# AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

| 1. CONTRACT ID CODE | PAGE | OF | PAGES |
|---|---|---|---|
| J | 1 | | 5 |

| 2. AMENDMENT/MODIFICATION NUMBER | 3. EFFECTIVE DATE | 4. REQUISITION/PURCHASE REQUISITION NUMBER | 5. PROJECT NUMBER *(If applicable)* |
|---|---|---|---|
| 0003 | 11 AUG 2026 | | 456277 |

6. ISSUED BY CODE W9126G

W076 ENDIST FT WORTH
KO CONTRACTING DIVISION, 819 TAYLOR ST BOX 17300
FORT WORTH, TX 76102-6124
UNITED STATES
CHRISTINE NORIEGA, EMAIL: CHRISTINE.NORIEGA@USACE.ARMY.MIL
TELEPHONE: (817) 886-1104

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

SCD: PAS:

8. NAME AND ADDRESS OF CONTRACTOR *(Number, street, county, State and ZIP Code)*

CODE FACILITY CODE

(X)

☒ 9A. AMENDMENT OF SOLICITATION NUMBER
W9126G26RA028

9B. DATED *(SEE ITEM 11)*
22 JUN 2026

☐ 10A. MODIFICATION OF CONTRACT/ORDER NUMBER

10B. DATED *(SEE ITEM 13)*

## 11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☒ is extended. ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
(a) By completing items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or electronic communication, provided each letter or electronic communication 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)*
SEE SECTION G - CONTRACT ADMINISTRATION DATA

## 13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NUMBER AS DESCRIBED IN ITEM 14.

| CHECK ONE | |
|---|---|
| ☐ | A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NUMBER IN ITEM 10A. |
| ☐ | B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation data, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b). |
| ☐ | C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: |
| ☐ | D. OTHER *(Specify type of modification and authority)* |

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

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

See Schedule

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

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

SECTION SF 30 BLOCK 14 CONTINUATION PAGE
**SUMMARY OF CHANGES**
**CHANGES TO SOLICITATION W9126G26RA028**

* Effective 2:00 p.m. on 11 Aug 26, ProjNet will remain open only for comments directly related to Amendments 3 or 4. The CORPS defines "new" comments as those posted after 2:00 p.m. on 11 Aug 26. The CORPS will respond only to new comments directly related to Amendments 3 or 4; comments unrelated to those amendments will not receive a response. ProjNet will close to all comments on 18 Aug 26. Bid Opening will be extended from 18 Aug 26 to 25 Aug 26.

**CHANGES TO PROPOSAL RECEIPT DATE**

1. Proposal Receipt Date: Change the proposal receipt date from "18 August 2026, 2:00 p.m. CT" to "25 August 2026, 2:00 p.m. CT ".

**CHANGES TO THE SPECIFICATIONS**

2. Added Sections: The following section has been added to the solicitation, bearing the notation W9126G26RA028-0003:

| | |
|---|---|
| 09 30 10 | CERAMIC, QUARRY, AND GLASS TILING |
| 11 81 29 | HORIZONTAL FALL PROTECTION |

3. Replacement Sections: The following sections have been updated and replaced with the accompanying new sections of the same number and title bearing the notation W9126G26RA028-0003:

| | |
|---|---|
| | PROJECT TABLE OF CONTENTS |
| 00 73 00 | SUPPLEMENTARY CONDITIONS |
| 01 00 00.00 44 | CONSTRUCTION SCHEDULE |
| 01 33 00 | SUBMITTAL PROCEDURES |
| | SUBMITTAL REGISTER |
| 01 35 17.00 44 | SPECIAL PROJECT PROCEDURES FOR LACKLAND AIR FORCE BASE |
| 01 50 00.17 44 | TEMPORARY CONSTRUCTION FACILITIES FOR LACKLAND AFB |
| 01 52 00.00 44 | GOVERNMENT FIELD OFFICE |
| 01 57 20 | ENVIRONMENTAL PROTECTION |
| 01 78 00 | CLOSEOUT SUBMITTALS |
| 03 45 00 | PRECAST ARCHITECTURAL AND STRUCTURAL CONCRETE |
| 08 51 13 | ALUMINUM WINDOWS INCLUDING FIRE RATED EXTERIOR WINDOWS |
| 09 51 00 | ACOUSTICAL CEILINGS |
| 11 40 00 | FOODSERVICE EQUIPMENT |
| 31 00 00 | EARTHWORK |

4. Deleted Sections: The following section have been deleted from the solicitation:

| | |
|---|---|
| 08 33 23 | OVERHEAD COILING DOORS |
| 08 44 00 | CURTAIN WALLS |

**CHANGES TO THE DRAWINGS**

5. Replacement Drawings: The drawings listed below are being replaced with the attached new drawings(s) of the same number, bearing the notation W9126G26RA028-0003:

D4-A-114 FIRST FLOOR REFLECTED CEILING PLAN – AREA A

- Added mechanical access panels.

D4-A-116 SECOND FLOOR REFLECTED CEILING PLAN – AREA A

- Added callouts to 17/D4-A-510 to detail ceiling elevation change. Added mechanical access panels.

D4-A-118 THIRD FLOOR REFLECTED CEILING PLAN

- Added callouts to 17/D4-A- 510 to detail ceiling elevation change. Added mechanical access panels.

D4-A-119 ROOF PLAN – AREA A

- Removed unnecessary keynote #9 symbol.

D4-A-307 CURVED PORCH WALL SECTIONS

- Updated note to indicate delegated design for cold-formed metal soffit framing.

D4-A-502 PARTITION TYPES AND DETAILS

- Revised Detail 5 to remove perimeter drain.

