

# AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

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

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

1. Standard Form 1442, First Page, Item No. 13.A.- In the second line, change the proposal receipt date from "10 January 2002" to "18 January 2002". The time of receipt remains 4:30 p.m. local time.

**CHANGES TO THE VOLUME III SPECIFICATIONS**

2. Replacement Sections - Replace the following sections with the accompanying new sections of the same number and title, bearing the notation "ACCOMPANYING AMENDMENT NO. 0005 TO SOLICITATION NO. DACA63-02-R-0001:"

SECTION 01000	DESIGN AND CONSTRUCTION SCHEDULE
SECTION 01016	DESIGN DOCUMENT REQUIREMENTS

**CHANGES TO VOLUME IV ATTACHMENTS**

3. Attachment Q, Drawings.- The As-Built CADD drawing files (.dgn) and the Shop drawing files (.cal) for Contract No. DACA63-98-C-0056 (Ft. Polk Bldg. 350 Roof Replacement) are issued with this amendment CD. These files are provided for Contractor information. The shop drawings are viewable from the Contract Viewer.

**ADDITIONAL CHANGES**

4. It is anticipated that Amendment No. 0006, answering several offerors' questions, will be issued on or about January 7, 2002.

END OF AMENDMENT

SECTION 01000

DESIGN AND CONSTRUCTION SCHEDULE  
**AM NOS. 0001, 0004, 0005**

PART 1 GENERAL

1.1 SCHEDULE

Commence, prosecute, and complete the work under this contract in accordance with the following schedule and Section 00700 CONTRACT CLAUSES clauses COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK and LIQUIDATED DAMAGES:

Item of Work	Commencement of Work (calendar days)	Completion of Work (calendar days)	Liquidated Damages per calendar day[ <sup>1</sup> ] <u>  </u> <u>  </u>
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**(AM#4)**

(1) Completion of all demolition, design, and construction work, <u>including options</u> , except Establishment of Turf and Landscaping	Within 10 calendar days after receipt of Contract Notice of Proceed	<u>715</u>	<u>\$685.00</u>
(2) Establishment of Turf	**	**	---
(3) Landscaping	***	***	---

<sup>1</sup>NOTES:

- a. See Section **(AM#1) 01015 DESIGN REQUIREMENTS AFTER AWARD** , paragraph "SUBMISSION OF CONSTRUCTION DRAWINGS, SPECIFICATIONS, AND DESIGN ANALYSES," concerning submission of construction documents and Section 01000 paragraph, "SEQUENCE OF DESIGN/CONSTRUCTION," concerning start of construction.
- b. For construction planning purposes Government review time for design review submittals **(AM#1) is** specified in 01015 DESIGN REQUIREMENTS AFTER AWARD.
- c. Delay in completion of design will not be considered as a valid reason to delay completion of entire work.

d. (AM#5) The Contract duration stated above for Work Item 1 is the maximum duration until Contract Award. Upon Contract Award, the Contractor's proposed duration as stated on the Price Proposal Schedule shall become the contract duration for this Work Item. The liquidated damages stated above will be applied for each calendar day the Contractor exceeds the Contract duration schedule.

\*Establishment of Turf

Planting and maintenance for turfing shall be in accordance with Contractor's Section for TURFING. No payment will be made for establishment of turf until all requirements of the section are adequately performed and accepted, as determined by the Contracting Officer.

\*\*Landscaping

Planting and maintenance for landscaping shall be in accordance with Contractor's Section for LANDSCAPING. No payment will be made for landscaping until all requirements of the section are adequately performed and accepted, as determined by the Contracting Officer.

1.1.1 Testing of Heating and Air-Conditioning Systems

The times stated for completion of this project includes all required testing specified in appropriate specification sections of heating, air conditioning and ventilation systems including HVAC Commissioning. Exception: boiler combustion efficiency test, boiler full load tests, cooling tower performance tests, and refrigeration equipment full load tests, when specified in the applicable specifications, shall be (AM#4) performed in the appropriate heating/cooling season as determined by the Contracting Officer.

1.2 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (OCT 1989)  
(ER 415-1-15)(52.0001-4038 1/96)

a. This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the contract clause entitled "Default: (Fixed Price Construction)." In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

b. The following schedule of monthly anticipated adverse weather delays due to precipitation and temperature is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities. Wind is not considered in the Monthly Anticipated Adverse Weather Calendar Day Schedule.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY  
WORK DAYS BASED ON (5) DAY WORK WEEK

LEESVILLE/FT. POLK, LA AREA  
(FORT POLK AND RESERVE CTRS AT NORTH FORT POLK AND ALEXANDRIA)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5	5	4	4	5	6	5	4	4	4	4	5

c. Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the contractor's scheduled work day.

The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph "b", above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled "Default (Fixed Price Construction)."

