building Officials & Code Administrators International, Inc.:
- B. ICC - International Code Council, Inc.:
1. ICC (IBC) - International Building Code; 2000 edition.

2. ICC (IFGC) - International Fuel Gas Code; 2000 edition.
3. ICC (IMC) - International Mechanical Code; 2000 edition.
4. ICC (IPC) - International Plumbing Code; 2000 edition.

NON-GOVERNMENTAL STANDARDS DEVELOPING ORGANIZATIONS

- A. AAMA - American Architectural Manufacturers Association:
 1. AAMA 1503.1 - Voluntary Test Method for Thermal Transmission and Condensation Resistance of Windows, Doors, and Glazed Wall Sections; 1998.
- B. AASHTO - American Association of State Highway and Transportation Officials:
 1. AASHTO LTS-3 - Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals; 1994.
 2. AASHTO GDHS-3 - A Policy on Geometric Design of Highways and Streets; 1994.
- C. AATCC - American Association of Textile Chemists & Colorists:
 1. AATCC Test Method 16 - Test Method for Colorfastness to Light; 1993 (Reaffirmed 1998).
 2. AATCC Test Method 134 - Electrostatic Propensity of Carpets; 1996.
 3. AATCC Test Method 174 - Antimicrobial Activity Assessment of Carpets; 1993 (Reaffirmed 1998).
- D. ACI - American Concrete Institute International:
 1. ACI 301 - Specifications for Structural Concrete; 1999.
 2. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 1989 (Reapproved 1997).
 3. ACI 305R - Hot Weather Concreting; 1999.
 4. ACI 306R - Cold Weather Concreting; 1988.
 5. ACI 336.1 - Reference Specification for the Construction of Drilled Piers; 1998.
 6. ACI 530.1/ASCE 6/TMS 602 - Specification for Masonry Structures; 1999.
 7. ACI SP-66 - ACI Detailing Manual; 1994.
- E. AFPA - American Forest and Paper Association:
 1. AFPA WCD 1 T11 - Manual for Wood Frame Construction; 1988.
- F. AGA - American Gas Association:
- G. AMCA - Air Movement and Control Association, Inc.:
 1. ANSI/AMCA 210 - Laboratory Methods of Testing Fans for Aerodynamic Performance Rating; 1999.
- H. ANSI - American National Standards Institute (for documents designated ANSI/XXXX, see organization XXXX):
 1. ANSI A14.3 - American National Standard for Ladders -- Fixed -- Safety Requirements; 1992.
 2. ANSI A108.1 - American National Standard for Installation of Ceramic Tiles; 1999.
 3. ANSI A108.1A - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 1999.

4. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 1988.
 5. ANSI A208.1 - American National Standard for Particleboard; 1999.
 6. ANSI A250.4 - American National Standard Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings; 1994.
 7. ANSI A250.5 - American National Standard Accelerated Physical Endurance Test Procedure for Steel Doors, Frames and Frame Anchors; 1994.
 8. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 1998.
 9. ANSI C57.12.26 - Pad-Mounted Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers for Use with Seperable Insulated High-Voltage Connectors, High-Voltage, 34 500 Grd Y/19 920 Volts and Below; 2500 kVa and Smaller; 1993.
 10. ANSI C62.61 - Gas Tube Surge Arrestors on Wire Line Telephone Circuits; 1993.
 11. ANSI S1.4 - American National Standard for Sound Level Meters; 1983 (R1997).
 12. ANSI Z60.1 - American National Standard for Nursery Stock; 1996.
 13. ANSI Z124.3 - American National Standard for Plastic Lavatories; 1995.
 14. ANSI Z359.1 - Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components; 1992 (R1999).
- I. ARI - Air-Conditioning and Refrigeration Institute:
1. ARI 310/380 - Packaged Terminal Air-Conditioners and Heat Pumps; 1993.
 2. ARI 325 - Ground Water-Source Heat Pumps; 1998.
 3. ANSI/ARI 550/590 - Standard for Water Chilling Packages Using the Vapor Compression Cycle; 1998, Addendum June 1999.
 4. ARI 880 - Air Terminals; 1998.
- J. ASCE - American Society of Civil Engineers:
1. ANSI/ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 1998 (pub. 2000).
- K. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers:
1. ASHRAE (HVACA) - ASHRAE Handbook - HVAC Applications; 1999.
 2. ASHRAE Std 15 - Safety Code for Mechanical Refrigeration; 1994.
 3. ASHRAE Std 52.1 - Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter; 1992.
 4. ANSI/ASHRAE Std 55 - Thermal Environmental Conditions for Human Occupancy; 1992 with Addendum.
 5. ANSI/ASHRAE Std 62 - Ventilation for Acceptable Indoor Air Quality; 1999.
 6. ASHRAE Std 90.1 - Energy Efficient Design of new Buildings Except Low-Rise Residential Buildings; 1999.
- L. ASME - American Society of Mechanical Engineers:
1. ASME A17.1 - Safety Code for Elevators and Escalators; 2000.
 2. ANSI B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 1984 (Reapproved 1994).

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3. ANSI/ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings; 1995, 1998 Addenda.
 4. ANSI/ASME B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes; 1988.
 5. ASME (BPV IV) - Boiler and Pressure Vessel Code, Section IV, Rules for Construction of Heating Boilers; 1998.
 6. ASME (BPV VIII, 1) - Boiler and Pressure Vessel Code, Section VIII, Rules for the Construction of Pressure Vessels; 1998.
- M. ASTM - American Society for Testing and Materials:
1. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2000a.
 2. ASTM A 48 - Gray Iron Castings; 1994a
 3. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2000.
 4. ASTM A 74 - Standard Specification for Cast Iron Soil Pipe and Fittings; 1998.
 5. ASTM A 82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 1997a.
 6. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2000.
 7. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2000.
 8. ASTM A 307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength; 2000.
 9. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2000.
 10. ASTM A 325M - Standard Specification for High-Strength Bolts for Structural Steel Joints (Metric); 2000.
 11. ASTM A 366/A 366M - Standard Specification for Commercial Steel (CS) Sheet, Carbon, (0.15 Maximum Percent) Cold-Rolled; 1997.
 12. ASTM A 500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 1999.
 13. ASTM A 501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 1999.
 14. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2001.
 15. ASTM A 641/A 641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 1998.
 16. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2000.
 17. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2000.
 18. ASTM A 951 - Standard Specification for Masonry Joint Reinforcement; 2000.
 19. ASTM B 42 - Standard Specification for Seamless Copper Pipe, Standard Sizes; 1998.

