AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF	PAGES
	1		2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
0007	24 MAY 2002		

6. ISSUED BY	CODE	7. ADMINISTERED BY *(If other than Item 6)*	CODE
US ARMY ENGINEER DISTRICT, FORT WORTH ATTN: CESWF-CT (RM 2A19) PO BOX 17300 FORT WORTH, TX 76102-0300			

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*	(X)	9A. AMENDMENT OF SOLICIATION NO.
	☒	DACA63-02-R-0009
		9B. DATED *(SEE ITEM 11)* 8 MARCH 2002
	☐	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 1 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: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER *(Specify type of modification and authority)*

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

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

The Solicitation for DESIGN-BUILD, FY00/01/02 DORMITORIES, LACKLAND AIR FORCE BASE, SAN ANTONIO, TEXAS, is amended as follows:

See Continuation Sheet.

NOTE: Phase II Proposal Receipt Date is 17 June 2002 at 4 pm local time, as previously announced.

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

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

Item 14. Continued.

CHANGES TO VOLUME II – DESIGN AND PERFORMANCE REQUIREMENTS

Contracting Documents

1. Replacement Chapters - Replace CHAPTER 00830 DESIGN AND CONSTRUCTION PROCEDURES with the accompanying new CHAPTER 00830 DESIGN AND CONSTRUCTION PROCEDURES, bearing the notation "ACCOMPANYING AMENDMENT NO. 0007 TO SOLICITATION NO. DACA63-02-R-0009."

Program Requirements

2. Replacement Chapters – Replace CHAPTER 1.1.1 - FACILITY PERFORMANCE with the accompanying new CHAPTER 1.1.1 - FACILITY PERFORMANCE, bearing the notation "ACCOMPANYING AMENDMENT NO. 0007 TO SOLICITATION NO. DACA63-02-R-0009."

Performance Requirements

3. Replacement Chapters – Replace the following chapters with the accompanying new chapters of the same number and title, each bearing the notation "ACCOMPANYING AMENDMENT NO. 0007 TO SOLICITATION NO. DACA63-02-R-0009:"

CHAPTER B – SHELL
CHAPTER B1 – SUPERSTRUCTURE
CHAPTER B2 – EXTERIOR ENCLOSURE
CHAPTER B2.3 – EXTERIOR DOORS
CHAPTER C – INTERIORS
CHAPTER D – SERVICES
CHAPTER D2 – WATER AND DRAINAGE
CHAPTER D2.2 – PLUMBING FIXTURES
CHAPTER D4.1 – FIRE SPRINKLER AND EXTINGUISHING SYSTEM
CHAPTER F – DEMOLITION

END OF AMENDMENT

CHAPTER 00830
DESIGN AND CONSTRUCTION PROCEDURES
AM#4, 7

MANAGEMENT AND COORDINATION

A. Access to and Use of Site: See Section 01310 PROJECT MEETINGS.

B. Coordination with Occupants:

1. Adjacent Buildings: Adjacent buildings will be occupied during the construction period.

2. Existing Utility, Life Safety, and Fire Safety System Elements:
   a. No disruption of services to areas that continue to be occupied during hours during which they are occupied; all disruptions arranged 14 days in advance with Government. See Section 01000 DESIGN AND CONSTRUCTION SCHEDULE.
   b. Prevent accidental disruptions to facilities outside the project limits by investigation of existing utilities and protection during construction; remedy accidental disruptions at no cost to Government.

C. Changes In The Work:

1. See Contract Clauses for procedures.

D. Progress Schedule: As specified in the Contract Clauses and Section 01320 PROJECT SCHEDULE.

QUALITY REQUIREMENTS

A. Proposal: See Sections 00120 PROPOSAL SUBMISSION REQUIREMENTS and 00150 EVALUATION FACTORS FOR AWARD

B. Design Criteria: During Design Development, the design and performance criteria must be refined, finalized, and documented. See Division 1 sections.

1. Design Documentation: See Section 01016 - DESIGN DOCUMENT REQUIREMENTS.

C. Substantiation Requirements: See Chapter 111 for definitions and basic requirements; see other chapters for specific items of substantiation required; see Chapter 00570 - Contract Definitions for time periods relating to submission times.

D. Substantiation Submittal Procedures:

1. For time periods that constitute Milestones, all substantiation submittals required during that period must be complete and accepted before the Milestone can be considered achieved.

2. Submit complete sets of documents containing all substantiation at end of the following periods:
   a. Design Development period.
   b. Construction Documents period.

3. Resubmissions: Clearly identified as such, with all changes made since the original submittal clearly marked. See Division 1 Section 01015 DESIGN REQUIREMENTS AFTER AWARD.

E. Government's Review of Substantiation: Unless otherwise indicated, Government will make formal acceptance of substantiation submittals. See Division 1 Section 01015 DESIGN REQUIREMENTS AFTER AWARD.

1. If a submittal is not acceptable Government will notify Contractor promptly.

F. Substantiation Scheduling: Incorporate the submittal of substantiation items in the Project Schedule, showing:

1. Contents, for each item:
   a. Anticipated and actual item, with Chapter and paragraph number and drawing identification, if any.

b. Anticipated submittal date, or time period(s) during which submittal is required.
c. Actual submittal date.
d. Action taken or other status.
e. Identification of future re-submission requirement, if any.

2. See Division 1 Section 01320 PROJECT SCHEDULE for additional information, including submission requirements.

G. Field Testing and Inspection: Perform all testing, observation, and inspection as specified. See Division 1 Section 01451 CONTRACTOR QUALITY CONTROL.

1. Qualifications of Testing/Inspection Agencies:
a. Qualified and equipped to perform applicable tests/inspection.
b. Regularly engaged in testing and inspection activities on a commercial basis.
c. Independent of Contractor and his contractors' organizations.
d. Employed by Contractor directly.
e. Authorized to operate in the State in which the project is located.
f. Acceptable to Government.
g. Substantiation: Submittal of qualifications, based on ASTM E 329 and ASTM E 548.
h. In accordance with Division 1 Section 01451 CONTRACTOR QUALITY CONTROL.

2. Reports: Written report of each test/inspection; including complete details of conditions, methods, and results, signed by responsible individual.

H. Reference Standards: Where products or workmanship is specified by reference to a document not included in the Contract Documents, comply with the requirements of the document, except where more stringent requirements are specified.

1. Date of Issue: Latest edition published as of date of contract documents except where a specific date is specified herein or established by code.

2. Copies on Site: Keep copies of referenced standards that prescribe installation or workmanship standards on site until completion.

TEMPORARY FACILITIES AND CONTROLS

A. See Division 1 Sections 01000 DESIGN AND CONSTRUCTION SCHEDULE, **01411** (**AM#7)** ENVIRONMENT PROTECTION, and 01500 TEMPORARY CONSTRUCTION FACILITIES.

B. Erosion and Sediment Control: See Division 1 Section **01411** (**AM#7)** ENVIRONMENT PROTECTION.

C. Project Identification Sign: See Division 1 Section 01580 BULLETIN BOARD AND PROJECT SIGN.

PRODUCT REQUIREMENTS

A. See Chapter 111 for general requirements for product options and substitutions.

B. **DELETED AM#7**

EXECUTION

A. Health and Safety:

1. Removal, abatement, handling, and disposal of hazardous materials will comply with 29 CFR 1926 and state and local regulations. See Sections 13280 ASBESTOS ABATEMENT and 13281 LEAD HAZARD CONTROL ACTIVITIES.

2. See Division 1 Sections **01411** **(AM#7)** ENVIRONMENT PROTECTION, 01500 TEMPORARY CONSTRUCTION FACILITIES, 01560 TEMPORARY SAFETY CONTROLS, 01572 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT, and other Contract requirements..

3. Substantiation:

a. Design Development: Identification of hazards on site, with preliminary plan for abatement in accordance with the Sections listed above in Health and Safety items 1 and 2.
b. Construction Documents: Detailed specifications for hazardous material removal, abatement, and disposal in accordance with the Sections listed above in Health and Safety items 1 and 2.

COMMISSIONING

A. Commissioning: Placing the project into full and proper operation, including starting and adjusting equipment and systems, functional performance testing, otherwise demonstrating compliance with Contract Documents, correcting defects, and obtaining permits.

1. Prerequisites: Design criteria documentation and recording of all changes to Contract Documents.

2. Unless otherwise indicated, Contractor is responsible for all commissioning activities.

3. Commissioning activities may take place at any time after completion of the element to be commissioned.

4. All commissioning activities must be complete before the end of Closeout, unless specifically excepted.

5. Maintenance Manuals: Ready for use during applicable commissioning activities.

B. Functional Performance Testing: Test all functions of system, all components of system, and interfaces between systems, including all modes of operation, conditional controls, and reactions to emergency conditions.