**(AM#4)**

1.3 Beneficial Occupancy DELETED

1.3.1 Beneficial Occupancy Date DELETED

1.4 WORK RESTRICTIONS

1.4.1 Working Hours

Normal working hours are Monday through Friday, 0730 to 1630 hours. Contractor may request through the Contracting Officer's representative for other work hours to meet project needs.

**(AM#4)**

1.4.2 Security Requirements

For the duration of this Contract, access to Fort Polk will be delayed between 30 minutes to an hour or more due to increased security precautions, including the checking of vehicle occupants' IDs, vehicle manifests, and the searching of all vehicles.

1.5 UTILITIES

1.5.1 Payment for Utility Services (FAR 36.303(C)(6))

Water, gas, and electricity are available from Government-owned and operated systems and will be charged to the Contractor at rates as provided in Contract Clause 52.236.14 AVAILABILITY AND USE OF UTILITY SERVICES.

### 1.5.2 Outages

The Contractor shall coordinate all requests for utility outages with the Contracting Officer in writing 14 days prior to date of requested outage:

- a. Water, gas, and sewer outages shall be held to a maximum duration of 4 hours unless otherwise approved in writing.
- b. Electrical outages shall have a maximum duration of 4 hours.
- c. Utility outages shall not be scheduled on Saturdays, Sundays, or holidays.

### 1.6 STREET CLOSINGS

The Contractor shall coordinate all requests for street closings with the Contracting Officer in writing 14 days prior to date of requested outage:

- a. One lane traffic shall be maintained at all times (except that a total closing may be allowed for specific 8-hour periods).
- b. The final street repair shall be completed within 14 days after the start of any street crossing. Any part of the street returned to service prior to final repair shall be maintained smooth with hot-mix cold-lay surface course.
- c. At least two flagmen will be on duty to assist traffic in the open lane, when other lanes are closed due to the Contractor's operations. Flagmen will meet the requirements of the State of Louisiana's Standard Specifications for Construction of Highways, Streets, and Bridges.

(AM#4)

- d. Traffic Management **DELETED**

### 1.7 SEQUENCE OF DESIGN/CONSTRUCTION

(a) After receipt of the Contract Notice to Proceed (NTP) the Contractor shall initiate design, comply with all design submission requirements as covered under Division 01 General Requirements, and obtain Government review of each submission. No construction may be started, with the exception of demolition, clearing, etc, until the Government reviews the Final Design submission and determines it satisfactory for purposes of beginning construction. The Acting Contracting Officer (ACO) or Contracting Officer Representative (COR) will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the ACO or COR, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

(b) If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government.

(c) No payment will be made for any in-place construction until all required submittals have been made, reviewed and are satisfactory to the Government.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

SECTION 01016

DESIGN DOCUMENT REQUIREMENTS  
09/2001  
AMENDMENTS NO. 0001 AND 0005

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ACI INTERNATIONAL (ACI)

ACI SP-66 (1994) ACI Detailing Manual

AMERICAN WELDING SOCIETY (AWS)

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

INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS (ICBO)

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

MILITARY HANDBOOKS (MIL HDBK)

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

US ARMY CORPS OF ENGINEERS, SOUTHWESTERN DIVISION (SWD)

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

1.2 SUBMITTALS

SD-05 Design Data

Design Data Checklists; .

Include the Fire Protection, Code Analysis, and Handicapped Checklists (Attachments A, B, and C) at the end of this Section with the Design Analysis and submit with the design submittals.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 DRAWINGS

Prepare, organize, and present drawings in the format specified. Provide drawings complete, accurate, and explicit enough to show compliance with the Contract requirements and to permit construction.

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

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

### 3.1.1 CADD Drawings

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

### 3.1.2 CADD Standards

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

The CADD standards for design of this project are located at the following Web sites:

(AM#5)

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

Seed/prototype files, containing the Government's preset standard settings can be downloaded from the Internet at the following address:

(AM#5)

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

Electronic reference files containing the Government's standard border/title block sheets can be downloaded from the Internet at the following address:

(AM#5)

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

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

### 3.1.3 Size of CADD Drawings

Overall Size of CADD drawings shall be 711mm by 1016mm (28 inches by 40 inches), at the trim line. Full size drawings shall be submitted for all design submittals. SI working units and the District's standard file-naming convention shall be used.

### 3.1.4 .CAL Files

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

### 3.1.5 Drawing Format

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

### 3.1.6 Drawings Sequence

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

### 3.1.7 Drawings Required

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

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

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

### 3.1.8 Drawing Scales

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

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

#### Notes:

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

2. The details shall be large enough to show all fixtures, accessories, equipment, materials, manner of construction,

clearances required for proper maintenance, and complete dimensions.

Toilet rooms and Equipment rooms are examples of the kind of spaces which shall be drawn as a Detail Plan. All details containing sheet metal flashing shall be 1:5 (3 inches = 1 foot).