20. ASTM B 88 - Standard Specification for Seamless Copper Water Tube; 1999.
21. ASTM B 88M - Standard Specification for Seamless Copper Water Tube (Metric); 1999.
22. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2000.
23. ASTM B 209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric); 2000.
24. ASTM C 4 - Standard Specification for Clay Drain Tile and Perforated Clay Drain Tile; 2000.
25. ASTM C 14 - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe; 1999.
26. ASTM C 14M - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe (Metric); 1999.
27. ASTM C 76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe; 2000.
28. ASTM C 76M - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe (Metric); 2000.
29. ASTM C 90 - Standard Specification for Loadbearing Concrete Masonry Units; 2001.
30. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2000.
31. ASTM C 129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2000a.
32. ASTM C 216 - Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale); 2000.
33. ASTM C 236 - Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box; 1989 (Reapproved 1993).
34. ASTM C 270 - Standard Specification for Mortar for Unit Masonry; 2000.
35. ASTM C 423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2000.
36. ASTM C 425 - Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings; 2000.
37. ASTM C 476 - Standard Specification for Grout for Masonry; 2001.
38. ASTM C 564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings; 1997.
39. ASTM C 568 - Standard Specification for Limestone Dimension Stone; 1999.
40. ASTM C 578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2000.
41. ASTM C 700 - Standard Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated; 2000.
42. ASTM C 755 - Standard Practice for Selection of Vapor Retarders for Thermal Insulation; 1997.
43. ASTM C 836 - Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course; 2000.
44. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 1998.
45. ASTM C 1142 - Standard Specification for Extended Life Mortar for Unit Masonry; 1995.
46. ASTM C 1199 - Standard Test Method for Measuring the Steady State Thermal Transmittance of Fenestration Systems Using Hot Box Methods; 2000.

47. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 1997a.
48. ASTM D 312 - Standard Specification for Asphalt Used in Roofing; 2000.
49. ASTM D 449 - Standard Specification for Asphalt Used in Dampproofing and Waterproofing; 1989 (Reapproved 1999).
50. ASTM D 2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine; 1999.
51. ASTM D 2178 - Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing; 1997a.
52. ASTM D 2239 - Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter; 1999.
53. ASTM D 2447 - Standard Specification for Polyethylene (PE) Plastic Pipe, Schedules 40 and 80, Based on Outside Diameter; 1999.
54. ASTM D 2609 - Standard Specification for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe; 2000.
55. ASTM D 2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings; 2000.
56. ASTM D 2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 1996a.
57. ASTM D 3262 - Standard Specification for "Fiberglass" (Glass Fiber-Reinforced Thermosetting-Resin) Sewer Pipe; 1996.
58. ASTM D 3840 - Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe Fittings for Nonpressure Applications; 1999.
59. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2000.
60. ASTM D 4869 - Standard Specification for Asphalt-Saturated Organic Felt Shingle Underlayment Used in Roofing; 1988 (Reapproved 1993).
61. ASTM D 4897 - Standard Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing; 1998.
62. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 1999.
63. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials; 2000.
64. ASTM E 283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 1991 (Reapproved 1999).
65. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference; 1997.
66. ASTM E 336 - Standard Test Method for Measurement of Airborne Sound Insulation in Buildings; 1997.
67. ASTM E 413 - Classification for Rating Sound Insulation; 1987 (Reapproved 1999).
68. ASTM E 814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops; 2000.

69. ASTM E 966 - Standard Guide for Field Measurement of Airborne Sound Insulation of Building Facades and Facade Elements; 1999.
 70. ASTM E 1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2000.
 71. ASTM E 1352 - Standard Test Methods for Cigarette Ignition Resistance of Mock-Up Upholstered Furniture Assemblies; 1999.
 72. ASTM E 1477 - Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers; 1998a.
 73. ASTM E 1537 - Standard Test Method for Fire Testing of Upholstered Furniture Items; 1999.
 74. ASTM E 1677 - Standard Specification for Air Retarder (AR) Material or System for Low-Rise Framed Building Walls; 1995 (Reapproved 2000).
 75. ASTM F 476 - Standard Test Methods for Security of Swinging Door Assemblies; 1984 (Reapproved 1996).
 76. ASTM F 588 - Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact; 1997.
 77. ASTM F 793 - Standard Classification of Wallcovering by Durability Characteristics; 1993 (Reapproved 1998).
 78. ASTM F 842 - Standard Test Methods for Measurement of Forced Entry Resistance of Horizontal Sliding Door Assemblies, Excluding Glazing Impact; 1997.
 79. ASTM F 1233 - Standard Test Method for Security Glazing Materials and Systems; 1998.
- N. AWI - Architectural Woodwork Institute:
1. AWI P-200 - Architectural Woodwork Quality Standards; 1997.
- O. AWPA - American Wood-Preservers' Association:
1. AWPA C2 - Lumber, Timber, Bridge Ties and Mine Ties -- Preservative Treatment by Pressure Processes; 2000.
 2. AWPA C20 - Structural Lumber -- Fire-Retardant Treatment by Pressure Processes; 1999.
- P. AWS - American Welding Society:
1. AWS D1.1 - Structural Welding Code - Steel; 2000.
- Q. AWWA - American Water Works Association:
1. ANSI/AWWA C104/A21.4 - American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water; 1995.
 2. ANSI/AWWA C110 - American National Standard for Ductile-Iron and Gray-Iron Fittings, 3 In. Through 48 In. (75 mm Through 1200 mm), for Water and Other Liquids; 1998.
 3. ANSI/AWWA C111/A21.11 - American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; 1995.
 4. ANSI/AWWA C151/A21.51 - American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water; 1996.
 5. ANSI/AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. Through 12 In., for Water Distribution; 1997.
- R. BHMA - Builders Hardware Manufacturers Association:

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1. ANSI/BHMA A156.1 - American National Standard for Butts and Hinges; 2000.
 2. ANSI/BHMA A156.2 - American National Standard for Bored and Preassembled Locks & Latches; 1996.
 3. ANSI/BHMA A156.3 - American National Standard for Exit Devices; 1994.
 4. ANSI/BHMA A156.4 - American National Standard for Door Controls - Closers; 2000.
 5. ANSI/BHMA A156.5 - American National Standard for Auxiliary Locks & Associated Products; 1992.
 6. ANSI/BHMA A156.6 - American National Standard for Architectural Door Trim; 1994.
 7. ANSI/BHMA A156.7 - American National Standard for Template Hinge Dimensions; 1988 (R1997).
 8. ANSI/BHMA A156.8 - American National Standard for Door Controls - Overhead Stops and Holders; 2000.
 9. ANSI/BHMA A156.10 - American National Standard for Power Operated Pedestrian Doors; 1999.
 10. ANSI/BHMA A156.12 - American National Standard for Interconnected Locks & Latches; 1999.
 11. ANSI/BHMA A156.13 - American National Standard for Mortise Locks & Latches; 1994.
 12. ANSI/BHMA A156.14 - American National Standard for Sliding & Folding Door Hardware; 1997.
 13. ANSI/BHMA A156.15 - American National Standard for Closer Holder Release Devices; 1995.
 14. ANSI/BHMA A156.16 - American National Standard for Auxiliary Hardware; 1997.
 15. ANSI/BHMA A156.18 - American National Standard for Materials and Finishes; 2000.
 16. ANSI/BHMA A156.19 - American National Standard for Power Assist and Low Energy Power Operated Doors; 1997.
 17. ANSI/BHMA A156.21 - American National Standard for Thresholds; 1996.
- S. BIFMA - Business and Institutional Furniture Manufacturers Association:
1. ANSI/BIFMA X5.6 - American National Standard for Office Furnishings -- Panel Systems -- Tests; 1993.
- T. CISPI - Cast Iron Soil Pipe Institute:
1. CISPI 301 - Cast Iron Soil Pipe Institute:Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications; 1997
- U. CRI - Carpet and Rug Institute:
1. CRI 104 - Standard for Installation of Commercial Textile Floorcovering Materials; 1996.
- V. EIA - Electronic Industries Alliance:
1. ANSI/EIA/TIA-568-A - Commercial Building Telecommunications Cabling Standard; 1995.
 2. ANSI/EIA/TIA-568-A-5 - Transmission Performance Specifications for 4-pair 100 ohm Category 5e Cabling; 2000.
 3. ANSI/EIA/TIA-569-A - Commercial Building Standard for the Telecommunications Infrastructure of Commercial Buildings; 1998.
 4. ANSI/EIA/TIA-606 - Administration Standard for the Telecommunications Infrastructure of Commercial Buildings; 1993.

5. ANSI/EIA/TIA-607 - Commercial Building Grounding and Bonding Requirements for Telecommunications; 1994.
 6. EIA/TIA TSB 67 - Transmission Performance Specifications for Field Testing of Unshielded Twisted-Pair Cabling Systems; 1995.
- W. GA - Gypsum Association:
1. GA-600 - Fire Resistance Design Manual; 2000.
- X. GANA - Glass Association of North America:
1. GANA (SM) - FGMA Sealant Manual; 1990.
- Y. ICEA - INSULATED CABLE ENGINEERS ASSOCIATION:
1. ICEA S-80-576 - Communications Wire and Cable for Wiring of Premises; 1994.
 2. ICEA S-83-596 - Fiber Optic Premises Distribution Cable; 1994.
- Z. IEEE - The Institute of Electrical and Electronics Engineers:
1. IEEE 81 - IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System (Part 1); 1983.
 2. IEEE 142 - IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems; 1991.
 3. IEEE 450 - Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications; 1995.
 4. IEEE 1100 - IEEE Recommended Practice for Powering and Grounding Sensitive Electronic Equipment; 1999.
 5. IEEE ANSI/IEEE C57.12.00 - IEEE Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers; 1993.
 6. IEEE C2 - National Electrical Safety Code; 1997.
 7. IEEE C57.12.00 - General Requirements for Liquid Immersed Distribution, Power, and Regulating Transformers; 2000.
- AA. IESNA - Illuminating Engineering Society of North America:
1. IESNA (LH) - Lighting Handbook; 2000.
 2. IESNA RP-5 - Recommended Practice of Daylighting; 1999.
 3. ANSI/IESNA RP-8 - American National Standard Practice for Roadway Lighting; 2000.
- AB. LPI - Lightning Protection Institute:
- AC. NAAMM - National Association of Architectural Metal Manufacturers:
1. NAAMM HMMA 860 - Guide Specifications for Hollow Metal Doors and Frames; 1992.
 2. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2000.
 3. NAAMM HMMA 862 - Guide Specifications for Commercial Security Hollow Metal Doors and Frames; 1987.
- AD. NACE - NACE International:

1. NACE RP0169 - Standard Recommended Practice, Control of External Corrosion on Underground or Submerged Metallic Piping Systems; 1996.
2. NACE RP0285 - Standard Recommended Practice, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection; 1995.
3. NACE TM0497 - Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Piping Systems; 1997.

AE. NEMA - National Electrical Manufacturers Association:

1. NEMA 250 - Enclosures for Electrical Equipment; 1997
2. NEMA ICS 1 - Industrial Control and Systems; 1993.
3. NEMA ICS 2 - Industrial Control and Systems; 1993.
4. NEMA ICS 3 - Industrial Control and Systems; 1993.
5. NEMA LD 3 - High-Pressure Decorative Laminates; 1995.
6. NEMA PE 1 - Uninterruptible Power Systems; 1992.
7. NEMA PB 1 - Panelboards; 1995.
8. NEMA PB 2 - Deadfront Distribution Switchboards; 1995.
9. NEMA VE 1 - Metal Cable Tray System; 1996.