1. Description in Commissioning Plan: Each function to be tested described separately.

2. Systems Composed of More Than One Item of Equipment: Individual components tested for proper operation and interconnection before beginning system testing (e.g. "point-to-point" testing).

3. See substantiation requirements in other Chapters for specific items to be tested and tests required.

4. Testing Agency Qualifications: As specified in this chapter under Quality Requirements.

5. Government will witness tests and prepare defect reports.

6. Detailed test reports are to be by Contractor, showing test criteria, methods, and results.

C. Demonstration: For each equipment item or system for which functional performance testing by Contractor is not specified, demonstrate all operational modes to Government at time acceptable to Government; if defects occur during demonstration, demonstration must be rescheduled for a time acceptable to Government.

D. Commissioning Plan: Prepare complete plan and schedule of all commissioning activities, including those by Government and code authorities; include all field tests and inspections, functional performance tests, demonstrations, and permit inspections and tests.

1. Contents: For each commissioning activity indicate:
   a. Entity performing activity.
   b. Prerequisites, such as type of design information required, prior testing, etc.; identify in schedule as separate tasks.
   c. Functions to be tested or inspected.
   d. Methods of test or inspection, conditions required, and other procedures; if methods are not specified, identify methods that will demonstrate compliance with Contract Documents with satisfactory repeatability by others.
   e. Equipment required.
   f. Results required.

2. Schedule commissioning activities at the optimum time, to avoid unnecessary uncovering of work, retesting due to inadequate preparation, and duplication of effort.

3. If desired, schedule may be incorporated into overall progress schedule or substantiation schedule, provided commissioning tasks can be reported separately from other progress information.

4. Submission: To Government; ____.

5. Form: Computer database format for Government's use in tracking submittals; database structured so Government's added information will not be overwritten or deleted by incorporation of updated data from Contractor.

6. Updates: To Government monthly in hard copy.

E. Commissioning Reports: Submit a report for each commissioning activity that involves inspection, observation, or testing of construction, on a standard form that identifies the project.

1. Timing: Submitted within 7 calendar days after completion of the activity; for activities that are prerequisites for other activities to be witnessed by Government, satisfactory report submitted prior to start of witnessed activity.

2. Contents:
   a. Identification of activity, including element/system involved, date/time.
   b. Entity performing activity; other persons present.
   c. Prerequisites required and accomplished.
   d. Procedures or methods of testing.
   e. Results required and results achieved.

F. Government-Conducted Commissioning Activities:

1. Government will assign a staff member to manage the commissioning process beginning during Design Development and to perform the following commissioning activities:
   a. Review of design criteria documentation for completeness.
   b. Review of Contractor's commissioning plan and specifications.

2. Government, Government's staff, or consultants will perform the following commissioning activities:
   a. Inspection just prior to Substantial Completion, including preparation of Government's punchlist.
   b. Inspection prior to final payment.

3. See Division 1 Sections 01016 DESIGN DOCUMENT REQUIREMENTS and 01451 CONTRACTOR QUALITY CONTROL for additional requirements.

CLOSEOUT SUBMITTALS

A. See Division 1 Section 01770 CONTRACT CLOSEOUT for Operation and Maintenance Manuals, Warranties, Project Record Documents, Spare Parts and Extra Materials, Maintenance Supplies and Tools, and other closeout activities.

DEMONSTRATION AND TRAINING

A. Training: Perform training of Government's personnel in operation and maintenance of equipment, consisting of:

1. Training is required for all software-operated systems, HVAC systems and equipment, plumbing equipment, electrical systems and equipment, conveying systems, and other electrically-operated equipment.
   a. Provide supplemental training within 6 months for operations that are seasonal in nature.

2. Instruction in operation, control, adjustment, shut-down, servicing, troubleshooting, and maintenance, for each equipment item for which training is specified.

3. Instruction in care, cleaning, maintenance, and repair of materials, for:
   a. Each item for which training is specified.
   b. Roofing, waterproofing,,other weather-exposed or moisture protection products.
   c. Finishes, including flooring.
   d. Fixtures and fittings.
   e. Items as specified in other Chapters.

4. Major Software-Operated Systems: Training by software manufacturer at their facility for ____ Government staff members, with take-home training materials.

5. Training Location: If not otherwise specified, conduct training in a classroom on site, with videotapes made for future use.

6. Minimum Qualifications of Trainers: Knowledgeable about the project and the equipment and trained by the manufacturers.

7. Maintenance Manuals: Ready for use in training.

8. See Division 1 Section 01770 CONTRACT CLOSEOUT for additional requirements.

END OF CHAPTER 00830

CHAPTER 1.1.1 - FACILITY PERFORMANCE
AM#4, 7

PERFORMANCE

A. Basic Function:

1. Provide built elements and site modifications as required to fulfill needs described in the project program.
2. Substructure: Elements below grade and in contact with the ground in connection with the new building entrance and new mechanical room.
3. Shell: New Building superstructure, exterior enclosure and the roofing and the new building entrance and new mechanical room.
4. Interiors: New interior construction, walls, doors, ceilings, finishes and fixtures.
5. Services: Mechanized, artificial, automatic, and unattended means of supply, distribution, transport, removal, disposal, protection, control, and communication.
6. Equipment and Furnishings: Fixed and movable elements operated or used by occupants in the functioning of the project.
7. Demolition: Removal of unneeded and undesirable existing elements above or below grade.
8. Sitework: Modifications to the site, site improvements, and utilities.
9. Code: Make all portions of the project comply with the code. The code referred to herein consists of all applicable local, State, and federal regulations, including those listed below:
   a. **(AM#7) In the event of conflict and inconsistency between any of the provisions of the various codes, standards, or references, precedence shall be given in the following order:**
      1) **Contract requirements**
         a) **The code, standard, or reference that is listed in the Contract design or performance requirement;**
         b) **When conflict exists between references, the more stringent requirement shall govern;**
         c) **Where a particular design aspect is not covered by any of the codes, standards, or references listed, nor by the requirements specified in the Contract, the Contractor shall be guided by other nationally recognized and accepted codes or standards which do apply;**
         d) **The "authority having jurisdiction," as cided in codes, standards, or references, will be the Contracting Officer.**
      2) **Installation Design Guide**
      3) **Southwestern Division's Architectural and Engineering Instructions Manual (AEIM)**
      4) **Technical and Engineering Manuals, Instructions, Letters, Design Guides, Engineer Regulations, Pamphlets, and Bulletins.**
   b. Federal Regulatory Requirements:
      1) Americans with Disabilities Act of 1990, as a public accommodation, as implemented in:
         a) 28 CFR 35, Department of Justice regulations relating to State and local governments, including ADAAG.
         b) 28 CFR 36, Department of Justice regulations, including ADAAG; 1994.
      2) 29 CFR 1910; 1997, Occupational Safety and Health Standards, as a work place.
      3) (AM#7) MIL-HDBK-1008C (10 June 1997) Fire Protection For Facilities Engineering, Design and Construction
      4) (AM#7) U.S. Environmental Protection Agency (EPA), National Pollution Discharge Elimination System (NPDES) Storm Water Construction Permit in

accordance with Federal register, Volume 63, Number 128, July 6, 1998.

c. (AM#7) State of Texas regulatory requirements, Texas Natural Resource Conservation Commission (TNRCC).

1) Air emission in accordance with 30 Texas Administrative Code (TAC) 116.111 and 30 TAC 106

2) Erosion and sedimentation control regulations, see NPDES requirements above and section 01421 OUTLINE OF A BASIC STORM WATER POLLUTION PREVENTION PLAN, Volume III SPECIFICATIONS.

d. Non-Regulatory Criteria Documents: In addition to specific regulatory requirements, the following documents are also incorporated into the definition of "the code" for the purposes of this project, except for administrative provisions contained therein; where referenced, the role of the code official described in the document will be performed by Government.

1) ICBO Uniform Building Code, 1997.
2) NFPA 101, Safety to Life From Fire in Buildings and Structures, 1997.
3) Uniform Plumbing Code, 2000 Ediiton.
4) Uniform Mechanical Code, 2000 Edition.
5) NFPA 70, National Electrical Code, 2002.
6) NFPA 13, 1999 Edition
7) CABO Model Energy Code, 1997.
8) Erosion and sedimentation control regulations.