D4-A-505 SECTION DETAILS

- Added note to indicate precast connection angle to be determined by precast manufacturer.

D4-A-507 ROOF DETAILS

- Revised Detail 8, Roof Scupper, to better coordinate with structural roof details..

D4-A-510 CEILING DETAILS

- Added Detail 17, Classroom Ceiling Transition, to demonstrate transition between 11' and 12' ceilings in second and third floor classrooms.

D4-A-604 WINDOW TYPES

- Revised Detail 1, Window Types, to change window types C and H from curtain wall to fixed window systems. See responses to Bidder Inquiries 11937173 and 11937181 for additional information. Revised Detail 2 to include a coordination note for the jamb sealant condition. Revised Detail 4 sill pan flashing/receptor requirements.

D4-CS505 CONSTRUCTION FENCE DETAILS

- Removed sheet note 4; contractor will not be responsible for removing site fencing at end of the project.

D4-CU100 UTILITY SITE PLAN

- Added duct bank between ATC8 and DCF4 for reference. Additional detail is provided in D4-ES101

D4-EP100 CRAWL SPACE POWER PLAN

- Added conduit in crawl space to connect emergency power from EB2 to ATS in electrical room.

D4-ES101 ELECTRICAL SITE PLAN

- Added duct bank to facilitate emergency power from EB2 to DCF4.

D4-ES504 ELECTRICAL DETAILS

- Added two-way concrete duct bank.

D4-G-103 WEST CAMPUS CONSTRUCTION AREA PLAN

- Added gate on haul road. Adjusted mowing and fence maintenance area. Identified fence that requires one-time fabric removal.

D4-I-101 FIRST FLOOR FURNITURE PLAN

- Changed EQ-7, Exam Table, from Contractor Furnished Contractor Installed (CFCI) to Not in Contract (NIC).

D4-I-107 FIRST FLOOR SIGNAGE PLAN

- Locations of Sign Type C2 and D2 changed near stairs for improved clarity.

D4-I-108 SECOND FLOOR SIGNAGE PLAN

- Locations of Sign Type C2, D2, and J2 changed near stairs for improved clarity.

D4-I-109 THIRD FLOOR SIGNAGE PLAN

- Locations of Sign Type C2, D2, and J2 changed near stairs for improved clarity.

D4-I-502 INTERIOR DETAILS

- Adjusted floor details for walk-in freezer.

D4-I-602 FINISH SCHEDULE

- Finish schedule for ceiling in Rooms 156 and 158 revised to cement board with HBC-1. Updated south and east wall finishes in rooms as noted.

D4-I-603 FINISH SCHEDULE

- Updated south and east wall finishes on noted rooms.

D4-I-604 SIGNAGE TYPES

- Added sign type C2.

D4-I-605 SIGNAGE SCHEDULE

- Provided full update to signage schedule.

D4-KA101A KITCHEN SCHEDULE

- Revised item #69 to reflect a quantity of six (6).

D4-M-400 ENLARGED MECHANICAL ROOM PLANS

- Updated VFD tag for VFD-D4-6. Added and adjusted dimensions for clarity.

D4-P-101 CRAWL SPACE PLUMBING PLAN

- Changed Keynote 5 to “Not Used” and updated detail reference in Keynote 6 to 8/D4-P501.

D4-P-404 ENLARGED PLUMBING PLANS

- Revised detail reference in keynote 3 for accuracy. Updated keynote 7 to outline utility coordination. Added keynote 9 to reference 2/D4-P-904.

D4-P-601 PLUMBING SCHEDULES

- Added master mixing valve to and area drain to plumbing fixture schedule.

D4-P-904 PLUMBING ISOMETRICS

- Added callout to Detail 2 to indicate 2” condensate drain in plumbing chase.

D4-S-501 - TYPICAL CONCRETE DETAILS

- Updated Detail 14 to include PI ranges for the clay cap.

D4-S-504 - CONCRETE DETAILS

- Updated Detail 16 concrete slab thickness to 4” and noted final topping slab thickness must be coordinated with the freezer supplier.

D4-TS101 COMMUNICATIONS SITE PLAN

- Revised drawing and supplemented keynotes to provide specific guidance for communications requirements.

D4-TS601 COMMUNICATIONS OSP RISER DIAGRAM

- Provided new guidance on fiber and copper to be terminated at manholes C-22 and MH-4..

End of Summary of Changes

**PROJECT TABLE OF CONTENTS**

<AMENDMENT 0002>

<AMENDMENT 0003>

**DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS**

00 00 01 SOLICITATION, OFFER AND AWARD, SF-1442
00 10 00 CONTRACT LINE ITEM SCHEDULE
00 21 00 INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS
00 21 16 INSTRUCTIONS TO OFFERORS
00 22 16 SUPPLEMENTARY INSTRUCTIONS TO PROPOSERS
00 45 00 REPRESENTATIONS AND CERTIFICATIONS
00 70 00 CONDITIONS OF THE CONTRACT
00 72 00 GENERAL CONDITIONS
00 73 00 SUPPLEMENTARY CONDITIONS