NFPA - NATIONAL FIRE PROTECTION ASSOCIATION:

A. NFPA - National Fire Protection Association:

1. NFPA 10 - Standard for Portable Fire Extinguishers; 1998.
2. NFPA 11 - Standard for Low-Expansion Foam; 1998.
3. NFPA 11A - Standard for Medium- and High-Expansion Foam Systems; 1999.
4. NFPA 12A - Standard on Halon 1301 Fire Extinguishing Systems; 1997.
5. NFPA 13 - Standard for the Installation of Sprinkler Systems; 1999.
6. NFPA 14 - Standard for the Installation of Standpipe, Private Hydrant, and Hose Systems; 2000.
7. NFPA 16 - Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems; 1999.
8. NFPA 17 - Standard for Dry Chemical Extinguishing Systems; 1998.
9. NFPA 20 - Standard for the Installation of Stationary Pumps for Fire Protection; 1999.
10. NFPA 25 - Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems; 1998.
11. NFPA 70 - National Electrical Code; **2002. (Am #0001)**
12. NFPA 72 - National Fire Alarm Code; 1999.
13. NFPA 80 - Standard for Fire Doors and Fire Windows; 1999.
14. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures; 2000.
15. NFPA 204 - Guide for Smoke and Heat Venting; 1998.
16. NFPA 261 - Standard Method of Test for Determining Resistance of Mock-Up Upholstered

Furniture Material Assemblies to Ignition by Smoldering Cigarettes; 1998.

17. NFPA 266 - Standard Test Method for Fire Characteristics of Upholstered Furniture Exposed to Flaming Ignition Source; 1998.
18. NFPA 701 - Standard Method of Fire Tests for Flame Propagation of Textiles and Films; 1999.
19. NFPA 780 - Standard for the Installation of Lightning Protection Systems; 1997.

B. REA - RURAL UTILITIES SERVICE:

1. REA Bulletin 1753F-205 (PE-39) - Filled Telephone Cables; 1993.
2. REA Bulletin 1753F-208 (PE-89) - Filled Telephone Cables with Expanded Insulation; 1993.
3. RUS REA Bulletin 1753F-601 (PE-90) - Filled Fiber Optic Cables; 1994.
4. RUS REA Bulletin 1755I-100 - List of Materials Acceptable for Use on Telecommunications Systems of RUS Borrowers; 1999.

C. SDI - Steel Deck Institute:

1. SDI (DM) - Publication No. 29, Design Manual for Composite Decks, Form Decks, Roof Decks and Cellular Deck Floor Systems with Electrical Distribution; 1995.
2. SDI MOC1 - Manual of Construction with Steel Deck; 1992.

D. SDI - Steel Door Institute:

1. ANSI/SDI 100 - Recommended Specifications Standard Steel Doors and Frames; 1991.
2. SDI 105 - Recommended Erection Instructions for Steel Frames; 1998.
3. SDI 107 - Hardware on Steel Doors (Reinforcement - Application); 1984.

E. SJI - Steel Joist Institute:

1. SJI Technical Digest No. 8 - Welding of Open Web Steel Joists; 1983.
2. SJI Technical Digest No. 9 - Handling and Erection of Steel Joists and Joist Girders; Steel Joist Institute; 1987.
3. SJI (SPEC) - Standard Specifications Load Tables and Weight Tables for Steel Joists and Joist Girders; 1994, Fortieth Edition.

F. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association, Inc.:

1. SMACNA (ASMM) - Architectural Sheet Metal Manual; 1993.
2. SMACNA (DCS) - HVAC Duct Construction Standards; 1995, with Addendum No. 1.

G. SSPC - Society for Protective Coatings:

1. SSPC-Paint 15 - Steel Joist Shop Primer; 1999 (Ed. 2000).
2. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 1982 (Ed. 2000).
3. SSPC-Paint 25.1 - Zinc Oxide, Alkyd, Linseed Oil Primer for Use Over Hand Cleaned Steel; 1997 (Ed. 2000).
4. SSPC-Paint 25.1BCS - Zinc Oxide, Alkyd, Linseed Oil Primer for Use Over Blast Cleaned Steel; 1997 (Ed. 2000).
5. SSPC-SP 1 - Solvent Cleaning; Society for Protective Coatings; 1982.
6. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2000).

7. SSPC-SP 3 - Power Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2000).
 8. SSPC-SP 5 - White Metal Blast Cleaning; Society for Protective Coatings; 2000.
 9. SSPC-SP 6 - Commercial Blast Cleaning; Society for Protective Coatings; 2000.
 10. SSPC-SP 7 - Brush Off Blast Cleaning; Society for Protective Coatings; 2000.
 11. SSPC-SP 10 - Near White Blast Cleaning; Society for Protective Coatings; 2000.
- H. TCA - Tile Council of America:
1. TCA (HB) - Handbook for Ceramic Tile Installation; 2001.
- I. USGBC - U. S. Green Buildings Council, www.usgbc.org
1. USGBC (LEED) - LEED Building Rating System; current edition.
- J. WDMA - Window and Door Manufacturers Association (formerly National Wood Window and Door Association):
1. WDMA NWWDA I.S.1-A - Architectural Wood Flush Doors; 1997.
 2. WDMA NWWDA I.S.6 - Wood Stile and Rail Doors; 1997.