10. 29 CFR 1910; Occupational Safety and Health Standards.
11. 29 CFR 1926; Safety and Health Regulations for Construction.
12. 40 CFR 61; National Emissions Standards for Hazardous Air Pollutants.
13. 40 CFR 261; Identification and Listing of Hazardous Waste.
14. 40 CFR 262; Standards Applicable to Generators of Hazardous Waste.
15. 40 CFR 265; Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Storage, and Disposal Facilities.
16. 40 CFR 763; Asbestos.
17. 42 CFR 84; Approval of Respiratory Protective Devices.
18. 49 CFR 107; Hazardous Materials Program Procedures.
19. 49 CFR 171; General Information, Regulations and Definitions.
21. 49 CFR 172; Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements.
22. 49 CFR 173; Shippers - General Requirements for Shipments and Packagings.
23. USAF Base Architectural Standards for Excellence
24. AETC Facility Design Guide for Enlisted Dormitories
25. In addition to the requirements of this chapter, comply with requirements of Chapter 1 - Program Summary and Chapter 00830 - Design and Construction Procedures.
26. US Army Corps of Engineers SWD **(AM#7) Architectural and Engineering Instructions Manual (SWD-AEIM)**, October 2000.
27. Lackland AFB O&M Manual.
28. Lackland AFB Communication Standards.
29. 10 CFR 434 and 435 Energy Code for New Federal Commercial Buildings.
30. ETL 97-13 Dormitory Ventilation and Exhaust System Design Criteria.

31. ASHRAE Handbook of Fundamentals, 2001 Edition.

32. ASHRAE Handbook HVAC Applications, 1999 Edition.

33. ASHRAE Handbook HVAC Systems and Equipment, 2000 Edition.

34. Lackland AFB Grounding Program.

35. Lackland AFB Lightning Protection Program.

36. TM 5-811-1.

37. (AM#7) Environmentally Responsible Design: In addition to other requirements, provide design and construction that minimizes adverse effects on the exterior environment, enhances the quality of the indoor environment, and minimizes consumption of energy, water, construction materials, and other resources.

a. Achieve at least a Bronze rating in accordance with Sustainable Project Rating Tool (SPiRiT) which is derived from The U. S. Green Building Council LEED 2.0 (Leadership in Energy and Environmental Design) Green Building Rating System; selection of specific credits to achieve is the responsibility of Contractor unless otherwise indicated; comply with criteria specified in current Sustainable Project Rating Tool (SPiRiT) documentation as well as related criteria specified in other chapters.

b. Water Conservation:

1) Reduction of potable water use for sewage conveyance.

2) Reduction of water used by plumbing fixtures, appliances, and equipment, in excess of regulatory requirements: Desirable.

c. Substantiation:

1) Proposal Stage: See Sections 00120 PROPOSAL SUBMISSION REQUIREMENTS and 00150 EVALUATION FACTORS FOR AWARD.

2) Design Development and Construction Documents Stages: SPiRiT Checklist annotated to show status of design related to specific credits to be achieved and a comprehensive checklist of certification document specified in SPiRiT Reference Guide annotated to show status of preparation of documentation.

B. Amenity and Comfort:

1. Thermal Performance: Refer to Chapter D3.

C. Health and Safety:

1. Fire Resistance: Provide Non-combustible construction in accordance with 1997 Uniform Building Code.

2. Prevention of Accidental Injury: As required by code and as follows:
   a. Safety Glazing: As defined by 16 CFR 1201; provide in locations required by code, glazed areas subject to human impact, glazed areas at grade, and doors.

3. Lightning Hazard: Design to prevent damage to occupants, structure, services, and contents due to lightning strikes.
   a. Provide protection equivalent to that specified in NFPA 780-1997; supplementary strike termination devices, ground conductors, and grounding electrodes are required only where the integral portions of the structure cannot perform those functions.
   b. Ground Resistance Measurement Methods: As described in NFPA 780-1997, Appendix I, or IEEE 81-1983.
   c. Substantiation:
      1) Design Development: If methods prescribed by NFPA 780-1997 are not used, description of engineering basis of design, including grounding terminal design.
      2) Design Development: If grounding in very shallow or dry soil, or in rock, is required, ground resistance measurements and engineering analysis of ground terminal design.
      3) Design Development: Diagrams showing locations of strike (air) terminals and zones

of protection; identification of internal components that require bonding to equalize potential.

4) Construction Documents: Engineering analysis of equalization of potential to metal bodies within the structure.
5) Construction Documents: Drawings showing locations and sizes of conductors, bonding of metal bodies, and components; detailed installation specifications.
6) Commissioning: Continuity tests for grounding conductors, equipotential bonding of other systems, and ground terminals; ground resistance test for each ground terminal, or equivalent taking into account related grounding systems.
7) Commissioning: Certification of system complying with UL Master Label or Lightning Protection Institute Certified System requirements.
8) Closeout: Maintenance and inspection procedures.
9) Closeout: Project record data; location of ground terminals, ground resistance and soil conditions at time of test.

4. Health Hazards:
   a. Design to prevent growth of fungus, mold, and bacteria on all surfaces.
   b. Hazardous Construction Materials: Design and construct to comply with the requirements of the code.
   c. Indoor Air Quality: Design and construct to comply with the code and the following:
      1) Acceptable air quality as defined by ANSI/ASHRAE 62-1999.

5. **DELETED (AM#7)**

6. Electrically Operated Equipment and Appliances: UL listed for application or purpose to which they are put; suitable for wet locations listing for exterior use.

7. Explosion Hazards: The following hazards will exist in the building:
   a. External Hazards: Natural gas service and equipment.
   b. Internal Hazards: Natural gas service and equipment.

D. Structure:

1. Provide protective measures and structural systems in accordance with the Department of Defense Antiterrorism/Force Protection Standards.

E. Loads: Accommodate loads as prescribe by code, ANSI/ASCE 7, and USACE TI 809-04.

1. Earthquake Loads: Accommodate loads as prescribed by ASCE 7-1998 (pub. 2000).

2. Wind Loads: Accommodate loads as prescribed by ASCE 7-1998 (pub 2000).

3. Dead Loads: Actual weights of building elements.

4. Live Loads: Accommodate loads as prescribed by ASCE 7-1998 (pub 2000) and the building code.

F. Durability:

1. Expected Service Life Span: Expected functional service life of the built portions of this project is 25 years.
   a. Service life spans of individual elements that differ from the overall project life span are defined in other Chapters.

2. Animals: Do not use materials that are attractive to or edible by animals or birds.

3. Insects: Do not use materials that are edible by insects, unless access by insects is prevented.

G. Operation and Maintenance:

1. Space Efficiency: Minimize floor area required while providing specified spaces and space relationships, plus circulation and services areas required for functions.

2. Energy Efficiency: Minimize energy consumption while providing function, amenity, and comfort specified.
   a. Provide energy efficient design using procedures and values specified in ASHRAE 90.1-1999.
3. Water Consumption: Minimize water consumption.
4. Waste (Trash/Rubbish) Removal: As described in the project program.
5. Ease of Operation: Provide facility, equipment, and systems that are easily operated by personnel with a reasonable level of training for similar activities.
6. Ease of Maintenance: Minimize the amount of maintenance required.
7. Ease of Repair: Elements that do not meet the specified requirements for ease of repair may be used, provided they meet the specified requirements for ease of replacement of elements not required to have service life span equal to that specified for the project as a whole; the service life expectancy analysis and life cycle cost substantiation specified for service life are provided; and Government' acceptance is granted.
8. Ease of Replacement:
   a. Elements Not Required to have the Expected Service Life Span Equal to that Specified for the Project as a Whole: Make provisions for replacement without undue disruption of building operation.

ELEMENTS AND PRODUCTS

A. In addition to requirements specified in other chapters, provide products and elements that comply with the following.

B. Elements Made Up of More Than One Product:

1. Where an element is specified by performance criteria, use construction either proven-in-use or proven-by-mock-up, unless otherwise indicated.
   a. Proven-In-Use: Proven to comply by having actually been built to the same or very similar design with the same materials as proposed and functioning as specified.
   b. Proven-by-Mock-Up: Compliance reasonably predictable by having been tested in full-scale mock-up using the same materials and design as proposed and functioning as specified. Testing need not have been accomplished specifically for this project; when published listings of independent agencies include details of testing and results, citation of test by listing number is sufficient (submittal of all test details is not required).
   c. The Contractor may choose whether to use elements proven-in-use or proven-by-mock-up, unless either option is indicated as specifically required.
   d. Where test methods accompany performance requirements, use those test methods to test the mock-up.
   e. (AM#7) Exception: Where a design analysis is specified, or allowed by the Government, substantiation of proven-in-use or proven-by-mock up construction is not required.
2. Where a type of product is specified, without performance criteria specifically applicable to the element, use the type of product specified.
3. Where more than one type of product is specified, without performance criteria specifically applicable to the element, use one of the types of products specified.
4. Where a type of product is specified, with applicable performance criteria, use either the type of product specified or another type of product that meets the performance criteria as proven-in-use or proven-by-mock-up.
5. Where more than one type of product is specified, with applicable performance criteria, use either one of the types of products specified or another type of product that meets the performance criteria as proven-in-use or proven-by-mock-up.