**DIVISION 01 - GENERAL REQUIREMENTS**

01 00 00.00 44 CONSTRUCTION SCHEDULE
01 30 00 ADMINISTRATIVE REQUIREMENTS
01 32 01.00 10 PROJECT SCHEDULE
01 33 00 SUBMITTAL PROCEDURES
01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING
01 35 13.10 00 SPECIAL PROCEDURES-SURVEYING
01 35 13.20 00 SPECIAL PROJECT PROCEDURES-CAD
01 35 13.30 00 SPECIAL PROJECT PROCEDURES-GIS
01 35 17.00 44 SPECIAL PROJECT PROCEDURES FOR LACKLAND AIR FORCE BASE
01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS
01 42 00 SOURCES FOR REFERENCE PUBLICATIONS
01 45 00 QUALITY CONTROL
01 45 00.15 10 RESIDENT MANAGEMENT SYSTEM CONTRACTOR MODE (RMS CM)
01 45 35 SPECIAL INSPECTIONS AND SPECIAL INSPECTION FOR PROGRESSIVE COLLAPSE
01 50 00.17 44 TEMPORARY CONSTRUCTION FACILITIES FOR LACKLAND AFB
01 52 00.00 44 GOVERNMENT FIELD OFFICE
01 56 00 DUST CONTROL
01 57 20 ENVIRONMENTAL PROTECTION
01 57 23 TEMPORARY STORM WATER POLLUTION CONTROL
01 57 24.01 44 STORM WATER POLLUTION PREVENTION PLAN (TEXAS)
01 57 25.00 44 SWPP PLAN INSPECTION AND MAINTENANCE REPORT FORM
01 58 00 PROJECT IDENTIFICATION
01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
01 78 00 CLOSEOUT SUBMITTALS
01 78 23 OPERATION AND MAINTENANCE DATA
01 91 00.15 10 TOTAL BUILDING COMMISSIONING

**DIVISION 03 - CONCRETE**

03 30 00 CAST-IN-PLACE CONCRETE
03 41 33 PRECAST STRUCTURAL PRETENSIONED CONCRETE
03 45 00 PRECAST ARCHITECTURAL AND STRUCTURAL CONCRETE

**DIVISION 04 - MASONRY**

04 20 00 UNIT MASONRY

**DIVISION 05 - METALS**

05 05 23.13 10 ULTRASONIC INSPECTION OF WELDMENTS
05 05 23.16 STRUCTURAL WELDING
05 12 00 STRUCTURAL STEEL

05 21 00 STEEL JOIST FRAMING
05 30 00 STEEL DECKS
05 40 00 COLD-FORMED METAL FRAMING
05 50 13 MISCELLANEOUS METAL FABRICATIONS
05 51 00 METAL STAIRS
05 51 33 METAL LADDERS
05 52 00 METAL RAILINGS

**DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES**

06 10 00 ROUGH CARPENTRY
06 41 16.00 10 PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS
06 61 16 SOLID SURFACING FABRICATIONS

**DIVISION 07 - THERMAL AND MOISTURE PROTECTION**

07 05 23 PRESSURE TESTING AN AIR BARRIER SYSTEM FOR AIR TIGHTNESS
07 13 53 ELASTOMERIC SHEET WATERPROOFING
07 14 10 WATERPROOF FLOORING MEMBRANE
07 17 00 BENTONITE WATERPROOFING
07 21 13 BOARD AND BLOCK INSULATION
07 21 16 MINERAL FIBER BLANKET INSULATION
07 22 00 ROOF AND DECK INSULATION
07 26 16 BELOW GRADE VAPOR RETARDERS
07 27 10.00 10 BUILDING AIR BARRIER SYSTEM
07 27 26 FLUID-APPLIED MEMBRANE AIR BARRIERS
07 27 36 SPRAY FOAM AIR BARRIERS
07 41 13 METAL ROOF PANELS
07 42 13 METAL WALL PANELS
07 54 19 POLYVINYL-CHLORIDE ROOFING
07 60 00 FLASHING AND SHEET METAL
07 81 00 SPRAY-APPLIED FIREPROOFING
07 84 00 FIRESTOPPING
07 92 00 JOINT SEALANTS

**DIVISION 08 - OPENINGS**

08 11 13 STEEL DOORS AND FRAMES
08 11 16 ALUMINUM DOORS AND FRAMES (INCLUDING FIRE RATED ENTRANCE DOORS)
08 22 20 FIBERGLASS REINFORCED PLASTIC (FRP) DOORS AND FRAMES
08 31 00 ACCESS DOORS AND PANELS
<AM#0003>~~08 33 23~~ ~~OVERHEAD COILING DOORS~~</AM#0003>
<AM#0002>08 33 43 OVERHEAD COILING SMOKE CURTAINS FOR ELEVATOR DOORS</AM#0002>
08 41 13 ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS
<AM#0003>~~08 44 00~~ ~~CURTAIN WALL AND GLAZED ASSEMBLIES~~</AM#0003>
08 51 13 ALUMINUM WINDOWS (INCLUDING FIRE RATED EXTERIOR WINDOWS)
08 71 00 DOOR HARDWARE
08 81 00 GLAZING
08 91 00 METAL WALL LOUVERS

**DIVISION 09 - FINISHES**

09 22 00 SUPPORTS FOR PLASTER AND GYPSUM BOARD
09 29 00 GYPSUM BOARD
<AM#0003>09 30 10 CERAMIC, QUARRY, AND GLASS TILING</AM#0003>
09 51 00 ACOUSTICAL CEILINGS
09 65 00 RESILIENT FLOORING
<AM#0002>09 67 23.13 RESINOUS FLOORING</AM#0002>

<AM#0002> ~~09 67 23.14~~ ~~CHEMICAL RESISTANT RESINOUS FLOORING~~</AM#0002>
09 68 00 CARPETING
09 84 20 ACOUSTICAL WALL PANELS
09 90 00 PAINTS AND COATINGS
09 96 59 HIGH-BUILD GLAZE COATINGS

**DIVISION 10 - SPECIALTIES**

10 11 00 VISUAL DISPLAY UNITS
10 14 00.20 INTERIOR SIGNAGE
10 21 13 TOILET COMPARTMENTS
10 26 00 WALL AND DOOR PROTECTION
10 28 13 TOILET ACCESSORIES
10 44 16 FIRE EXTINGUISHERS
10 51 13 METAL LOCKERS
10 52 00 LOCKER BENCHES