PRIVATE EVALUATION ORGANIZATIONS

- A. FM - Factory Mutual System:
1. FM P7825 - Approval Guide; current edition.
- B. ITS - Intertek Testing Services (including Warnock-Hersey):
1. ITS (DIR) - Directory of Listed Products; current edition.
- C. NFRC - National Fenestration Rating Council
- D. UL - Underwriters Laboratories Inc.:
1. UL (BMD) - Building Materials Directory; current edition.
 2. UL (EAUED) - Electrical Appliance and Utilization Equipment Directory; current edition.
 3. UL (ECMD) - Electrical Construction Materials Directory; current edition.
 4. UL (FPED) - Fire Protection Equipment Directory; current edition.
 5. UL (FRD) - Fire Resistance Directory; current edition.
 6. UL (RMSD) - Roofing Materials and Systems Directory; current edition.
 7. UL 67 - Panelboards; 1993.
 8. UL 506 - Specialty Transformers; 1994; Rev Oct 1997.
 9. UL 508 - Industrial Control Equipment; 1999.
 10. ANSI/UL 752 - Bullet-Resisting Equipment; 2000.
 11. UL 845 - Motor Control Centers; 1995; Rev Feb 1996.
 12. UL 869A - Reference Standard for Service Equipment; 1998.
 13. UL 891 - Dead-Front Switchboards; 1994; Rev thru Jan 1995.
 14. ANSI/UL 972 - Burglary Resisting Glazing Material; 1995.
 15. UL 1449 - Transient Voltage Surge Suppressors; 1996; Rev thru Oct 1998.

END OF CHAPTER 00840

CHAPTER D

SERVICES

PERFORMANCE

A. Basic Function:

1. Provide the following services:
 - a. Conveying Systems (D1): Mechanized means of conveying people and goods.
 - b. Water and Drainage (D2): Means of delivery of water to points of utilization; automatic heating and conditioning of domestic water; and unattended removal of water, rainwater, and liquid waste.
 - c. HVAC (D3): Artificial means of maintaining interior space comfort and air quality, including heating, cooling, ventilation, and energy supply.
 - d. Fire Protection (D4): Automatic fire detection, suppression, and warning and manual fire-fighting equipment.
2. Utility Sources and Outlets:
 - a. Water Source: __Post water supply system__.
 - b. Sewage Disposal: __Connect building sewer system to existing post wide sanitary sewer system.__.
 - c. Rain Water Drainage Outlet: Existing public utility storm drainage system independent of sanitary sewer.
3. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance.

B. Amenity and Comfort:

1. Moisture: Prevent condensation from forming on service elements.
2. Airborne Sound:
 - a. Prohibited Plumbing Noises: All sounds of flushing and of liquid running through pipes ("bathroom sounds") are prohibited outside of the rooms housing toilets, bathtubs, and showers, with the exception of when doors to those rooms are open.
 - b. Equipment Noises: Noise level below that which will be objectionable, based on occupancy of spaces.
3. Structure-Borne Sound and Vibration: Prevent transmission of perceptible sound and vibration from services equipment that rotates, vibrates, or generates sound, by isolating such equipment from superstructure or by isolating equipment support foundations from building foundations.
4. Odors: Eliminate, isolate, or exhaust odors produced by occupant functions and building services.

C. Health and Safety:

1. Fire Safety:
 - a. Provide fire-rated separations between equipment rooms and other spaces where required, and as specified by, the code.
2. Safety Hazards: The construction will avoid creating safety hazards wherever possible and avoid using products that create safety hazards; where services must involve flammable materials or hazardous operations, comply with code and the following:
3. Excess Pressure: Design pressurized components to withstand operational pressures without failure and to relieve or reduce excessive pressure to prevent failure.
4. Vermin Resistance: Use components that are resistant to the entry of rodents and insects.

D. Durability:

1. Expected Service Life Span: Same as the service life of the building, except as follows:
 - a. Ducts, Piping, and Wiring in All Services: Minimum of 25 years.
 - b. All Components Permanently Installed Underground or Encased in Concrete: Same as service life of building.
 - c. Conveying Systems: Minimum 20 years.
 - d. Plumbing:
 - 1) Plumbing Fixtures: Same as building service life.
 - e. Fire Protection:
 - 1) Sprinkler Heads, Valves, and Other Inlet and Outlet Components: Same as building service life.
 - 2) Pumps and Other Operating Components: Minimum 20 years.
 - f. Software and Firmware Integral to Operation of Services Equipment: Minimum 20 years functional life without reprogramming required.
2. Weather Resistance:
 - a. All components exposed to outdoor environment must comply with the requirements of Chapter B; equipment enclosures are considered the equivalent of the exterior enclosure.
 - b. Buried Water Piping: Minimum of 24 inches (600 mm) below lowest recorded level at which the ground freezes.
3. Condensation: Provide insulated drain pans and piping to remove condensation from cooling coils.
4. Moisture Resistance: Where components are mounted to surfaces that are required to be moisture-resistant, seal mounting surface of components to finish surface so that moisture cannot penetrate under or behind component, using material that is not affected by presence of water, that is mildew-growth resistant, and that has a minimum service life of 10 years.
5. Temperature and Humidity Endurance: Design equipment to endure temperature and humidity that will be encountered and to resist damage due to thermal expansion and contraction.
6. 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. Piping Connections for Piping of Dissimilar Metals: Dielectric adapters.

E. Operation and Maintenance:

1. Capacity:
 - a. Conveying Systems: As specified in the project program.
 - b. Water and Drainage: As required by code and as specified in Chapter D2.
 - c. Heating, Cooling, and Ventilating: Maintain interior environment within ranges specified in Chapter 111.
 - d. Fire Suppression: As required by code.
 - e. Substantiation:
 - 1) Design Development: Engineering calculations showing input- and output-side capacities and loads and sizes of distribution elements.
2. Efficiency:
 - a. Energy efficiency as specified in Chapter 111.
 - b. Water consumption as specified in Chapter 111.
 - c. Substantiation: As specified in Chapter 111.