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

### 3.1.9 North Arrows

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

### 3.1.10 Legends and Symbols

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

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

### 3.1.11 Key Plans

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

### 3.1.12 Building Composite Plans

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

### 3.1.13 Schedules

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

### 3.1.14 Notes

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

### 3.1.15 Dimensions

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

- a. **(AM#1) Horizontal** dimensions shall occur on the plans and vertical dimensions on sections and elevations.

### 3.1.16 Standard Drawings

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

### 3.1.17 Sketches

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

## 3.2 CONSTRUCTION SPECIFICATIONS

### 3.2.1 Editing Construction Specifications

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

additional requirements in paragraphs 60 PERCENT DESIGN REQUIREMENTS and 100 PERCENT DESIGN REQUIREMENTS of this Section and in Section 01015 DESIGN REQUIREMENTS AFTER AWARD, paragraph DESIGN DOCUMENTS..

#### 3.2.1.1 Required Modifications to Commercial Guide Specifications

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

#### 3.2.1.2 Additions

If the Construction Specifications do not cover a feature that is in the project, insert additional requirements in their proper locations to adequately cover the feature of work. Additions shall not **(AM#1) lessen** the quality of materials indicated by the specifications. If a new material is added, it shall be properly referenced in "REFERENCES," "MANUFACTURERS," "MANUFACTURED UNITS," "MATERIALS," "SUBMITTALS," "TESTS," and "INSTALLATION" paragraphs, as applicable.

#### 3.2.1.3 Deletion of Inapplicable Text Material

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

#### 3.2.1.4 References to Specification Sections

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

#### 3.2.1.5 Construction Submittals

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

#### 3.2.2 Commercially Available Guide Specifications

For items of work not covered by the UFGS guide specifications, the Contractor may develop specifications utilizing commercially available construction guide specifications such as "SpecText" published by The Construction Specifications Institute and "MasterSpec" published by The American Institute of Architects. These must be converted to UFGS format to be compatible with the Corps of Engineers Resident Management

System (RMS) and the Specsintact or BSD SpecLink (Building Systems Design, Inc., Atlanta, GA, <http://csi.worldweb.net/technic/master/bsdms.htm> and [http://www.bsdssoftlink.com/speclink/sl\\_frame.htm](http://www.bsdssoftlink.com/speclink/sl_frame.htm)). Do not use DBI/CSI PerSpective to develop the construction specifications. The UFGS format is specified in the Specsintact ARMYSECT.tpl template. Commercially available guide specifications must be converted to the UFGS format in order to develop the submittal register. Use Wordspec to convert the sections to Specsintact SISGML to produce the sections' submittal registers. See paragraph "Required Modifications to Commercial Guide Specifications" concerning references to the "Architect/Engineer" and the "Owner". See Section 01015 DESIGN REQUIREMENTS AFTER AWARD, paragraph DESIGN DOCUMENTS for additional information.

### 3.2.3 Division 1 Sections

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

### 3.2.4 Format ForConstruction Specifications

Submit the construction specifications, including cover page and project table of contents, printed using a word processor. Use the Corps of Engineers Specsintact with SGML, Version 3.0 or higher, software. DO NOT submit sections that were created as straight MSWord documents. Any MSWord sections must be created using MS Word For Windows software with the Specsintact WordSpec Macro installed and engaged. These Word documents must be formatted using the Specsintact menu bars that WordSpec installs on the MSWord desktop. Otherwise, Word documents will not be compatible with Specsintact and WordSpec will not be able to convert the sections to Specsintact for producing the submittal register. Use If any commercially available guide specifications are used and are from a relational database system such as BSD SpecLink, then export the sections to Rich Text Format (RTF) word processing files to convert the sections to MS Word documents for those users who are specified to receive MS Word copies of the specifications.

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

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

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

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

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

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

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

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

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

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

#### 3.2.4.2 Cover Page

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

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

#### 3.2.5 Construction Submittals

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

#### 3.2.6 Submittal Register

An electronic version of the ENG Form 4288 is located on the Solicitation and Contract Award CD-ROM disks in folder "Subreg." This version is the Specsintact DOS Submittal Register program and includes a Readme.txt file. Copy the files to the computer's C:\ drive, remove the read-only attributes, and then double-click on either file "subreg.exe"

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

### 3.3 DESIGN ANALYSES

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

### 3.4 COMMON DESIGN DEFICIENCIES

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

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

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

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

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

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

f. Not providing correct and complete Design Analysis information written in the present tense. The Design Analysis will be written following the format indicated herein. A separate Fire Protection

section in the Design Analysis with input from all disciplines is one area which is often overlooked and shall be included.

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

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

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

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

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

l. Incorrectly listing trade names in door hardware specifications in lieu of ANSI numbers and failure to correctly specify hardware finishes.

m. Control joints in CMU walls and brick expansion joints in face brick are not shown on both architectural plans, elevations and structural plans, or are inconsistent. Note also control joint locating and coordination for floor tile per Tile Council of America recommendations.