**DIVISION 11 - EQUIPMENT**

11 13 00 LOADING DOCK EQUIPMENT
11 40 00 FOODSERVICE EQUIPMENT
<AM#0003>11 81 29 HORIZONTAL FALL PROTECTION</AM#0003>

**DIVISION 12 - FURNISHINGS**

12 48 13 ENTRANCE FLOOR MATS AND FRAMES
12 50 00.13 10 FURNITURE AND FURNITURE INSTALLATION
12 65 00 FIXED SEATING AND FIXED TRAINING TABLES

**DIVISION 14 - CONVEYING EQUIPMENT**

14 24 23 HYDRAULIC PASSENGER ELEVATORS

**DIVISION 21 - FIRE SUPPRESSION**

21 12 00 STANDPIPE SYSTEMS
21 13 13 WET PIPE SPRINKLER SYSTEMS, FIRE PROTECTION

**DIVISION 22 - PLUMBING**

22 00 00 PLUMBING, GENERAL PURPOSE

**DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)**

23 03 00.00 20 BASIC MECHANICAL MATERIALS AND METHODS
23 05 48.00 40 VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT
23 05 93 TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00 THERMAL INSULATION FOR MECHANICAL SYSTEMS
23 08 00.00 20 COMMISSIONING OF MECHANICAL AND PLUMBING SYSTEMS
23 09 00 INSTRUMENTATION AND CONTROL FOR HVAC
23 09 13.34 40 CONTROL VALVES, SELF-CONTAINED
23 09 23.02 BACNET DIRECT DIGITAL CONTROL FOR HVAC AND OTHER BUILDING CONTROL SYSTEMS
23 30 00 HVAC AIR DISTRIBUTION
23 64 26 CHILLED, CHILLED-HOT, AND CONDENSER WATER PIPING SYSTEMS
23 82 00.00 20 TERMINAL HEATING UNITS

**DIVISION 25 - INTEGRATED AUTOMATION**

25 05 11.01 CYBERSECURITY FOR FACILITY-RELATED CONTROL SYSTEMS (HVAC)
25 05 11.02 CYBERSECURITY FOR FACILITY-RELATED CONTROL SYSTEMS (ACS)
25 05 11.03 CYBERSECURITY FOR FACILITY-RELATED CONTROL SYSTEMS (FIRE ALARM/FIRE SUPPRESSION)
25 05 11.04 CYBERSECURITY FOR FACILITY-RELATED CONTROL SYSTEMS (LIGHTING)
25 05 11.06 CYBERSECURITY FOR FACILITY-RELATED CONTROL SYSTEMS (CONFIGURABLE SYSTEMS)
25 08 10 UTILITY MONITORING AND CONTROL SYSTEM TESTING

**DIVISION 26 - ELECTRICAL**

26 08 00 APPARATUS INSPECTION AND TESTING
26 20 00 INTERIOR DISTRIBUTION SYSTEM
26 24 13 SWITCHBOARDS
26 27 13.10 30 ELECTRIC METERS
26 28 01.00 10 COORDINATED POWER SYSTEM PROTECTION
26 29 23 ADJUSTABLE SPEED DRIVE (ASD) SYSTEMS UNDER 600 VOLTS
26 36 23 AUTOMATIC TRANSFER SWITCHES AND BY-PASS/ISOLATION SWITCH
26 41 00 LIGHTNING PROTECTION SYSTEM
26 51 00 INTERIOR LIGHTING
26 56 00 EXTERIOR LIGHTING

**DIVISION 27 - COMMUNICATIONS**

27 10 00 BUILDING TELECOMMUNICATIONS CABLING SYSTEM

**DIVISION 28 - ELECTRONIC SAFETY AND SECURITY**

28 08 10 ACCESS CONTROL SYSTEM ACCEPTANCE TESTING
28 10 05 ACCESS CONTROL SYSTEMS (ACS)
28 31 76 INTERIOR FIRE ALARM AND MASS NOTIFICATION SYSTEM, ADDRESSABLE

**DIVISION 31 - EARTHWORK**

31 00 00 EARTHWORK
31 63 26 DRILLED CAISSONS

**DIVISION 32 - EXTERIOR IMPROVEMENTS**

32 01 19.61 SEALING OF JOINTS IN RIGID PAVEMENT
32 05 33 LANDSCAPE ESTABLISHMENT
32 11 13.13 LIME TREATED SUBGRADE
32 11 23 AGGREGATE BASE COURSE
32 12 13 BITUMINOUS TACK AND PRIME COATS
32 12 16.16 ROAD-MIX ASPHALT PAVING
32 13 14.13 CONCRETE PAVING FOR HEAVY DUTY PAVEMENTS
32 16 19 CONCRETE CURBS, GUTTERS AND SIDEWALKS
32 84 24 IRRIGATION SPRINKLER SYSTEMS
32 92 23 SODDING
32 93 00 EXTERIOR PLANTS

**DIVISION 33 - UTILITIES**

33 11 00 WATER UTILITY DISTRIBUTION PIPING
33 30 00 SANITARY SEWERAGE
33 40 00 STORMWATER UTILITIES

33 71 02 UNDERGROUND ELECTRICAL DISTRIBUTION
33 82 00 TELECOMMUNICATIONS OUTSIDE PLANT (OSP)

**APPENDIX**

APPENDIX A JUSTIFICATION & APPROVAL

-- End of Project Table of Contents --

# Section 00 73 00 - Supplementary Conditions

## SPEACIAL CONTRACT REQUIREMENTS

RFO 52.229-11 AND 52.229-12:

1) RFO provision 52.229-11 and RFO clause 52.229-12

RFO provision 52.229-11 and RFO clause 52.229-12 are included in this solicitation. This provision and clause concern the imposition of a 2 percent Federal excise tax withholding on any resultant contract award or payment request. This rule applies to Federal Government contracts for goods or services that are awarded to foreign persons - such as foreign contractors. It implements the Department of the Treasury's final regulations published in the Federal Register at 81 FR 55133 on August 18, 2016, under section 5000C of the Internal Revenue Code relating to the 2 percent tax on payments made by the U.S. Government to foreign persons pursuant to certain contracts.