6. Where neither types of products nor performance criteria are specified, use products that will perform well within the specified life span of the building.

C. Products:

1. Where the properties of a product are specified by description and/or with performance criteria, use products that comply with the description and/or performance criteria.

2. (AM#7) Builders' Hardware:

a. All hardware, including hinges, closers, locksets, exit devices, door hold open devices, and door stops, shall be grade 1 in accordance with the Builders Hardware Manufacturers Association ANSI/BHMA Standards.

b. Lock Trim: Lock trim shall be cast, forged, or heavy wrought construction of commercial plain design. In addition to meeting the test requirement of BHMA A156.13, knobs, lever handles, roses, and escutcheons shall be 0.050 inch (1.27mm) thick, if unreinforced. If reinforced, the outer shell shall be 0.035 inch (0.89 mm) thick and the combined thickness shall be 0.070 inch (1.78 mm) except that knob shanks shall be 0.060 inch (1.52 mm) thick. Knob diameter shall be 2-1/8 to 2-1/4 inches (54 to 57 mm). Lever handles shall be of plain design with ends returned to no more than 1/2 inch (10 mm) from the door face.

c. Lock Cylinders and Cores (Mortise, Rim and Bored)

1) Lock cylinders shall comply with BHMA A156.5. Lock cylinder shall have not less than seven pins.

2) Cylinders shall have key removable type cores.

a) Disassembly of knob or lockset shall not be required to remove core from lockset.

b) All locksets, lockable exit devices, and padlocks shall accept the same interchangeable cores.

3) Provide a master keying system.

4) Provide a construction master keying system .

a) Furnish with construction interchangeable cores.

b) Use the manufacturer's standard construction key system.

5) Keying: Locks shall be keyed in sets or subsets. Change keys for locks shall be stamped with change number and the inscription "U.S. Property - Do Not Duplicate." The keys shall be furnished to the Contracting Officer arranged in a container in sets or subsets as scheduled.

6) Keys shall be supplied as follows:

a) Locks: 3 change keys each lock.

b) Master keyed sets: 6 keys each set.

c) Control keys: 6 total.

d) Construction keys: 6 total.

e) Blank keys: 20 total.

(AM#7) SUBSTANTIATION

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

1. Regardless of whether substantiation is specified or not, the actual construction must comply with the specified requirements and may, at the Government's discretion, be examined, inspected, or tested to determine compliance.

2. Substantiation submittals will not be approved or accepted, except to the extent that they are part of documents required to be approved or accepted in order to proceed to the

next stage of design or construction. However, approval or acceptance of substantiation will not constitute approval or acceptance of deviations from the specified requirements unless those deviations are specifically identified as such on the submittal. See Division 1 Sections 01015 DESIGN REQUIREMENTS AFTER AWARD and 01330 CONSTRUCTION SUBMITTAL PROCEDURES for definitions of "approved" and "accepted" submittals.

3. **The Government accepts the responsibility to review substantiation submittals in a timely manner and to respond if they are unacceptable.**

B. In addition to the requirements stated in other chapters, provide the following substantiation of compliance at each stage of the project:

1. **If a substantiation requirement is specified without an indication of when it is to be submitted, submit or execute it before the end of Construction Documents.**

2. **See also Division 1 Sections 01015 DESIGN REQUIREMENTS AFTER AWARD and 01330 CONSTRUCTION SUBMITTAL PROCEDURES for submittal requirements.**

C. Previous Construction: Where elements proven-in-use are used to comply with performance requirements:

1. **During Design Development, identify proven-in-use elements proposed for use, including building name, location, date of construction, owner contact, and description of design and materials in sufficient detail to enable reproduction in this project.**

D. Mock-Up Testing: Where elements proven-by-mock-up are used to comply with performance requirements:

1. **During Design Development, identify proven-by-mock-up elements proposed for use, with test report including date and location of test, name of testing agency, and description of test and mock-up.**

2. **Mock-up testing need not have been performed specifically for this project, provided the mock-up is substantially similar in design and construction to the element proposed.**

E. Design Analyses (including Engineering Calculations):

1. **Where a design analysis or calculation is specified without identifying a particular method, perform analysis in accordance with accepted engineering or scientific principles to show compliance with specified requirements, and submit report that includes analysis methods used and the name and qualifications of the designer. See Section 01016 DESIGN DOCUMENTS REQUIREMENTS and the Southwestern Division's Architectural and Engineering Instructions Manual (AEIM) for additional requirements.**

2. **Where engineering design is allowed to be completed after commencement of construction, substantiation may be in the form of shop drawings or other data.**

3. **Submit design analyses when specified in Section 01016 DESIGN DOCUMENTS REQUIREMENTS.**

F. Products:

1. **Where actual brand name products are not identified by either the Government or the Contractor, identify the products to be used.**

2. **During Design Development:**
   - **a. Where more than one product type is identified for a particular system, assembly, or element, identify exactly which type will be used.**
   - **b. For each product type, provide descriptive or performance specifications; early submittals may be brief specifications, but complete specifications are required prior to completion of construction documents.**
   - **c. For each product type, identify at least one manufacturer that will be used.**
   - **d. For major manufactured products that are commonly purchased by brand name, and**

any other products so indicated, provide manufacturer's product literature on at least one actual brand name product that meets the specifications, including performance data and sample warranty.

3. During Construction:

a. Identify actual brand name products used for every product, except commodity products specified by performance or description.

b. Where a product is specified by performance requirements with test methods, and if so specified, provide test reports showing compliance.

c. Provide manufacturer's product literature for each brand name product.

d. Provide the manufacturer's certification that the product used on the project complies with the contract documents.

e. Builders' Hardware:

1) Hardware and Accessories: Manufacturer's descriptive data, technical literature, catalog cuts, and installation instructions. Spare parts data for locksets, exit devices, closers, electric locks, electric strikes, electro-magnetic closer holder release devices, and electric exit devices, after approval of the detail drawings, and not later than 3 months prior to the date of beneficial occupancy. The data shall include a complete list of parts and supplies, with current unit prices and source of supply.

2) Hardware Schedule: Hardware schedule listing all items to be furnished. The schedule shall include for each item: the quantities; manufacturer's name and catalog numbers; the ANSI number specified, sizes; detail information or catalog cuts; finishes; door and frame size and materials; location and hardware set identification cross-references to drawings; lock trim material thicknesses; lock trim material evaluation test results; corresponding reference standard type number or function number from manufacturer's catalog if not covered by ANSI or BHMA; and list of abbreviations and template numbers.

3) Keying: Keying schedule developed in accordance with DHI Keying Systems, after the keying meeting with the user.

4) Certificates of Compliance: The hardware manufacturer's certificates of compliance stating that the supplied material or hardware item meets specified requirements. Each certificate shall be signed by an official authorized to certify in behalf of the product manufacturer and shall identify quantity and date or dates of shipment or delivery to which the certificates apply. A statement that the proposed hardware items appear in BHMA L & R Directory, BHMA Closer Directory and BHMA Exit Devices Directory directories of certified products may be submitted in lieu of certificates.

5) Buy American Act: Furnish a separate certificate of compliance attesting that hardware items comform to the Section 00700 Contract Clauses pertaining to the Buy American Act.

f. Gypsum Board Products: Submit certification that gypsum board products, such as gypsum wallboard, gypsum backing board, cementitious backer units, and joint treating materials do not contain asbestos.

4. Before End of Closeout:

a. Provide copies of all manufacturer warranties that extend for more than one year after completion. See Section 01770 CONTRACT CLOSEOUT for additional information.

END OF CHAPTER 1.1.1

CHAPTER B – SHELL
AM#4, 7

PERFORMANCE

A. Basic Function:

1. Provide permanently enclosed spaces for all functional areas shown in the project program, unless otherwise indicated. Provide a physical enclosure that keeps out weather, unwelcome people, animals, and insects without requiring specific action by occupants, while providing convenient movement of occupants between inside and outside, desirable natural light, and views from inside to outside. Provide level floor areas, comfortable ceiling heights, and essentially vertical walls.