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

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

### 3.5 DESIGN CERTIFICATION

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

### 3.6 60 PERCENT PRELIMINARY DESIGN REQUIREMENTS

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

#### 3.6.1 Rendering

The Contractor shall prepare an architectural rendering for inclusion with the 60 percent Design Submittal. Rendering shall be eye-level of

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

### 3.6.2 Drawings

Furnish all drawings that are required for the 100 percent submittal. Except for the demolition and environmental abatement work, all drawings shall be developed to approximately 60 percent completion. Drawings for demolition and environmental abatement work shall be 100 percent complete. The drawings shall be fully coordinated with the design analysis and specifications.

### 3.6.3 Specifications

Provide all specification sections required for 100 percent submittal. Specifications for demolition and environmental abatement work shall be 100 percent complete. All other specifications required for the completion of the building, site work, utilities, turfing, and landscaping shall be at least mark-ups of the required technical and trade sections. Include the identification of the "author" of the industry guide specifications used, any mandatory guide specifications required in this Contract, and a project table of contents listing all sections to be included in the project.

### 3.6.4 Submittal Register

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

### 3.6.4 Design Analysis

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

### 3.6.5 Demolition

Provide the site and building demolition drawings, 100 percent complete, ready to start abatement and demolition work..

### 3.6.6 Civil Design

Include all drawings required for 100 percent completion. Drawings shall fully describe the type and the scope of work required.

### 3.6.7 Landscaping Design

Provide Landscaping Plan, including sprinkler system layout, and any details required for this level of design.

### 3.6.8 Architectural Design

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

### 3.6.9 Interior Design

Provide SID/CID Notebooks and design analysis.

### 3.6.10 Structural Design

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

### 3.6.11 Mechanical Design

Sufficient plans, piping diagrams, sections, flow diagrams, details, schedules, and control diagrams/sequences shall be provided as necessary to define the required design intent at this level of design. Floor plans shall use the architectural floor plans as a basis, with the building outline half-toned. Unless otherwise indicated, all floor plans shall be drawn at a minimum 1:100 (1/8-inch = 1'-0") scale and shall show room names and numbers. Provide preliminary mechanical room sections to ensure that major equipment items, piping, and ductwork will fit as designed. For the 60 percent submittal, all supply and return mains shall be shown as double-lined although branch ducts, takeoffs, and ductwork to diffusers may be single-lined. Piping 6 inches and larger shall be shown as double-lined for the 60 percent submittals.

Complete Attachment C for mechanical room sizing.

### 3.6.12 Electrical Design

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

### 3.6.13 Fire Protection Design

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

### 3.6.14 Environmental Design

Provide the following items for the 60 percent submittal:

- a. Identification of and removal procedures for hazardous materials in Building 350.
- b. Environmental Survey Sampling Plan, 100 percent complete, ready to start abatement and demolition work.
- c. Design Analysis

### 3.7 100 PERCENT DESIGN REQUIREMENTS

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

#### 3.7.1 Drawings

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

#### 3.7.2 Submittal Register

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

#### 3.7.3 Specifications

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

#### 3.7.4 Design Analysis

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

SWD AEIM.

### 3.7.5 Interior Design

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

### 3.7.6 Mechanical Design

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

## 3.8 DESIGN DETAILS

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

### 3.8.1 Demolition

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

#### a. Site Demolition Drawings (Removal Plan)

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

#### b. Building Demolition Drawings (Removal Plan(s))

The type and the scope of removal work intended shall be clear from an inspection of the documents. Show the existing physical features and condition of the site before construction. Show all walls, fixtures, and utilities to be removed. Physical features shall be indicated and noted: to be removed, to remain, or to be relocated.

### 3.8.2 Civil Design

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

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

a. Location Plan and Vicinity Map

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

b. Site Plan

Show all the site layout information necessary to field locate the building, walks, parking lots, and all other appurtenances to be constructed for the project. Identify all site related items such as curbs, pavements, walks, courtyards, bollards, trash enclosures, and retaining walls. Unless otherwise specified, site plans shall be at a scale of 1:400, 1:500, or 1:600 (1" = 20' or 1" = 30'). Existing or proposed contours shall not be shown on this Plan. The Site Plan, prior to adding the dimensions, shall serve as the base sheet to the other Plans, such as the Utilities Plan, Grading and Drainage Plans and the Landscape Plan. The Site Plan will show all existing physical features and utilities within and adjacent to the work site that will remain after the proposed construction has been completed. Include free zones, construction limits, storage areas, etc.

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

c. Grading and Drainage Plan

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

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

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

Provide the appropriate top of structure elevations and pipe invert

elevations of both the new and existing drainage system.

d. Erosion Control Plans

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

e. Composite Utilities Plan With Profiles And Details

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

f. Grading Sections

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

g. Pavement Plan and Details

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

h. Soils Boring Logs

If applicable, provide logs of soil borings provided by the geotechnical engineer.

### 3.8.3 Landscaping

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

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

a. Sprinkler Irrigation Systems

Provide a sprinkler irrigation plan, designating the trees, shrubs,

bushes, ground cover, and lawn area to be irrigated. Provide flow and pressure requirements. Include appropriate details.