Pursuant to the RFO 52.229-3 Federal, State, and Local Taxes, taxes imposed under 26 U.S.C. 5000 C may not be included in the contract price or reimbursed.

Exemptions from this excise tax must be claimed by an Offeror when it submits, with its offer, a U. S. Department of Treasury Internal Revenue Service (IRS) Form W-14, Certificate of Foreign Contracting Party Receiving Federal Procurement Payments, available via the internet at www.irs. gov/W14. If not submitted with the offer, exemptions will not be applied to any resulting contract and the Government will withhold a full 2 percent on each contract payment. Failure to submit an IRS Form W-14 with each payment request will also result in an automatic withholding of 2 percent from the payment request.

When filling out the IRS Form W-14 the following information may be used to complete Part I, Lines 6 and 7.

Line 6 Contract/reference number: W9126G26RA028

Line 7 "Name and address of the acquiring agency": Fort Worth District, 819 Taylor Street, Fort Worth, Texas 76102.

Any exemption claimed and self-certified is subject to audit by the IRS. Any disputes concerning this tax are adjudicated by the IRS because the Section 5000C tax is a tax matter not a contract issue.

Offerors are encouraged to seek guidance from their own tax professionals for advice concerning the provision, clause, and exclusions exclusion/submission of IRS Form W-14. Additional information is also available at:

Notwithstanding the above, the USACE does not have a means of withholding this excise tax at this time. As a result, contractors are expected to comply with the instructions above and to

properly complete and return the W-14 at proposal submission, and with each pay application. The amount due for each withholding will be confirmed by USACE BUT WILL NOT BE WITHHELD. It is the contractor's responsibility to set aside, or remit to the IRS, the amount confirmed by USACE. Whether the contractor sets the money aside for future payment to the IRS, or makes payment to the IRS, is the contractor's discretion, based on its analysis of the regulations regarding the excise tax. In the event that USACE is able to withhold during contract performance, it will notify the contractor and make such a withholding (including any catch-up withholdings); no advance notice is required to the contractor prior to the withholding. Under no circumstances is USACE liable for any tax not paid by the contractor. The contractor is liable for the tax, to the extent required by law, regardless of whether USACE makes a withholding.

RFO 29.204 expressly states that "[a]agencies merely withhold the tax (section 5000C tax) for the Internal Revenue Service (IRS). All substantive issues regarding the underlying section 5000C tax, e.g., the imposition of, and exemption from the tax, are matters under the jurisdiction of the IRS." Therefore, we cannot help you determine how the tax law applies to you. We strongly recommend that you contact the IRS and/or a tax professional should you have any questions of this nature. To be clear, this information does not constitute tax advice or a representation of your tax liability. Furnishing this information does not create liability for the USACE for any Federal, state, or local taxes applicable to the above-referenced contract or any other contract.
**********

**FOR SUBMISSION REQUIREMENTS AND BASIS OF EVALUATION**

Executed RFO Provision 52.229-11.

Completed IRS Form W-14, Certificate of Foreign Contracting Party Receiving Federal Procurement

Payments, if applicable. If not submitted with the offer, exemptions will not be applied to any resulting contract and the Government will withhold a full 2 percent on each payment.

*** END OF NARRATIVE ***

# APPLICATION OF WAGE DECISIONS

**Solicitation Number:** W9126G26RA028

**Project:** Basic Military Training (BMT) Classroom Dining Facility 4

**Location:** Joint Base San Antonio, Texas

**County:** Bexar County, Texas

1. **Service Contract Act (SCA)** Wage Determination **Number 2015-5253, Revision Number <AM#0003> ~~28~~ </AM#0003> <AM#0003> 29, </AM#0003> Last Revision Date <AM#0003> ~~12/03/2025~~ </AM#0003> <AM#0003> 05/13/2026 </AM#0003>** will be applicable to those activities performed with regard to contract installation support requirements for certain minor maintenance repairs, clerical support services, custodial services, custodial services, grounds maintenance and landscaping.

This **wage determination will be used for work issued for demolition activates where no further construction will be performed at the site of the demolition.**

2. **Construction Wage Rate Requirements**, **Davis-Bacon Act Wage Determination, TX20260231, Building Construction Projects**, will be applicable to Building construction, alteration, painting or repair of buildings, installations within buildings, appurtenances to buildings, foundations for buildings, excavation and fill for buildings, and utilities within five feet of buildings for those construction activities performed in **Bexar County, Texas.**

3. **Construction Wage Rate Requirements, Davis-Bacon Act Wage Decision, TX20260291, Highway Construction Projects**, is applicable to Highway construction activities – concrete pavement, curbs, fencing, highway signs, parking lots and street paving which are not incidental to building and heavy construction, and all construction requirements not shown in the paragraphs above for those activities performed in **Bexar County, Texas.**

4. **Construction Wage Rate Requirements, Davis-Bacon Act Wage Decision, TX20260007, Heavy Construction Projects**, is applicable to Heavy construction activities – pipe lines, sewers, sewage collection and disposal lines, water and sewage treatment plants (other than buildings), riprap, wells, flood (erosion) control, and other construction activities which are not incidental to other construction project decisions being performed in **Bexar County, Texas.**

**NOTE**: **Payroll records are required, under the Davis-Bacon Act, to be submitted to the U.S. Army Corps of Engineers** for all construction work performed.