2. The elements forming usable enclosed space and separating that space from the external environment comprise the shell and consist of:
   a. Superstructure: All elements forming floors and roofs above grade and within basements, and the elements required for their support, insulation, fireproofing, and firestopping.
   b. Exterior Enclosure: All essentially vertical elements forming the separation between exterior and interior conditioned space, including exterior skin, components supporting weather barriers, and jointing and interfacing components; not including the interior skin unless an integral part of the enclosure.
   c. Roofing: All elements forming weather and thermal barriers at horizontal and sloped roofs and decks, and roof fixtures.

B. Amenity and Comfort:

1. Thermal Performance: Provide construction that will have thermal resistance as necessary to maintain interior comfort levels specified and in accordance with code and the following:
   a. Energy Efficiency: As specified in Chapter 111.
   b. Condensation: None on interior surfaces under normal interior temperature and relative humidity conditions, during 98 percent of the days in the coldest 3 months of the year.
   c. Components That Have Surfaces Facing Both Interior and Exterior Environment: Condensation Resistance Factor (CRF) as required to meet requirement above, when tested in accordance with AAMA 1503.1-1998.
   d. Minimum thermal performance values for individual shell elements are also specified in other chapters.

2. Air Infiltration: Maximum of 0.06 cfm per square foot of exterior surface area, measured in accordance with ASTM E 283-1991 at differential pressure of 6.24 psf.
   a. Use supplementary air barrier if necessary to maintain performance over entire shell.
   b. Use method of sealing joints between elements that will be effective given available construction practices.

3. Water Penetration: Design and select materials to prevent water penetration into the interior of the building, under conditions of rain driven by 50 mph wind.

4. Natural Light: Provide fenestration in shell **as required by Codes, Dormitory Design Guide, and to be architecturally compatible with the FY 1999 Dormitory. (AM#7)**

5. Acoustical Performance: Design and construct the shell to limit sound transmission as follows:
   a. Ambient Sound Level: Maintain ambient sound levels in perimeter spaces within Noise Criteria (NC) ranges specified in Chapter C - Interiors during normal hours of occupancy.
   b. Vibration Control: Use shell elements that will not resonate at frequencies that are characteristic of ambient exterior sound sources at the project site.
   c. Minimum performance values for individual shell elements are also specified in other chapters.

6. Cleanliness of Exterior Surfaces: Design and select materials **using architectural compatibility with the adjacent FY 1999 Dormitory (AM#7)** and to:
   a. Prevent attraction and adherence of dust and air-borne dirt and soot, and minimize

appearance of settled dust and dirt.
b. Be washed reasonably clean by normal precipitation.
c. Prevent precipitation from washing settled dust and dirt over surfaces exposed to view.

7. Appearance: Design and select materials to provide exterior appearance with characteristics as follows:
   a. **Architectural compatibility with the adjacent FY 1999 Dormitory (AM#7)**.
   b. Concealing mechanical equipment, plumbing equipment, electrical equipment, and piping, conduit, and ducts from view from the street.

C. Health and Safety:

1. Fire Resistance: Design and select materials to provide fire resistance in accordance with code.
   a. For all elements required to have a fire resistive rating and which are not made of materials and systems specified as acceptable by the code, use proven-by-mock-up construction.
   b. For proven-by-mock-up construction, acceptable testing agencies are Underwriters Laboratories Inc., Underwriters' Laboratories of Canada, Inchcape Testing Services (Warnock-Hersey), and Factory Mutual
   c. Minimum performance values for individual shell elements are also specified in other chapters.
   2. Physical Security: Design and construct to provide protection in accordance Department of Defense Antiterrorism/Force Protection Construction Standards.

D. Structure:

1. Structural Performance: Design and select materials to support all loads without damage due to loads, in accordance with code.

E. Durability:

1. Service Life Span: Same as building service life, except as follows:
   a. Load-Bearing Structural Members: Minimum of 100 years.
      1) No anticipated deterioration when protected as specified.
      2) Protective Elements: Minimum 25 years.
   b. Wall Primary Weather-Barrier Elements: Minimum 50 years functional service life, excluding joint sealers.
   c. Transparent Elements (Glazing): Same as other wall primary weather-barrier elements, except accidental breakage is considered normal wear-and-tear.
   d. Joint Sealers: Minimum 20 years before replacement.
   e. Surfaces Exposed to View: Minimum 20 years aesthetic service life; in addition, deterioration includes color fading, crazing, and delamination of applied coatings.
   f. Roof Covering Weather-Barriers: Minimum 20 years, fully functional.

2. Water Penetration: Design and select materials to prevent water penetration into the interior of shell assemblies, under conditions of rain driven by 50 mph wind.
   a. Exception: Controlled water penetration is allowed if materials will not be damaged by presence of water or freezing and thawing, if continuous drainage paths to the exterior are provided, and water passage to the building interior is prevented.

3. Weather Resistance: Design and select materials to minimize deterioration due to precipitation, sunlight, ozone, normal temperature changes, salt air, and atmospheric pollutants.
   a. Deterioration includes corrosion, shrinking, cracking, spalling, delamination, abnormal oxidation, decay and rot.
   b. Surfaces Exposed to View: Deterioration adversely affecting aesthetic life span includes color fading, crazing, and delamination of applied coatings.
   c. Joint Components and Penetration Seals: Capable of resisting expected thermal expansion and contraction; use overlapping joints that shed water wherever possible.
   d. Transparent Elements (Glazing): No haze, loss of light transmission, or color change, during entire expected service life.
   e. Freeze-Thaw Resistance: Adequate for climate of project.

f. Corrosion Resistance: In locations exposed to the outdoor air or in potential contact with moisture inside shell assemblies, use only corrosion-resistant metals as defined in this Chapter.
g. Ozone Resistance: Do not use materials that are adversely affected by ozone.

PRODUCTS

A. Corrosion-Resistant Metals:

1. Hot-dipped galvanized steel, with minimum zinc coating of 0.90 oz/sq ft total both sides.
2. Stainless steel, Type 304 or 316.
3. Cadmium-plated steel, with minimum coating of 12 micrometers.
4. Aluminum.

B. Coated Finishes:

1. Use one of the following:
   a. Fluoropolymer coating (70 percent Kynar 500 (tm) or Hylar 5000(tm)), minimum two coats.
   b. Siliconized polyester coating.

C. Construct the shell using products architecturally compatible with adjacent buildings (1999 Dorm).

D. Do not use:

1. Different metals subject to galvanic action in direct contact with each other.
2. Materials and products that require field finishing on surfaces exposed to the weather.
3. Wood trim.

METHODS OF CONSTRUCTION

A. Do not use:

1. Roofs with slopes less than 1/2:12 slope.
2. Wood framing.

END OF CHAPTER B

CHAPTER B1 – SUPERSTRUCTURE
AM#4, 7

PERFORMANCE

A. Basic Function:

1. Provide structural elements, above grade and within basements, capable of supporting all anticipated loads without failure or damage.

2. Do not use any electrically-operated or fuel-powered construction for support of floor or roof members.

3. The superstructure comprises:
   a. Elevated Floors: Floor construction above grade and within basements, including balcony, mezzanine, and ramp floors, floors elevated for access, stair construction if part of the structure, and roof decks intended for occupant live load; and the elements required for their support, insulation, fireproofing, and firestopping.
   b. Roofs: Roof construction, including canopies, and elements required for their support, insulation, fireproofing, and firestopping.

4. Where superstructure elements also must function as elements defined within another element group, meet requirements of both element groups.

5. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance and Chapter B - Shell.

B. Amenity and Comfort:

1. Water Penetration: Where roof coverings as specified in Chapter B3 are not used over roofs provide supplementary waterproof construction providing equivalent protection.

2. Vibration: Isolate structure from sources of vibration.
   a. Internal Sources: Refrigeration equipment, HVAC equipment, electrical equipment, etc..

C. Health and Safety:

1. Fire: Provide members with combustibility, flame spread, and smoke generation characteristics not greater than allowed by code.

2. Fire Resistance: Design and select materials to provide fire resistance in accordance with code and the following:
   a. Determine fire resistance rating by testing in accordance with ASTM E 119-2000.
   b. Determine flame spread index by testing in accordance with ASTM E 84-1999.
   c. Determine smoke developed index by testing in accordance with ASTM E 84-1999.
   d. Where fire resistance integrity of superstructure assemblies is impaired by subsequent installation of other construction elements, restore fire resistance using identical materials or other materials tested under ASTM E 814-1997.
   e. Provide firestopping at openings in fire-rated superstructure elements that is rated at not less than the required fire resistance of the penetrated element.
   f. Minimum performance values for individual superstructure elements are specified in other chapters.
   g. **DELETED (AM#7)**

3. Grounding: When grounding of electrical systems is accomplished using structural members, design to prevent shock to occupants.