3. Ease of Use:
 - a. Provide software which is year 2000 compliant.
 - b. Access: All mechanical and electrical equipment located to allow easy access. Provide access doors for equipment accessed through walls, partitions, or fixed ceilings.
 - c. Valves and Other Control Devices: Accessible handles, switches, control buttons; valve handles on top/upper side; chain or other remote operators where located out of normal reach above floor level in SU1 and SU2 spaces.
 - d. Space Around Components: Working clearances and access routes as required by code and as recommended by component manufacturer.
 - e. Testing: After completion of installation, prepare services for starting-up by testing appropriately for proper operation.
 - f. Commissioning: Prepare services for use by eliminating operational anomalies, adjusting control systems for optimum operation, and demonstrating proper functioning, as specified in Chapter 00830.
 - g. Preparation for Operation: Provide assistance for the Government's preparations for operation, as specified in Chapter 00830 and as follows:
 - 1) Training Government personnel in the operation of all service systems.
4. Ease of Cleaning: Where not otherwise specified, design equipment mountings to allow easy cleaning around, and under, equipment, if applicable, without crevices, cracks, and concealed spaces where dirt and grease can accumulate and with raised, closed bases for equipment mounted on the floor.
 - a. Provide equipment with removable access panels to allow cleaning.
5. Ease of Maintenance and Repair:
 - a. Piping Other Than Gravity Drains: Provide means of isolating convenient portions of piping system, so that small portions may be shut down leaving the remainder in operation and so that drainage of the entire system is not required to enable repair of a portion of it.
 - b. Piping: Entire systems drainable without disassembly of piping.
 - c. Above Ground Piping: Labeled to identify contents and direction of flow, each shut-off valve, each piece of equipment, each branch take off, and at 20 ft (6 m) maximum spacing on exposed straight pipe runs.
 - d. Equipment in Piping Systems: Each unit provided with a union or flanged connector ; valve at each pipe connection to allow easy removal.
6. Ease of Equipment Service: As specified in Chapter 111 and the following:
 - a. Do not locate any HVAC equipment requiring maintenance on the roof or where access must be through attics or crawl spaces.
 - b. Parts Having Service Life Less Than That Specified for Element: Easily replaceable, without de-installation or de-mounting of the entire element, component, or equipment item.
 - c. Valves: Easily replaceable internal parts, eliminating necessity of removal of entire valve for repair.
 - d. Parts: Readily available from stocking distributors within 100 miles (160 km) of project location.
7. Ease of Equipment Removal: Provide doors and corridors large enough for removal of major pieces of equipment, such as, air handlers, chillers, boilers, fans, coils, transformers, switchgear, water heaters, and storage tanks.

PRODUCTS

- A. Do not use:
 1. CFC-based refrigerants.
 2. HCFC's or Halon.

3. Plastic piping.
4. **DELETED. (Am #0001)**

METHODS OF CONSTRUCTION

- A. The following existing services elements, if present, must be removed to accomplish new construction:
 1. Asbestos and asbestos-containing material on buried utility pipes.
- B. Use the following practices and procedures:
 1. Factory-fabricated equipment.

CHAPTER D52**SERVICE AND DISTRIBUTION****PERFORMANCE****A. Basic Function:**

1. Distribute electric power for equipment circuits, lighting circuits, receptacle circuits, and electrical utilization devices.
2. Main Electrical Service: Provide the service transformer to convert the utility distribution voltage to the building's utilization voltage. The Owner will maintain the service transformer. See attached site plan for location of existing utility power lines. Exact connection point to utility line shall be coordinated with the Ft. Polk exterior electrical shop (tel no. 337-531-2303). Depending on contractor's design, some relocation or removal of aerial power lines may be required. Removal/relocation shall be coordinated with Ft. Polk exterior electrical shop. Exterior portion of service shall comply with NFPA 70, National Electrical Code and IEEE C2, National Electrical Safety Code, in addition to the requirements of this chapter.
3. Distribution Circuit Configuration: Underground radial circuit arrangement.
4. Panelboard Locations: Locate panelboards in dedicated electrical rooms/closets only except panelboards supplying power to computers and video teleconferencing equipment in ADLP classrooms shall be located within the classroom (one panelboard per room). Do not locate panelboards in public corridors, hallways, or stairwells.
 - a. Panelboards serving computer, video teleconferencing equipment, and telecommunication loads shall have no other load types connected to said panelboard.
5. Where service and distribution elements must also function as elements defined within another elements group, meet requirements of both groups.
6. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance, Chapter D - Services, and Chapter D5 - Electrical.

B. Amenity and Comfort:

1. Sound and Noise:
 - a. Do not locate dry-type transformers near sound sensitive areas. See Chapter C for interior space sound level requirements.
 - b. Provide transformers with noise generation 3 dBA less than the sound levels listed in IEEE Standard 241-1990 (R1997).
2. Appearance:
 - a. Location of Service Transformer: Outside the building a minimum of 30 feet (9.15 m) from facility.
 - b. Do not locate switchboards and transformers in corridors, hallways, lobbies, public spaces, or stairwells. Switchboards and transformers will be provided in dedicated electrical rooms/closets only.
 - c. Conceal electrical conduit in walls and behind ceilings in the occupied spaces. Exposed conduit is only allowed in mechanical, electrical, and telecommunications rooms..

C. Health and Safety:

1. Protection from Breakage: Locate service and distribution equipment in electrical rooms.
2. Intrusion: Protect electrical distribution equipment from unauthorized access.

D. Structural:

1. Seismic Design: Provide service and distribution elements with the ability to move where differential movement is anticipated.

E. Durability:

1. Impact Resistance: Provide service and distribution equipment with heavy gage metal housing.
2. Transformer Insulation Class: As follows:
 - a. Service Transformers: Insulation Class 220 deg C.
 - b. General-Purpose Dry-Type Transformers: Insulation Class 220 (except 185 for 10 kva or less) deg C.