### 3.8.4 Architectural Design

#### a. Floor Plans

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

- Overall, Control, Opening, and complete dimensioning
- Room Names and Numbers
- Wall and Building section cuts
- Door Swings and Numbers
- Window Types
- Square Footage
- General Notes

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

#### b. Reflected Ceiling Plans

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

## c. Roof Plan

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

## d. Building Elevations

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

## e. Building Sections

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

## f. Wall Sections

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

## g. Room Finish Schedules

Include signage.

## h. Door, Window, and Louver Schedules

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

## i. Fire Ratings

Clearly indicate wall ratings and fire hazards as required by the National Fire Protection Association Codes (NFPA). See Military Handbook MIL HDBK 1008C, particularly Section 2.1 Basic Criteria and Section 2.1.2 Partitions. In addition to the wall rating criteria required by the Codes, provide a minimum of one-hour rated wall assembly around all Janitors Closets, Store Rooms, Mechanical and Electrical Rooms or Closets. Wall fire ratings shall be graphically shown by a continuous symbol or pattern within the wall on the reflected ceiling plan and/or on a Fire Protection/Life Safety Plan. When other functions coexist with the fire protection functions, their integration shall be clearly indicated with an analysis that describes how both functions will be served. Provide a separate, composite type floor plan which makes an accurate presentation of these various features and functions. By authorized written permission, where the building and features being shown are unusually simple, this information may be included on other drawings. Rated wall details shall include the design number of the

testing laboratory certifying the rating.

j. Modular Design

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

k. Room and Door Numbering

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

l. Facility Elevation

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

m. Access to Utilities

All utilities within the building, such as piping, ductwork, and electrical work, shall be concealed in finished areas unless otherwise specified in the Program and Performance Requirements. Provide plumbing chases in toilet areas. Carefully figure the clear space above ceilings and the size of chases to accommodate piping slopes and connections, ductwork crossovers, and fittings, HVAC piping and valve service spaces, and similar situations. Provide access to valves, cleanouts, etc. Space provided for utilities systems shall be adequate but not excessive.

### 3.8.5 Interior Design

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

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

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

not for material and color samples.

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

c. Sequence and Content of CID Submittal

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

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

Each sample shall indicate color, texture, and finish; and, if patterned, shall be large enough to define full pattern. Samples shall be identified as to type of material, area of installation, manufacturer, and transmittal number under which certification of the material represented will be submitted in accordance with the requirements of Section 01330 CONSTRUCTION SUBMITTAL PROCEDURES.

- (10) Interior Floor Plan(s) And Furniture Layout, including an index keyed to the furniture, furnishings, and art work illustration sheets..
- (11) Signage Location Plans(s).
- (12) Interior Signage Color Boards.
- (13) Furniture and Furnishings Illustration Sheets, for all rooms.
- (14) Art Work Placement Plan and Illustration sheets, including specifications, for all rooms.

### 3.8.6 Structural Design

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

- a. Show the location of all in-wall columns or pilasters.
- b. Foundation and slab plans shall show the size and location of all foundation elements, such as foundation walls, grade beams

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

c. The sizes, locations, and elevations of footings shall be shown.

d. Coordinate slab plans with the Electrical sheets and indicate the locations of in-slab electrical raceway trench ducts or similar items.

e. Show concrete slab-on-grade thicknesses and sections.

f. Show proposed treatment of special foundations and other unique or complex features and details.

g. Provide elevation views, sections, and details necessary to illustrate the design.

h. Roof framing plans shall show sufficient details to clearly indicate the type of framing system used, size, and spacing of members and their elevations.

i. Drawings shall include overall building plan dimensions, north arrows, and design notes.

j. Grid Systems, Dimensions, and Floor Elevations

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

k. Plan Sheets

(1) Foundation and Slab Plans

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

(2) Roof Framing Plans

Roof framing plans shall be provided for all parts of the structure.

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

1. Elevation Views, Sections and Details Sheets

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

(1) Concrete

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

(2) Masonry

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

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

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

(4) Cold-Formed Steel Studs

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

m. Schedules

## (1) Foundation Schedules

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

## (2) Framing Schedules

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

## n. Equipment Loads

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

## o. Notes

## (1) Design Notes

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

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

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

## (2) General Notes

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

## 3.8.7 Mechanical Design

Provide plans, piping diagrams and isometrics, mechanical room sections, water and air flow diagrams, details, schedules, control diagrams, sequence of operations, etc. as necessary to define the required design intent. Floor plans shall use the architectural floor plans as a basis, with the building outline half-toned. Large-scale plans of congested areas shall be provided. Coordinate with architectural design for provision of access panels for all concealed valves, traps and air

vents, etc. Unless otherwise indicated, all floor plans shall be drawn at a minimum 1:100 (1/8-inch = 1'-0") scale and shall show room names and numbers. Drawings shall include, but not limited to, the following:

a. Mechanical Abbreviation, Legend, and General Notes Sheet

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

b. Plumbing Drawings

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

(1) Enlarged toilet room plans showing all fixtures, water, waste, and vent piping for each toilet area.