D. Durability:

1. Moisture Resistance of Load-Bearing Members: Use materials that are not damaged by contact with water or moisture vapor.
   a. Materials that will corrode in the presence of water may be used if protected from water.

b. Materials that will rot or be damaged by fungus may not be used.

2. Impact Resistance of Load-Bearing Members: Use materials that are not easily damaged by common hand tools.

3. Portions of Superstructure Exposed on Exterior: Comply with requirements of Chapter B for water penetration, weather resistance, impact resistance, and wear resistance.

PRODUCTS

A. Use one or more of the following:

1. Structural steel frame, concrete-filled steel deck for floors, and unfilled steel deck for roofs.

2. Structural, cold-formed steel framing.

3. Cast-in-place reinforced concrete frame and slabs.

B. Firestopping:

1. Use one or more of the following:
   a. Firestopping penetrations through fire-rated floor slabs, both empty holes and holes accommodating cables, pipes, ducts and conduit.
   b. Firestopping penetrations through fire-rated walls and partitions.
   c. Firestopping openings between tops of fire-rated masonry walls and floor or roof slabs.

END OF CHAPTER B1

CHAPTER B2 - EXTERIOR ENCLOSURE

AM#4, 7

PERFORMANCE

A. Basic Function:

1. Provide an essentially vertical separation between exterior and interior conditioned space, that keeps out weather, uninvited people, and animals and insects, without unusual action by occupants, while providing convenient movement of occupants between inside and outside, desirable natural light, and views from inside to outside.

2. The elements forming the vertical separation comprise the exterior enclosure and consist of:
   a. Exterior Walls.
   b. Exterior Windows and Other Openings.
   c. Exterior Doors.
   d. Exterior Wall Fixtures.

3. Where exterior enclosure elements also must function as elements defined within another element group, meet requirements of both element groups.

4. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance and Chapter B - Shell.

B. Health and Safety:

1. Safety Glazing: **Design safety glazing in accordance with 16 CFR 1201 and to comply with requirements of Force Protection Requirements of this solicitation**. **(AM#7)**

2. Fire Resistance:
   a. All Materials of Exterior Enclosure: Non-combustible, no exceptions.

PRODUCTS

✍ A. Construct the exterior enclosure using exterior finish materials **which ensure architectural compatibility with the adjacent FY 1999 Dormitory. (AM#7)**

END OF CHAPTER B2

CHAPTER B2.3 - EXTERIOR DOORS
AM#4, 7

PERFORMANCE

A. Basic Function:

1. Secure all openings in the exterior wall that function to allow the entrance and exit of people, vehicles, and goods, so that the entire exterior enclosure functions as specified, using doors as specified, without using components that must be installed at changes of season.

2. The elements comprising exterior doors include doors of all sizes and uses, gates, and elements that form or complete the openings, unless an integral part of another element.

B. Amenity and Comfort:

1. Thermal Performance:
   a. Maximum Thermal Transmittance of Any Individual Component: U-value of 0.30 Btu/sq ft/hr/deg F when tested in accordance with ASTM C 236-1989(R93).
   b. Exception to Condensation Resistance Requirement: Minimum CRF of 35 of when measured in accordance with AAMA 1503.1-1998.

2. Air Infiltration: Maximum of 1.25 cfm/ft of crack length, measured in accordance with ASTM E 283-1991 at differential pressure of 1.57 psf.

3. Water Penetration: If so desired, provide justification for exemption of door openings from water penetration requirements of Chapter B and B2.

C. Health and Safety:

1. Emergency Egress:
   a. Provide exit doors minimum 36 inches wide.

2. Physical Security:
   a. Doors non-removable from outside without use of key.
   b. At Locations Not Facing a Street: No glazing.
   c. Secure each exterior door using a "fail-secure" method that allows entrance plus exit from inside using only one motion.
      1) Keys: Type as required to minimize unauthorized entry.
         a) Keying: Key to the existing keying system which is Best 7-pin core system.
      2) Lock Functions: Appropriate to the location and function and as follows:
✍ 3) Lock Function Definitions: As described in ANSI/BHMA A156.2-1996 **to include architectural compatibility with the adjacent FY 1999 Dormitory. (AM#7)**
   d. Forced Entry: Provide doors capable of resisting forced entry equivalent to:
      1) Swinging and Sliding Doors: Forced entry resistance of Class I in accordance with ASTM F 1233-1998, minimum.
      2) Locks and Lock Cylinders: ANSI/BHMA A156.5-1992 Security Grade 1.
      3) Exception for "Supervised" Doors: No forced entry requirement.
         a) "Supervised" Doors include: Main entrance doors.

D. Durability:

1. Water Penetration: Design openings and components of openings to positively drain water to exterior of the building.
   a. Top of Openings: If wall construction does not provide its own methods of drainage, use separate flashing to prevent water from entering opening components or the interior of the building.
   b. Bottom of Openings: Integral or separate sill or flashing to prevent water running over or draining out of opening components from entering the wall construction below or the interior of the building.

2. Physical Endurance:

a. Doors: ANSI A250.4-1994 Level A using hardware specified.
b. Door, Frame, and Anchors: ANSI A250.5-1994 Level A using hardware specified.
c. Door, Frame, and Anchors: NAAMM HMMA 862-1987 endurance test requirements.

3. Swinging Doors: Control door swing to prevent damage due to impact, to either door or element impacted.

E. Operation and Maintenance:

1. Service Life Span of Operating Components: Remaining operable for 10 years under normal exposure conditions for the project site.

PRODUCTS

A. Pedestrian Doors:

1. All Doors to be hollow metal.

B. Glazing in Doors: Glass.

1. Type: Double pane insulated glass units in accordance with building codes and Antiterrorism / Force Protection requirements

C. Hardware for Swinging Doors:

1. Use finish to be compatible with the adjacent 1999 Dormitory.

2. Hinges: Heavy duty, ball-bearing butt hinges.

3. Exit Devices: Rim type, Grade 1.

4. Locksets: Bored (cylindrical) interconnected lockset, Grade 1.

5. Door Closers: Unless specifically indicated as one type, surface overhead frame-mounted type, surface overhead door-mounted type, in-the-floor mounted type, concealed overhead frame-mounted type, or concealed overhead door-mounted type, Grade 1.

6. Door Stops: Floor-mounted type, wall-mounted type, or overhead door/frame mounted type.

7. Door Hold-Opens: Wall-mounted type or overhead door/frame mounted type at mechanical and electrical rooms.

D. Do not use:

1. Different metals subject to galvanic action in direct contact with each other.

2. Aluminum in direct contact with concrete or cementitious materials.

END OF CHAPTER B2.3

CHAPTER C – INTERIORS
AM#4, 7

PERFORMANCE

A. Basic Function:

1. Provide finished interiors for all spaces indicated in the program, equipped with interior fixtures as required to function properly for specific occupancies.

2. Interiors comprise the following assemblies:
   a. Interior Construction: All elements necessary to subdivide and finish space enclosed within the shell, including applied interior surfaces of the exterior enclosure.
   b. Interior Fixtures: All elements attached to interior construction that add functionality to enclosed spaces, except for elements classified as equipment or services fixtures.

3. Provide physical separation between spaces, constructed to achieve fire ratings required by code, appropriate security between adjacent spaces, and visual, acoustical, odor, and atmospheric isolation as necessary to maintain desirable conditions in each space to replicate the prototype.

4. Provide finishes for interior surfaces to replicate the prototype.

5. Provide interior fixtures to replicate the prototype.

B. Amenity and Comfort:

1. Acoustical Performance:
   a. Sound Transmission: Provide interiors that maintain sound transmission between primary spaces within the following STC ranges when adjacent spaces are occupied and are being used normally:
      1) Sleeping rooms: Minimum 55.
      2) Other rooms: Minimum 45.

2. Odor Control: Prevent unpleasant odors generated within a space from affecting occupants of adjacent spaces, by providing physical isolation of the spaces, separate ventilation, or a combination of isolation and ventilation.
   a. Control odors from spaces of the following types:
      1) Toilet rooms/kitchens
      2) Trash collection.
      3) **Trash removal (AM#7)**.

C. Structure:

1. Structural Performance: Provide interior construction and fixtures to support without damage all loads required by code.