F. Operation and Maintenance:

1. Capacity:
 - a. Service Transformers: As required to serve demand load which includes 20 percent spare capacity..
 - 1) Kilovoltampere (kVA) Rating: Provide transformers with preferred ratings according to IEEE C57.12.00-2000.
 - 2) Primary Voltage: As required..
 - 3) Secondary Voltage: 480Y/277 V.
 - 4) Connection Method: Delta-Wye connection.
 - b. Main Switchboards: As required to serve demand load which includes 20 percent spare capacity..
 - c. Interior Distribution Transformers: As required to serve demand load which includes 20 percent spare capacity..
 - d. Branch Circuit Panelboards: As required to serve demand load which includes 20 percent spare capacity..
 - e. Substantiation:
 - 1) Design Development: Single-line diagram, showing feeder and equipment sizes; required electrical room sizes.
 - 2) Construction Documents: Riser diagram and calculations.
 - 3) Construction: Equipment characteristics.
 - 4) Closeout: For each panelboard, balance current on each phase conductor within 10 percent.
2. Ease of Use:
 - a. Main busway. Provide main busway centrally located to minimize length of feeder and branch circuit runs.
 - b. Labeling. All circuit breakers within a switchboard shall be labeled to identify load served. All panelboards shall be provided with a directory and each circuit listed in the directory shall be labeled to identify load served.
3. Dry-Type Transformer Applications:
 - a. Distribution Transformers for Linear Loads: Use general purpose, energy-saving in accordance with NEMA Standard TP1.
 - b. Distribution Transformers for Nonlinear Loads. Same requirements as for linear loads except include a neutral insertion filter to reduce harmonics..
 - 1) Neutral Insertion Filters. Neutral insertion filters shall be a series connected, bi-directional, passive device. Filter shall modify the input current waveform at single phase loads, provide an increase in load power factor, decrease branch and feeder neutral current and reduce rms phase currents compared to non-filtered circuitry. The filter shall modify the input current wave forms required by single-phase switch mode power supplies and other non-linear loads in order to reduce the 3rd harmonic currents demanded by such loads. The resultant reduction in 3rd harmonic current should create a significant decrease in current carried by the neutral conductor of a

three-phase four-wire distribution system. Reduction in harmonics shall be bi-directional, occurring on both the line and load side of the device, and shall be realized even when measured at the loads. Filter shall be totally passive in operation and shall contain no components that operate by switching or actively modifying the voltage or current waveform. Filters shall be rated 120/208 volts, 60Hz. Operating temperature shall be 0 to 40 degrees C. Information on these filters can be obtained from Harmonics Limited, 731 Main St., Monroe, CT 06468, (877) 437-3688.

- c. Distribution Transformers for Linear and Nonlinear Loads: Same requirements as for nonlinear loads.
4. Ease of Maintenance and Repair:
- a. Select equipment which is segmented into modules to ease replacement of component failures.
 - b. Wherever equipment is located in cabinets or enclosures, provide doors or removable panels sized to allow easy removal and replacement.

PRODUCTS

A. Transformers:

- 1. Use the following:
 - a. Dry type (for all 120/208 V. loads) Transformers shall comply with NEMA ST 20, and UL 506 (if applicable).
 - b. Liquid filled (exterior only) pad-mounted type (for 277/480 V. loads). Transformers shall comply with IEEE ANSI/IEEE C57.12.00, and ANSI C57.12.26.
 - c. **DELETED. (Am #0001)**
- 2. Do not use:
 - a. Air type.
 - b. Cast-coil.
 - c. Oil type.
 - d. Less-flammable liquid type.
 - e. Gas type.
 - f. Substation.
 - g. Primary-unit substation.
 - h. Secondary-unit substation.
 - i. Network.
 - j. Indoor distribution.

B. Secondary Service and Distribution Feeders:

- 1. Conduits:
 - a. Use the following:
 - 1) Below Grade: PVC conduit (thick-walled).
 - 2) Exterior, Exposed: GRS conduit.
 - 3) Interior, Exposed: IMC conduit, GRS conduit, or EMT.
 - 4) Interior, Concealed: IMC conduit, GRS conduit, or EMT.
 - b. Do not use:
 - 1) Below Grade: IMC conduit, GRS conduit, or EMT.
 - 2) Exterior, Exposed: IMC conduit, PVC conduit, or EMT.
- 2. Conductors :
 - a. Use the following (this also applies to branch circuit conductors):
 - 1) Aluminum or copper for #4 AWG and larger.
 - 2) Copper only for #6 AWG and smaller.
 - 3) Stranded for #8 AWG and larger.
 - 4) Solid for #10 AWG and smaller.

- C. Main Service Equipment: In accordance with UL 869A.
1. Types of Equipment:
 - a. Use any of the following:
 - 1) Switchboards. Switchboards shall comply with NEMA PB 2, and UL 891.
 - 2) Distribution panels. Panels shall be dead-front construction and comply with NEMA PB 1 and UL 67.
 - b. Do not use:
 - 1) Low voltage switchgear.
 - 2) Motor control centers.
 2. Main Devices:
 - a. Use one of the following:
 - 1) Molded case circuit breakers.
 - b. Do not use:
 - 1) Power circuit breakers.
 - 2) Fused switches.
 - 3) Bolted pressure switch.
 3. Branch Devices:
 - a. Use the following:
 - 1) Circuit breakers.
 - b. Do not use:
 - 1) Fused switches.
 4. Busbars:
 - a. Use the following:
 - 1) Copper.
 - b. Do not use:
 - 1) Plated aluminum.
- D. Branch Circuit Panelboards: Panelboards shall be dead-front construction and comply with NEMA PB 1 and UL 67.
1. Busbars:
 - a. Use the following:
 - 1) Copper.
 - b. Do not use:
 - 1) Plated aluminum.
 2. Circuit Breakers:
 - a. Use the following:
 - 1) Molded case circuit breakers.
 - b. Do not use:
 - 1) Fused switches.
- E. Motor Control Centers: MCC's shall conform to the requirements of NEMA ICS 1, NEMA ICS 2, NEMA ICS 3, NEMA ICS 6, UL 508, and UL 845.
1. Busbars:
 - a. Use the following:
 - 1) Copper.
 - b. Do not use:
 - 1) Plated aluminum.
 2. Overcurrent Protectors:
 - a. Use one of the following:
 - 1) Circuit breakers.

- 2) Fused switches.
- 3) Motor circuit protector (MCP).