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

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

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

c. Mechanical HVAC Drawings, Details, and Schedules

Show on mechanical HVAC drawings, all items of mechanical equipment, including boiler room equipment, chilled water equipment, condenser water equipment, air handling units, air distribution and exhaust systems, etc., to clearly illustrate all HVAC system designs, and to determine proper space allocation within the intent of the architectural layout

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

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

d. HVAC Control Drawings

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

### 3.8.8 Electrical Design

Provide plans, electrical and UPS room sections, single-line diagrams, riser diagrams, details, and schedules as necessary to define the required design intent. Coordinate the electrical and communications design with the design for other disciplines. Floor plans shall use the architectural floor plans as a basis with the building outline half-toned. Unless otherwise indicated, all floor plans shall be drawn at a minimum **(AM# 5) 1:100 (1/8-inch = 1 foot)** scale and shall show room names and numbers. Include the following as applicable:

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

Detail the complete electrical system with a simplified one-line diagram. The diagram shall show ratings of major equipment including short circuit ratings. Use standard symbols for electrical equipment including, but not limited to, switchgear, sectionalizing cabinets,

transformers, generators, uninterruptible power systems (UPS), switchboards, panel boards, power distribution units (PDUs), motor control centers (MCCs), motor starters. Include switchgear fuses or circuit breaker ratings; transformer ratings (including K-ratings) and connection configuration; switchboard ratings (including metering); panelboard current and ampere interrupting current (AIC) ratings; PDU ratings (including isolation transformers and K-ratings), raceway and conduit sizes and material type; MCC ratings; motor starter ratings; and conductor and ground type, size, and insulation ratings.

d. Riser Diagrams

e. Power Plan

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

f. Lighting Plan

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

g. Lighting Fixture Schedule

h. Panelboard and PDU Schedules

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

i. Emergency Systems

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

j. Site Plan

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

k. Communications System

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

## 1. Security System

Detail security camera and alarm requirements, and riser diagrams.

## m. Lightning Protection System

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

## n. Grounding System

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

## o. Cathodic Protection System

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

## p. Miscellaneous Details

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

## 3.8.9 Fire Protection Design

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

## a. Fire Protection Plans

Show the following on the fire protection plans:

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

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

## b. Fire Protection Details

Include the following fire protection details:

- mechanical riser diagram, including all pipe sizes;
- electrical riser diagram;
- any necessary sections to show routing of piping or sprinkler head locations, fire service entrance detail, exterior wall

and

slab penetration details, hydraulic design data from flow test provided by Government, hydrant designations from flow test,

and

fire protection symbols list.

## c. Site Plan

Include:

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

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

## d. Life Safety Plan

Show:

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

## 3.8.10 Environmental Design

Provide the following items:

Confirm hazardous materials in Building 350 as listed in Volume 4 Attachment.

Environmental Survey Sampling Plan

Design Analysis

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

- a. The Permitting and/or Approving Authority(ies).
- b. Construction/Operating Permits, Notices, Reviews and/or Approvals required. If, when checking with the agencies, a permit, notice or approval is not required, include a copy of the telephone conversation memorandum or letter from the agency.

c. Time required by the permitting agencies to process the application(s) and issue the permits.

d. Fee schedule including filing/application fees, review fees, emissions fees, certification testing, etc.

e. Monitoring and/or compliance testing requirements.

f. Actual Environmental regulations governing the applications, exemptions, variances, etc. or at a minimum a brief summary of the regulation and title.

3.9 **ATTACHMENTS**

Attachments A, B, and C follow this page.

3.9.1 ATTACHMENT A

**CODE ANALYSIS**

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

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

CHECK LIST

PROJECT NAME \_\_\_\_\_ DATE \_\_\_\_\_

LOCATION \_\_\_\_\_

3.9.1.1 UNIFORM BUILDING CODE ANALYSIS

a. OCCUPANCY CLASSIFICATION (See Table 5A):

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

PRINCIPAL OCCUPANCY \_\_\_\_\_

OTHERS ( SPECIFY ) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

b. TYPE OF CONSTRUCTION :

\_\_\_\_\_

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

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

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

NORTH \_\_\_\_\_

SOUTH \_\_\_\_\_  
EAST \_\_\_\_\_  
WEST \_\_\_\_\_  
OTHER \_\_\_\_\_

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

NORTH \_\_\_\_\_  
SOUTH \_\_\_\_\_  
EAST \_\_\_\_\_  
WEST \_\_\_\_\_  
OTHER \_\_\_\_\_

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

ALLOWABLE:

IF SPRINKLERED: \_\_\_\_\_

ALLOW. AREA INCREASES \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CALCULATED ACTUAL FLOOR AREA:

Floor	Square Footage
-------	----------------

Totals:

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

METERS (FEET): \_\_\_\_\_

STORIES: \_\_\_\_\_

Proposed Height of Building: \_\_\_\_\_

Actual No. of Stories: \_\_\_\_\_

h. COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DESIGNER: \_\_\_\_\_

3.9.1.2 NFPA 101 "LIFE SAFETY CODE"

a. CLASSIFICATION OF OCCUPANCY:

HAZARD OF CONTENTS:

LOW \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ORDINARY \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

HIGH \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. FIRE RESISTIVE REQUIREMENTS:

EXTERIOR WALLS: \_\_\_\_\_ HRS \_\_\_\_\_

INTERIOR WALLS: \_\_\_\_\_ HRS \_\_\_\_\_

STRUCTURAL FRAME: \_\_\_\_\_ HRS \_\_\_\_\_

VERTICAL OPENINGS: \_\_\_\_\_ HRS \_\_\_\_\_

FLOORS: \_\_\_\_\_ HRS \_\_\_\_\_

ROOFS: \_\_\_\_\_ HRS \_\_\_\_\_

EXTERIOR DOORS: \_\_\_\_\_ HRS \_\_\_\_\_

EXTERIOR WINDOWS: \_\_\_\_\_ HRS \_\_\_\_\_

BOILER ROOM ENCLOSURE \_\_\_\_\_ HRS \_\_\_\_\_

OTHER (LIST ) \_\_\_\_\_ HRS \_\_\_\_\_

\_\_\_\_\_ HRS \_\_\_\_\_

\_\_\_\_\_ HRS \_\_\_\_\_

\_\_\_\_\_ HRS \_\_\_\_\_

c. MEANS OF EGRESS:

OCCUPANCY LOAD FACTOR: \_\_\_\_\_

OCCUPANCY	FACTOR	ACTUAL AREA	ACTUAL LOAD

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

d. NUMBER OF EXITS REQUIRED:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

e. MINIMUM WIDTH OF EXITS:

CALCULATED: \_\_\_\_\_

\_\_\_\_\_

ACTUAL: \_\_\_\_\_

\_\_\_\_\_

f. MAXIMUM ALLOWABLE TRAVEL DISTANCE TO EXIT:

\_\_\_\_\_

WITH SPRINKLERS: \_\_\_\_\_

\_\_\_\_\_

g. EXIT DOORS:

MINIMUM WIDTH ALLOWED: \_\_\_\_\_

MAXIMUM LEAF WIDTH ALLOWED: \_\_\_\_\_

WIDTH REQUIRED FOR NO.OF OCCUPANTS: \_\_\_\_\_

\_\_\_\_\_

h. EXIT CORRIDORS:

MAX. COMMON PATH OF TRAVEL: \_\_\_\_\_

MINIMUM ALLOWABLE WIDTH: \_\_\_\_\_

REQUIRED TO HAVE EXIT AT EACH END OF CORRIDOR?

DEAD END CORRIDORS ALLOWED? \_\_\_\_\_

MAXIMUM LENGTH: \_\_\_\_\_

WALL FIRE RESISTANCE REQUIRED: \_\_\_\_\_

DOORS & FRAME FIRE RESISTANCE REQUIRED:

i. STAIRS:

MINIMUM WIDTH \_\_\_\_\_ FOR OCCUP. LOAD OF \_\_\_\_\_

MAX. RISER ALLOWED: \_\_\_\_\_

MINIMUM TREAD ALLOWED: \_\_\_\_\_

LANDINGS:

MIN. SIZE: \_\_\_\_\_

MAX. VERTICAL DIST. BETWEEN LANDINGS: \_\_\_\_\_

REQUIRED HEIGHT OF RAILINGS:

HANDRAILS:

REQUIRED AT EACH SIDE? \_\_\_\_\_

INTERMEDIATE RAIL REQUIRED? \_\_\_\_\_

HEIGHT ABOVE NOSING \_\_\_\_\_

INTERMEDIATE RAIL REQUIRED? \_\_\_\_\_

MAX. SPACE ALLOWED BETWEEN RAILS: \_\_\_\_\_

STAIR ENCLOSURE REQUIRED? \_\_\_\_\_

STAIR TO ROOF REQUIRED? \_\_\_\_\_

STAIR TO BASEMENT REQUIRED? \_\_\_\_\_

j. HATCHWAY ACCESS TO ROOF REQUIRED? \_\_\_\_\_

k. LADDER ACCESS TO ROOF REQUIRED?

l. HORIZONTAL EXIT REQUIREMENTS:

m. PROTECTION OF OPENINGS NEAR EXTERIOR STAIR EXIT DOORS:

n. SMOKEPROOF ENCLOSURE REQUIRED:

o. RAMPS:

MAX. SLOPE TO USE AS EXIT \_\_\_\_\_  
HANDRAILS REQUIRED? \_\_\_\_\_

p. COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DESIGNER: \_\_\_\_\_

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

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

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

3.9.2 ATTACHMENT B

**ADA ARCHITECTURAL DESIGN CHECKLIST**

Project Name:\_\_\_\_\_

Project Location:\_\_\_\_\_

Design Phase:\_\_\_\_\_

ITEM

INCORP N/A

LATER

NO.