D. Durability:

1. Service Life Span: Same as building service life, except as follows:
   a. Interior Ceiling Finishes: Minimum 15 years functional and aesthetic service life; including suspended ceilings.
   b. Interior Wall and Floor Finishes: Minimum 7 years functional and aesthetic service life.
   c. Other Interior Construction: Minimum 15 years functional and aesthetic service life.

END OF CHAPTER C

CHAPTER D2 - WATER AND DRAINAGE
AM #4, 7

PERFORMANCE

A. Basic Function:

1. Provide delivery of hot and cold domestic water to points of utilization and the removal of water, rainwater, and liquid waste.

2. Water and drainage elements comprise the following:
   a. Water Supply: Water sources and storage.
   b. Domestic Water: All elements required to distribute water to fixtures, including piping and equipment for water cooling, heating and storage.
   c. Sanitary Waste: All elements required for removal of sanitary waste, including piping, venting, discharge and disposal, and equipment designed and installed to comply with local codes.
   d. Rain Water Drainage: All elements required for drainage of rain water from building areas in which it may accumulate and drainage of clear wastes from building services; not including gutters and downspouts (B31) or subdrainage (A).
   e. Plumbing Fixtures: All fixtures necessary for sanitation, occupancy, and use that are connected to water supply and drainage; not including water heating or conditioning equipment, or kitchen equipment

B. Amenity and Comfort:

1. Hot Water Supply and Hot Water Recirculation:

2. Noise:
   a. Design to prevent noise due to air trapped in piping systems or excessive water velocities.
   b. Locate risers in dedicated and sound attenuated chases.
   c. Minimize noise produced by fixtures.
   d. Provide water hammer arrestors.

3. Convenience:
   a. Water Connections: Hot water on the left side of fixtures and cold water on the right side of fixtures.

4. Odors:
   a. Locate odor producing elements in areas separate from human occupancy in dedicated equipment rooms.
   b. Do not locate sanitary waste vent openings where odors are noticeable by occupants or by occupants of adjacent properties or where odor-bearing air may enter building spaces.
   c. Connect fixtures to prevent entry of sewer gases into occupied spaces.

5. Appearance:
   a. Vents: Conceal vents from view.

C. Health and Safety:

1. Pressure Control: Control pressures to protect the building, fixtures, equipment, and occupants from harm.
   a. Minimum Water Distribution Working Pressure: 50 psi.
   b. Pressure Reduction: Use pressure reducing valves or regulators.
   c. Air Removal: Remove air trapped in water distribution system by means of manual air vent valve at the highest point in the system.

2 Prevention of Sewer Gas Leaks:
   a. Provide waste system vents as required by code to avoid trap siphonage or compression.
   b. Prevent entry of sewer gases from the sanitary sewer into building's sewer system.

3. Protection of Potable Water Supply: As required by code.

4. Waste Drainage: Provide air conditioning equipment with indirect waste pipe for drainage.

5. Burn Hazards:
   a. Maximum Fixture Discharge Temperature: 120 degrees F.
   b. Maximum Exposed Surface Temperature: 105 deg F.

D. Durability:

1. Joint Durability: Provide watertight joints.

2. Electrical Component Protection:
   a. Do not route piping through electrical rooms, communication rooms, switchgear rooms, transformer vaults, and elevator equipment rooms.

3. Equipment Protection:
   a. Domestic Water Distribution System: Provide a strainer on the domestic cold water line entering the building.

E. Operation and Maintenance:

1. Capacity of Water Service: Provide adequate water flow and pressure to supply peak demand requirements. Comply with requirements specified in the code.
   a. Water Delivery: If the water source has insufficient flow or pressure, provide means of increasing to required level by means of a water pressure booster system.
      1) **DELETED (AM#7)**
   b. Water Flow:
      1) Maximum Velocity: 6 fps at the design flow rate.
   c. Water Supply Pressures:
      1) Service Main Working Pressure: 100 psi at 75 deg F.
      2) Water Distribution Working Pressure: Maximum 70 psi at 75 deg F, minimum 50 psi at 75 deg F.

2. Waste Pipe Sizing:
   a. Building Drain: 4 inches diameter, minimum.
   b. Buried Piping Below Slabs: 3 inches diameter, minimum.
   c. Pipes 3 inches in Diameter: Sloped at 1/4 inch per foot, minimum, downward in the direction of flow.
   d. Pipes 4 inches in Diameter and Larger: Sloped at 1/8 inch per foot, minimum, downward in the direction of flow.

3. Rain Water Drainage Capacity: As specified in the code.
   a. Design Rainfall: Short storm intensity of 6 inches in any 1 hour period.
   b. Secondary Drainage: Required for roofs and exterior structural decks that do not drain naturally. Provide secondary roof drains connected to a secondary drainage system.

4. Ease of Maintenance and Repair:
   a. Provide devices at each branch take-off which allow insertion of measurement devices to monitor flow and pressure levels in the water distribution system.
   b. Isolation of Piping Segments and Equipment: Provide a means of isolating the following:
      1) Each building from main water service. Provide a shut-off valve located inside a valve box whose removable access cover is at grade level.
      2) Each water branch from main service.
      3) Each vertical riser from piping below.
      4) Each water branch to fixtures or equipment from main vertical riser.
      5) Piping lower than the supply, to prevent unnecessary draining in the case of disconnection.
      6) Each plumbing fixture, storage tank, and item of equipment, so that removal of one will not necessitate shutdown of others.
      7) Individual fixtures and equipment. Provide an isolation device within 3 feet of pipe connection to item.

c. Provision for Drainage of Water Distribution Piping:
   1) Slope Piping Toward Drain: 1/4 inch per 10 feet minimum.
   2) Provide a system drain at the lowest point in the system.
   3) Provide an adequately sized drain for the volume of water inside the distribution system.
   4) Drain valve (or fixture shut-off valve) located at each low point.

d. Provision for Cleaning of Drainage Piping: Provide a cleanout as required by code and as follows:
   1) At the upstream end of each horizontal sanitary drainage pipe, for cleaning in direction of flow.
   2) At the dead end of each dead-end pipe.
   3) Pipe 3 inches and Smaller: At intervals of 50 foot, maximum.
   4) Pipe 4 inches to 6 inches: At intervals of 80 foot, maximum.
   5) Pipe 8 inches and Larger: At intervals of 100 foot, maximum.
   6) Clearance: As required by code to allow for cleaning and rodding of pipe.

PRODUCTS

A. Do not use:

   1. Steel piping, for any purpose.

METHODS OF CONSTRUCTION

A. The following existing water and drainage elements must be preserved:

   1. Existing water supply to the building and drainage from the building.

END OF CHAPTER D2

CHAPTER D2.2 - PLUMBING FIXTURES
AM#4, 7

PERFORMANCE

A. Basic Function:

1. Provide plumbing fixtures necessary for occupancy, use, sanitation and comply with ADA requirements.

2. All vitreous china fixtures shall be white.

3. Fixtures Required: As specified by code.
   a. Lavatories: At public and private restrooms and bathrooms.
      1) Group lavatories may be used wherever 4 or more lavatories would be required in a single room; 18 inches of group lavatory perimeter qualifies as a substitute for one lavatory.
   b. Kitchen Sinks: Single compartment; one in each kitchen.
   c. Drinking Fountains: Minimum of one on each floor and within 10 feet of each restroom.

B. Amenity and Comfort:

1. Convenience:
   a. Faucets: Single action operation in the following locations.
      1) Lobby restrooms.
      2) Kitchen.
      3) Restrooms.
      4) Laundry sink.

C. Structure:

1. Anchor fixtures to support weight of fixtures and a minimum of 400 pounds without failure or stress on the connecting pipes.

2. Wall Mounted Fixtures: Carriers concealed inside fixture and in wall or floor.

D. Durability:

1. Expected Service Life Span of Faucet Valves: 20 years.
   a. **DELETED (AM#7)**

2. Expected Service Life Span of Flushing Mechanisms: 20 years.
   a. **DELETED (AM#7)**

E. Operation and Maintenance:

1. Fixture Functions:
   a. Lavatories: Standard spout, with integral overflow.
   b. Urinals: Siphon jet flushing action.
   c. Kitchen Sinks: Swivel spout, water spray nozzle.
   d. Drinking Fountains: With hand operation, chilled water service.
   e. Utility (Mop or Janitor's) Sinks: Spout shall have threaded faucet. Filling of standard rolling mop bucket required; spout designed to support full bucket of water.

2. Water Pressure/Flow At Fixtures: 10psi, minimum, except as otherwise required by code.
   a. Flush Valves at Water Closets and Urinals: 25 psi, minimum.