END OF CHAPTER D52

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 quadruplex 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.
3. **Allowance for Change and Expansion: (Am# 0001)**
 - a. **Spare Patch Panel Capacity: 20 percent, minimum. (Am# 0001)**

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 3 100-ohm unshielded twisted pair cable. Cable shall be label-verified. Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level. Conductors shall be solid untinned copper 24 AWG. Cable shall be rated 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 satellite 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 single or dual jack outlet and patch panels in telecommunication room(s). Wiring consists of two 4-pair cable from each dual jack outlet and one 4-pair cable from each single jack (voice) outlet. (Am# 0001)
- 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 in 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 cable 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. Multimode fiber optic cable. Horizontal cable shall meet the requirements of ANSI/TIA/EIA-568-A and ICEA S-83-596 for 62.5/125 micrometer multimode graded index optical fiber cable. Numerical aperture for each fiber shall be a minimum of 0.275. Cable construction shall be tight buffered type, two strands. Individual fibers shall be color coded for identification. Cable shall be imprinted with fiber count, fiber type, and aggregate length at regular intervals of 3 feet (1.0 m). Cable shall be rated and marked OFNP per NFPA 70. (Am# 0001)
 - 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. Single jack (voice only) outlet assemblies shall consist of a modular jack assembled into simplex outlet assembly in a single gang cover. 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 accomodate 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 D72

SOUND REINFORCEMENT

PERFORMANCE

A. Basic Function:

1. **Provide the following sound reinforcement functions: (Am# 0001)**
 - a. **Public Address capability throughout the main library portion of the facility. Address system will be integral with telephone system. (Am# 0001)**
 - b. **Paging from telephone stations as specified in the attached room requirements sheets. (Am# 0001)**
 - c. **Speakers: Required in all rooms/areas within the main library. All speakers shall be recessed ceiling mounted. (Am #0001)**
2. **Integrated systems performing all functions are required and are subject to requirements of code for separated, independent systems. (Am#0001)**
3. **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. **DELETED (Am# 0001)**

C. **Durability: (Am# 0001)**

1. **Moisture Resistance and Thermal Compatibility: Materials that will resist degradation and failure of signals under ambient conditions expected. (Am# 0001)**

D. Operation and Maintenance:

1. System Performance: The system shall provide even sound distribution throughout the entire library, plus or minus 3 dB for the 1-octave band centered at 4000 Hz. The system shall provide uniform frequency response throughout the library, plus or minus 3 dB as measured with 1/3-octave bands of pink noise at locations across the designated area. The system shall be capable of delivering 75 dB average program level with additional 10 dB peaking margin sound pressure level (SPL) to any location in the area at an acoustic distortion level below 5 percent total harmonic distortion (THD). The sound pressure reference level is 20 micro Pascal (0.00002 Newtons) per square meter.
2. Page Control/Interface: The page control/interface shall provide a page zone for each room/area within the library. It shall also contain a built-in all call feature. A designated code for each room/area shall be activated via telephone push buttons including a code for the all call feature.
3. Signal Surge Protection: Major components of the system shall have internal protection circuits that protects the component from mismatched loads, direct current, and shorted output lines.
4. Government Personnel Training: As specified in Chapter 00830. (Am# 0001)
 - a. **Operational: Minimum of 4 hours, for public address system. (Am# 0001)**
 - b. **Maintenance: Minimum of 4 hours, for public address system. (Am# 0001)**

PRODUCTS **(AM# 0001)**

A. **Control Systems for All Applications: (Am# 0001)**

1. Use the following: (Am# 0001)

- a. **Microprocessor-based hardware. (Am# 0001)**
- B. **Communication Cabling: (Am# 0001)**
 1. Use any of the following: (Am# 0001)
 - a. **Copper cable installed in conduit. (Am# 0001)**
 - b. **Fiber optic cable installed in conduit. (Am# 0001)**

END OF CHAPTER D72

CHAPTER D73

TELEVISION

PERFORMANCE

- A. Basic Function:
1. Provide the following:
 - a. Interior cable between:
 - 1) CATV/Satellite outlets throughout the facility and cabinets in telecommunication room(s). Cables shall be installed in raceways consisting of conduit and cable trays. Provide a minimum of 3 feet (900 mm) slack in cabinet.
 - 2) Cabinets if installed in more than one telecommunication room.
 - 3) Exterior wall and cabinet in telecommunication room for future connection to government provided and installed satellite dishes. Exterior connection points shall be coordinated with Ft. Polk.
 - b. CATV/Satellite Outlets: Required in the following spaces:
 - 1) Two dual jack flush mounted on exterior wall for satellite connection. Locations to be provided by Ft. Polk.
 - 2) See attached room requirements sheets.
 - c. Lockable wall mounted cabinets as required in telecommunication room(s).
 2. Furnished and installed by Government after contract completion:
 - a. Television sets.
 - b. Television headend equipment.
 - c. Video projectors.
 - d. Video recorders.
 - e. Two satellite dishes.
 3. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance, Chapter D - Services, and Chapter D7 - Telecommunications.
 4. Substantiation:
 - a. Design Development: Details of each type of system component; manufacturer data.
 - b. Construction Documents: Detailed layout of all component locations.
 - c. Closeout: Complete functional performance testing as specified in Chapter 00830, under Commissioning.
- B. **DELETED (Am# 0001)**
- C. Durability:
1. Moisture Resistance and Thermal Compatibility: Materials that will resist degradation and failure of signals under ambient conditions expected.
- D. Operation and Maintenance:
1. System Labeling. All cabling shall be labeled in accordance with TIA/EIA 606. Labeling shall allow easy identification of which cable in the telecommunication room is connected to which outlet.
 2. **DELETED (Am# 0001)**
 3. **DELETED (Am# 0001)**

PRODUCTS

- A. **DELETED (Am# 0001)**
- B. Cabling:
1. Use the following:
 - a. 75-ohm broadband coaxial cable.

- 1) RG-59 for lengths less than or equal to 150 feet.
 - 2) RG-6 for lengths less than or equal to 250 feet.
 - 3) RG-11 for lengths less than or equal to 400 feet.
- C. Connecting hardware:
1. Use the following:
 - a. Connectors. Connectors shall be type F.
 - b. Jacks. Jacks shall be compatible with type F connectors.
 - c. Outlet boxes. Electrical boxes for CATV/Satellite 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. Provide a minimum 1 inch (27 mm) conduit between outlet box and cable tray.