The Wage Decision Number applicable to the work performed is to be shown on all certified payroll records submitted. If **multiple wage decisions are utilized within a pay period, so clearly annotate those work hours, and rates-of-pay per the applicable wage decision under which the work was performed.**

**Wage rate compliance will be checked against the highest rate** noted for the craft from all contract wage decisions if the applicable wage decision number to be applied is not shown on the payroll record.

W9126G26RA028-0003

"

REGISTER OF WAGE DETERMINATIONS UNDER
THE SERVICE CONTRACT ACT
By direction of the Secretary of Labor

U.S. DEPARTMENT OF LABOR
EMPLOYMENT STANDARDS ADMINISTRATION
WAGE AND HOUR DIVISION
WASHINGTON D.C. 20210

Daniel W. Simms
Director

Division of
Wage Determinations

Wage Determination No.: 2015-5253
Revision No.: 29
Date Of Last Revision: 5/13/2026

State: Texas

Area: Texas Counties of Atascosa, Bandera, Bexar, Comal,
Guadalupe, Kendall, Medina and Wilson

**Fringe Benefits Required Follow the Occupational Listing**

| OCCUPATION CODE - TITLE | FOOTNOTE | RATE |
|---|---|---|
| 01000 - Administrative Support And Clerical Occupations | | |
| 01011 - Accounting Clerk I | | 17.91 |
| 01012 - Accounting Clerk II | | 20.10 |
| 01013 - Accounting Clerk III | | 22.48 |
| 01020 - Administrative Assistant | | 32.87 |
| 01035 - Court Reporter | | 38.74 |
| 01041 - Customer Service Representative I | | 16.36 |
| 01042 - Customer Service Representative II | | 17.85 |
| 01043 - Customer Service Representative III | | 20.04 |
| 01051 - Data Entry Operator I | | 16.12 |
| 01052 - Data Entry Operator II | | 17.59 |
| 01060 - Dispatcher, Motor Vehicle | | 21.11 |
| 01070 - Document Preparation Clerk | | 19.48 |
| 01090 - Duplicating Machine Operator | | 19.48 |
| 01111 - General Clerk I | | 15.29 |
| 01112 - General Clerk II | | 16.68 |
| 01113 - General Clerk III | | 18.73 |
| 01120 - Housing Referral Assistant | | 23.30 |
| 01141 - Messenger Courier | | 18.58 |
| 01191 - Order Clerk I | | 16.03 |
| 01192 - Order Clerk II | | 17.49 |
| 01261 - Personnel Assistant (Employment) I | | 18.74 |
| 01262 - Personnel Assistant (Employment) II | | 21.15 |
| 01263 - Personnel Assistant (Employment) III | | 23.39 |
| 01270 - Production Control Clerk | | 25.07 |
| 01290 - Rental Clerk | | 16.53 |
| 01300 - Scheduler, Maintenance | | 18.69 |
| 01311 - Secretary I | | 18.69 |
| 01312 - Secretary II | | 20.90 |
| 01313 - Secretary III | | 23.30 |
| 01320 - Service Order Dispatcher | | 18.88 |
| 01410 - Supply Technician | | 32.87 |
| 01420 - Survey Worker | | 18.80 |
| 01460 - Switchboard Operator/Receptionist | | 17.00 |
| 01531 - Travel Clerk I | | 18.75 |
| 01532 - Travel Clerk II | | 21.04 |
| 01533 - Travel Clerk III | | 22.61 |
| 01611 - Word Processor I | | 17.42 |
| 01612 - Word Processor II | | 19.55 |
| 01613 - Word Processor III | | 21.87 |
| 05000 - Automotive Service Occupations | | |
| 05005 - Automobile Body Repairer, Fiberglass | | 23.45 |
| 05010 - Automotive Electrician | | 21.86 |
| 05040 - Automotive Glass Installer | | 20.43 |
| 05070 - Automotive Worker | | 20.43 |
| 05110 - Mobile Equipment Servicer | | 17.68 |
| 05130 - Motor Equipment Metal Mechanic | | 23.23 |
| 05160 - Motor Equipment Metal Worker | | 20.43 |
| 05190 - Motor Vehicle Mechanic | | 23.23 |
| 05220 - Motor Vehicle Mechanic Helper | | 16.43 |
| 05250 - Motor Vehicle Upholstery Worker | | 19.05 |
| 05280 - Motor Vehicle Wrecker | | 20.43 |
| 05310 - Painter, Automotive | | 21.86 |
| 05340 - Radiator Repair Specialist | | 20.43 |
| 05370 - Tire Repairer | | 17.00 |
| 05400 - Transmission Repair Specialist | | 23.23 |
| 07000 - Food Preparation And Service Occupations | | |