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

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

3. Facility is designed utilizing:  
New Construction Criteria \_\_\_\_\_  
Building Alteration Criteria \_\_\_\_\_  
Historic Building Preservation Criteria: \_\_\_\_\_

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

5. Ramps:  
- Maximum slopes less than 1:12 \_\_\_\_\_  
- Maximum run less than \_\_\_\_\_  
30 feet for 1:12 slopes \_\_\_\_\_  
40 feet for 1:16 slopes \_\_\_\_\_  
- Minimum clear width exceeds 914mm. \_\_\_\_\_  
- Provided proper edge protection. \_\_\_\_\_  
- Provided handrails of proper configuration and diameter. \_\_\_\_\_  
- Provided proper handrail extensions at top and bottom of ramp. \_\_\_\_\_  
  
- Provided handrails at proper mounting heights. \_\_\_\_\_  
- Provided proper landings. \_\_\_\_\_  
- Provided proper cross slope on ramp surface. \_\_\_\_\_



ITEM  
 INCORP  
 N/A  
 LATER  
 NO.

- 6. Stairs:
  - Protected the space below stairs from access by the blind. \_\_\_\_\_
  - Provided handrails of proper configuration and diameter. \_\_\_\_\_
  - Provided proper handrail extensions at top and bottom of stairs. \_\_\_\_\_
  - Provided handrails at proper mounting heights. \_\_\_\_\_
  - Provided treads greater than 280mm in width. \_\_\_\_\_
  - Provided Proper nosings. \_\_\_\_\_
  
- 7. Elevators:
  - Provided buttons and lanterns at the proper mounting height. \_\_\_\_\_
  - Provided Braille characters. \_\_\_\_\_
  - Provided proper door widths. \_\_\_\_\_
  - Provided proper clearance inside elevator car. \_\_\_\_\_
  
- 8. Doors And Hardware:
  - Provided proper door widths. \_\_\_\_\_
  - Provided proper clearance on both sides of jambs. \_\_\_\_\_
  - Entrance vestibules provided with adequate clearances. \_\_\_\_\_
  - Provided levers on locksets and exit hardware. \_\_\_\_\_
  - Provided closers with mechanical adjustments. \_\_\_\_\_
  - Provided accessible thresholds. \_\_\_\_\_
  - Provided protection plates on doors heavily used by wheel chair bound people. \_\_\_\_\_

ITEM INCORP NO.	N/A	LATER			
9.			Toilet Facilities:		
			- Provided proper floor clearance through out the toilet rooms.	_____	_____
			- Provided minimum number of required accessible fixtures.	_____	_____
			- Provided accessible toilet stalls.	_____	_____
			- Provided stall doors with correct direction of swing.	_____	_____
			- Provided accessible water closets.	_____	_____
			- Provided grab bars at accessible water closets.	_____	_____
			- Provided grab bars with correct configuration and dimension.	_____	_____
			- Provided accessible sinks/lavatories.	_____	_____
			- Provided accessible urinals.	_____	_____
			- Provided accessible water coolers and fountains.	_____	_____
			- Provided accessible mirrors.	_____	_____
			- Provided accessible toilet accessories at required locations.	_____	_____
			- Provided all fixtures and accessories at proper mounting heights and clearances.	_____	_____
			- Provided insulated or protected exposed pipes at lavatories.	_____	_____
10.			Shower/Tub Facilities:		
			- Provided the minimum number of accessible showers/tubs.	_____	_____
			- Provided showers/tubs with grab bars.	_____	_____
			- Provided showers/tubs with seats as required.	_____	_____
			- Provided controls mounted at the proper height and location.	_____	_____
			- Provided proper clearances and dimensions in showers/tubs.	_____	_____
			- Provided proper floor clearance through out shower/tubs rooms.	_____	_____
			- Provided doors with correct direction of swing and clearance.	_____	_____

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

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

card catalogs and magazine displays. \_\_\_\_\_  
- Provide stacks with minimum clear aisle width. \_\_\_\_\_

\_\_\_\_\_

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

20. Transportation Facilities:

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



3.9.3 ATTACHMENT C

MECHANICAL ROOM SIZE FORM

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

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

\*\*\*\*\*

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

Project:

Location:

Engineer:

Gross floor area of building:

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

Floor area of mechanical room:

Percent of gross building area is the mechanical room size:

Type of facility:

Sources of energy (E, G, S):

Mechanical equipment:

List of equipment outside the mechanical room and location:

Is the mechanical room too small?

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

Additional remarks:

Abbreviations:

- AC - air compressor
- AHU - air handling unit
- B - boiler
- CU - air cooled condensing unit

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

-- End of Section --