3. Water Consumption:
   a. Water Closets: 1.6 gallons per flush, maximum, with complete waste removal in one flush.
   b. Urinals: 1.0 gallon per flush, maximum, with complete waste removal in one flush.
   c. Lavatory Faucets in Public Restrooms: 0.25 gallon per use.
   d. Lavatory Faucets in Other Areas: 0.25 gallon per use.
   e. Drinking Fountains: 2.5 gallons per minute.

f. Shower: 2.5 gallons per minute

4. Maintenance Service:
   a. Electrically-Powered Fixtures: Battery-power operation not allowed.

5. Ease of Cleaning:
   a. Use wall-mounted fixtures in public restrooms, for ease of cleaning floors.
   b. Provide adequate access for cleaning each fixture and the areas around it.

6. Ease of Repair:
   a. Faucet valves easily removable and replaceable as a single unit.
   b. Each pipe connection to each fixture provided with a stop valve, for easy disconnection from water service.
   c. Provide access to all concealed connections, such as floor and wall cleanouts and slip-joint connections.

PRODUCTS

A. Water Closets:

1. Use one or more of the following:
   a. Elongated bowl.
   b. Vitreous china.
   c. Floor-mounted tank type.
   d. Open seat, less cover.

B. Lavatories:

1. Use one or more of the following:
   a. Vitreous china.
   b. Ceramic, non-vitreous china.
   c. Countertop-mounted fixtures.
   d. Wall-hung fixtures.

C. Kitchen Sinks:

1. Use one or more of the following:
   a. Stainless steel.
   b. Countertop-mounted fixtures.

D. Faucets and Trim:

1. Use one or more of the following:
   a. Polished chrome-plated finish – brass.

E. Drinking Fountains:

1. Use one or more of the following:
   a. Electric water coolers.
   b. Stainless steel finished units.

F. Utility (Mop or Janitor's) Sinks:

1. Use one or more of the following:
   a. Precast terrazzo.
   b. Floor-mounted fixtures.

G. Laundry Sink
   a. Fiberglass.
   b. Stainless steel ledge.
   c. Chrome plated steel legs.

H. Shower
   a. Thermostatic mixing with metal cartridges.
   b. Shower head shall be 6'-8" above shower finished floor.
   c. Shower head shall not be directed outside stall.

END OF CHAPTER D2.2

CHAPTER D4.1 - FIRE SPRINKLER AND EXTINGUISHING SYSTEMS
AM#4, 7

PERFORMANCE

A. Basic Function:

1. Provide fire sprinkler or fire extinguishing systems for all interior spaces designed by a registered fire protection engineer; refer to Section 01015 for designer qualifications. All fire protection systems to be designed around MIL-HNBK-1008C standards and NFPA13, whichever is more stringent.

2. Provide wet pipe sprinkler systems for the entire building.

3. Spaces and Areas with Fire Sprinklers:
   a. General Use (Not Indicated As Another Type):
      1) System Type: Wet Pipe.
      2) Occupancy: Light Hazard.
      3) Density/Area: 0.1 gpm per sq ft over 3000 sq ft.
      4) Hose: 250 gpm
   b. Dormitory Rooms
      1) System Type: Wet pipe.
      2) Occupancy: Light Hazard.
      3) Density/Area: 0.1 gpm per sq ft over 3000 sq ft.
      4) Hose: 250 gpm
   c. Corridors:
      1) System Type: Wet pipe.
      2) Occupancy: Light Hazard.
      3) Density/Area: 0.1 gpm per sq ft over 3000 sq ft.
      4) Hose: 250 gpm
   d. Storage:
      1) System Type: Wet pipe.
      2) Occupancy: Ordinary (Group 1) Hazard.
      3) Density/Area: 0.15 gpm per sq ft over 3000 sq ft.
      4) Hose: 500 gpm
   e. Mechanical Room:
      1) System Type: Wet pipe.
      2) Occupancy: Ordinary (Group 1) Hazard
      3) Density/Area: 0.15 gpm per sq ft over 3000 sq ft.
      4) Hose: 500 gpm

4. Provide code-required coverage if the coverage specified above is less than required by code.

5. Fire Sprinklers: Design and construction in accordance with code and NFPA 13-1999 or MIL-HNBK-1008C which ever is more stringent.

6. Standpipes and Hoses: Design and construction in accordance with code and NFPA 14-2000.

B. Amenity and Comfort:

1. Appearance:
   a. Provide spaces with the following types of sprinkler heads:
      1) General Use: Recessed sprinklers.
      2) Lobby: Recessed sprinklers.
      3) Corridor: Recessed sprinklers.
      4) Dormitory Room: Recessed and/or sidewall sprinklers.
      5) Storage: Recessed or upright sprinklers.
      6) Mechanical: Recessed or upright sprinklers.
   b. Provide hose cabinets with solid metal door panel.
   c. Provide fire department connections with bright-chrome finish.

C. Health and Safety:

1. Nozzle Performance: As required by code and NFPA 17-1998.

2. Water Demand Requirements:
   a. Determine minimum water supply requirements for each sprinkler system using the hydraulic calculation method defined by NFPA 13-1999.

3. Water Source:
   a. Provide fire pump designed in accordance with NFPA 20-1999.
   b. Provide water from Lackland water distribution system.

D. Structural:

1. Seismic Design:
   a. Provide a sprinkler system which allows movement where differential movement is anticipated.
   b. Provide sprinkler system supports capable of supporting twice its installed wet weight.

2. Structural verification: Structural Engineer shall verify structural capacity of existing structure to support fire sprinkler lines.

E. Durability:

1. Expected Service Life Span: Provide a sprinkler system which will be viable for the life of building when maintained as specified in NFPA 25-1998.

F. Operation and Maintenance:

1. Provide sprinkler system maintenance in accordance with NFPA 25.

2. Ease of Service:
   a. Spare Sprinkler Heads: Provide additional sprinkler heads in accordance with code requirements.

PRODUCTS

A. Pipe: **Use any piping systems and materials permitted by NFPA 13. (AM#7)**

B. Fittings: **Use any piping systems and materials permitted by NFPA 13. (AM#7)**

C. Fire Pumps:

1. Use the following:
   a. Electric fire pumps.

END OF CHAPTER D4.1

CHAPTER F – DEMOLITION
AM#4, 7

PERFORMANCE

A. Scope of Work:

1. Remove all existing construction and utilities that effect the design and construction of this project.
   a. See other chapters for existing elements that must be preserved.
   b. See Chapter G for existing site elements that must be salvaged for the Government.
   c. See Chapter 00830 for elements to be removed prior to start of construction.
   d. The following existing elements must be removed even if removal is not actually necessary for the design:
      1) All abandoned foundations, paving, walks, curbs, pipes, ducts, and conduits, whether above or below ground, within the construction area.
   e. The following existing elements may remain in place provided they are concealed in the final work:
      1) Foundation walls and footings located inside the building footprint.
2. Relocate existing construction and utilities as required for the design.
   a. Reference Chapter G34 for new underground service where required.
3. Where requirements of another element group also apply to demolition or relocation operations, meet the requirements of that element group as well.
4. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance, Chapter G - Sitework, and Chapter G1 - Site Preparation.

B. Amenity and Comfort:

1. See Chapter 00830 for noise control and dust control.
2. Public Amenity: Conduct operations so as to cause minimum annoyance of the public and adjacent property owners and tenants.

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

1. Health Hazards:
   a. Whenever construction operations could result in worker contact with hazardous materials, follow recommendations of an American Board of Industrial Hygiene Certified Industrial Hygienist (CIH) employed by Contractor.
   b. Existing Asbestos and Asbestos-Containing Materials: Comply with 29 CFR 1926.1101 and applicable state and local regulations; complete removal is required.
      1) **DELETED (AM#7)**
   c. Existing Lead-Based Paint: Comply with 29 CFR 1926.62 and applicable state and local regulations; either removal or recoating is acceptable.

D. Structure:

1. Prevent movement or settlement of structures that are to remain.
2. Cease operations immediately if structures that are to remain appear to be in danger; do not resume operations until danger has been removed or remedied.
3. Coordinate demolition with grading so that final grades do not subside within one year after completion.

E. Durability:

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

F. Operation and Maintenance:

1. Comply with requirements of utility providers.

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

METHODS OF CONSTRUCTION

A. Use one or more of the following methods:

1. Hand cutting.

2. Machine cutting.

B. Do not use any of the following methods:

1. Explosive demolition.

END OF CHAPTER F