| | | |
|---|---|---|
| 07010 - Baker | | 16.44 |
| 07041 - Cook I | | 15.77 |
| 07042 - Cook II | | 18.22 |
| 07070 - Dishwasher | | 13.82 |
| 07130 - Food Service Worker | | 15.35 |
| 07210 - Meat Cutter | | 20.79 |
| 07260 - Waiter/Waitress | | 13.04 |
| | | |
| 09000 - Furniture Maintenance And Repair Occupations | | |
| 09010 - Electrostatic Spray Painter | | 22.38 |
| 09040 - Furniture Handler | | 11.65 |
| 09080 - Furniture Refinisher | | 18.40 |
| 09090 - Furniture Refinisher Helper | | 13.83 |
| 09110 - Furniture Repairer, Minor | | 16.04 |
| 09130 - Upholsterer | | 19.34 |
| | | |
| 11000 - General Services And Support Occupations | | |
| 11030 - Cleaner, Vehicles | | 13.59 |
| 11060 - Elevator Operator | | 15.67 |
| 11090 - Gardener | | 22.08 |
| 11122 - Housekeeping Aide | | 15.67 |
| 11150 - Janitor | | 15.67 |
| 11210 - Laborer, Grounds Maintenance | | 17.29 |
| 11240 - Maid or Houseman | | 14.01 |
| 11260 - Pruner | | 15.57 |
| 11270 - Tractor Operator | | 20.53 |
| 11330 - Trail Maintenance Worker | | 17.29 |
| 11360 - Window Cleaner | | 17.40 |
| | | |
| 12000 - Health Occupations | | |
| 12010 - Ambulance Driver | | 18.10 |
| 12011 - Breath Alcohol Technician | | 26.20 |
| 12012 - Certified Occupational Therapist Assistant | | 37.60 |
| 12015 - Certified Physical Therapist Assistant | | 36.94 |
| 12020 - Dental Assistant | | 19.93 |
| 12025 - Dental Hygienist | | 41.27 |
| 12030 - EKG Technician | | 28.21 |
| 12035 - Electroneurodiagnostic Technologist | | 28.21 |
| 12040 - Emergency Medical Technician | | 18.10 |
| 12071 - Licensed Practical Nurse I | | 23.42 |
| 12072 - Licensed Practical Nurse II | | 26.20 |
| 12073 - Licensed Practical Nurse III | | 29.20 |
| 12100 - Medical Assistant | | 19.21 |
| 12130 - Medical Laboratory Technician | | 27.51 |
| 12160 - Medical Record Clerk | | 20.46 |
| 12190 - Medical Record Technician | | 22.88 |
| 12195 - Medical Transcriptionist | | 13.76 |
| 12210 - Nuclear Medicine Technologist | | 43.29 |
| 12221 - Nursing Assistant I | | 14.09 |
| 12222 - Nursing Assistant II | | 15.85 |
| 12223 - Nursing Assistant III | | 17.30 |
| 12224 - Nursing Assistant IV | | 19.42 |
| 12235 - Optical Dispenser | | 17.93 |
| 12236 - Optical Technician | | 17.66 |
| 12250 - Pharmacy Technician | | 20.81 |
| 12280 - Phlebotomist | | 18.69 |
| 12305 - Radiologic Technologist | | 37.00 |
| 12311 - Registered Nurse I | | 28.30 |
| 12312 - Registered Nurse II | | 34.61 |
| 12313 - Registered Nurse II, Specialist | | 34.61 |
| 12314 - Registered Nurse III | | 41.88 |
| 12315 - Registered Nurse III, Anesthetist | | 41.88 |
| 12316 - Registered Nurse IV | | 50.21 |
| 12317 - Scheduler (Drug and Alcohol Testing) | | 32.45 |
| 12320 - Substance Abuse Treatment Counselor | | 27.98 |
| | | |
| 13000 - Information And Arts Occupations | | |
| 13011 - Exhibits Specialist I | | 22.66 |
| 13012 - Exhibits Specialist II | | 28.07 |
| 13013 - Exhibits Specialist III | | 34.34 |
| 13041 - Illustrator I | | 21.10 |
| 13042 - Illustrator II | | 26.14 |
| 13043 - Illustrator III | | 31.98 |
| 13047 - Librarian | | 31.09 |
| 13050 - Library Aide/Clerk | | 15.39 |
| 13054 - Library Information Technology Systems Administrator | | 28.07 |
| 13058 - Library Technician | | 18.73 |
| 13061 - Media Specialist I | | 20.26 |
| 13062 - Media Specialist II | | 22.66 |
| 13063 - Media Specialist III | | 25.27 |
| 13071 - Photographer I | | 18.74 |
| 13072 - Photographer II | | 20.96 |
| 13073 - Photographer III | | 25.18 |
| 13074 - Photographer IV | | 29.21 |
| 13075 - Photographer V | | 35.34 |
| 13090 - Technical Order Library Clerk | | 19.32 |
| 13110 - Video Teleconference Technician | | 22.48 |
| | | |
| 14000 - Information Technology Occupations | | |
| 14041 - Computer Operator I | | 21.91 |
| 14042 - Computer Operator II | | 24.51 |
| 14043 - Computer Operator III | | 27.31 |
| 14044 - Computer Operator IV | | 30.35 |
| 14045 - Computer Operator V | | 33.62 |
| 14071 - Computer Programmer I | (see 1) | 25.97 |
| 14072 - Computer Programmer II | (see 1) | |
| 14073 - Computer Programmer III | (see 1) | |

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|---|---|
| 14074 - Computer Programmer IV | (see 1) |
| 14101 - Computer Systems Analyst I | (see 1) |
| 14102 - Computer Systems Analyst II | (see 1) |
| 14103 - Computer Systems Analyst III | (see 1) |
| 14150 - Peripheral Equipment Operator | 21.91 |
| 14160 - Personal Computer Support Technician | 30.35 |
| 14170 - System Support Specialist | 33.62 |
| | |
| 15000 - Instructional Occupations | |
| 15010 - Aircrew Training Devices Instructor (Non-Rated) | 33.19 |
| 15020 - Aircrew Training Devices Instructor (Rated) | 40.16 |
| 15030 - Air Crew Training Devices Instructor (Pilot) | 48.15 |
| 15050 - Computer Based Training Specialist / Instructor | 33.19 |
| 15060 - Educational Technologist | 36.77 |
| 15070 - Flight Instructor (Pilot) | 48.15 |
| 15080 - Graphic Artist | 28.67 |
| 15085 - Maintenance Test Pilot, Fixed, Jet/Prop | 48.15 |
| 15086 - Maintenance Test Pilot, Rotary Wing | 48.15 |
| 15088 - Non-Maintenance Test/Co-Pilot | 48.15 |
| 15090 - Technical Instructor | 23.90 |
| 15095 - Technical Instructor/Course Developer | 29.23 |
| 15110 - Test Proctor | 19.30 |
| 15120 - Tutor | 19.30 |
| | |
| 16000 - Laundry, Dry-Cleaning, Pressing And Related Occupations | |
| 16010 - Assembler | 11.49 |
| 16030 - Counter Attendant | 11.49 |
| 16040 - Dry Cleaner | 13.94 |
| 16070 - Finisher, Flatwork, Machine | 11.49 |
| 16090 - Presser, Hand | 11.49 |
| 16110 - Presser, Machine, Drycleaning | 11.49 |
| 16130 - Presser, Machine, Shirts | 11.49 |
| 16160 - Presser, Machine, Wearing Apparel, Laundry | 11.49 |
| 16190 - Sewing Machine Operator | 14.72 |
| 16220 - Tailor | 15.45 |
| 16250 - Washer, Machine | 12.44 |
| | |
| 19000 - Machine Tool Operation And Repair Occupations | |
| 19010 - Machine-Tool Operator (Tool Room) | 23.52 |
| 19040 - Tool And Die Maker | 29.37 |
| | |
| 21000 - Materials Handling And Packing Occupations | |
| 21020 - Forklift Operator | 21.22 |
| 21030 - Material Coordinator | 25.07 |
| 21040 - Material Expediter | 25.07 |
| 21050 - Material Handling Laborer | 17.44 |
| 21071 - Order Filler | 17.76 |
| 21080 - Production Line Worker (Food Processing) | 21.22 |
| 21110 - Shipping Packer | 18.43 |
| 21130 - Shipping/Receiving Clerk | 18.43 |
| 21140 - Store Worker I | 13.44 |
| 21150 - Stock Clerk | 18.14 |
| 21210 - Tools And Parts Attendant | 21.22 |
| 21410 - Warehouse Specialist | 21.22 |
| | |
| 23000 - Mechanics And Maintenance And Repair Occupations | |
| 23010 - Aerospace Structural Welder | 37.96 |
| 23019 - Aircraft Logs and Records Technician | 29.45 |
| 23021 - Aircraft Mechanic I | 35.91 |
| 23022 - Aircraft Mechanic II | 37.96 |
| 23023 - Aircraft Mechanic III | 40.05 |
| 23040 - Aircraft Mechanic Helper | 25.40 |
| 23050 - Aircraft, Painter | 33.79 |
| 23060 - Aircraft Servicer | 29.45 |
| 23070 - Aircraft Survival Flight Equipment Technician | 33.79 |
| 23080 - Aircraft Worker | 31.58 |
| 23091 - Aircrew Life Support Equipment (ALSE) Mechanic I | 31.58 |
| 23092 - Aircrew Life Support Equipment (ALSE) Mechanic II | 35.91 |
| 23110 - Appliance Mechanic | 24.21 |
| 23120 - Bicycle Repairer | 21.38 |
| 23125 - Cable Splicer | 36.56 |
| 23130 - Carpenter, Maintenance | 22.92 |
| 23140 - Carpet Layer | 22.42 |
| 23160 - Electrician, Maintenance | 25.73 |
| 23181 - Electronics Technician Maintenance I | 28.74 |
| 23182 - Electronics Technician Maintenance II | 30.75 |
| 23183 - Electronics Technician Maintenance III | 32.68 |
| 23260 - Fabric Worker | 23.04 |
| 23290 - Fire Alarm System Mechanic | 24.73 |
| 23310 - Fire Extinguisher Repairer | 21.38 |
| 23311 - Fuel Distribution System Mechanic | 23.95 |
| 23312 - Fuel Distribution System Operator | 18.23 |
| 23370 - General Maintenance Worker | 20.02 |
| 23380 - Ground Support Equipment Mechanic | 35.91 |
| 23381 - Ground Support Equipment Servicer | 29.45 |
| 23382 - Ground Support Equipment Worker | 31.58 |
| 23391 - Gunsmith I | 21.38 |
| 23392 - Gunsmith II | 24.71 |
| 23393 - Gunsmith III | 28.10 |
| 23410 - Heating, Ventilation And Air-Conditioning Mechanic | 25.85 |
| 23411 - Heating, Ventilation And Air Contidioning | |

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|---|---|---|
| Mechanic (Research Facility) | | 27.33 |
| 23430 - Heavy Equipment Mechanic | | 29.41 |
| 23440 - Heavy Equipment Operator | | 23.58 |
| 23460 - Instrument Mechanic | | 32.63 |
| 23465 - Laboratory/Shelter Mechanic | | 26.44 |
| 23470 - Laborer | | 17.44 |
| 23510 - Locksmith | | 20.38 |
| 23530 - Machinery Maintenance Mechanic | | 29.52 |
| 23550 - Machinist, Maintenance | | 25.49 |
| 23580 - Maintenance Trades Helper | | 18.05 |
| 23591 - Metrology Technician I | | 32.63 |
| 23592 - Metrology Technician II | | 34.49 |
| 23593 - Metrology Technician III | | 36.38 |
| 23640 - Millwright | | 29.77 |
| 23710 - Office Appliance Repairer | | 21.77 |
| 23760 - Painter, Maintenance | | 20.91 |
| 23790 - Pipefitter, Maintenance | | 27.82 |
| 23810 - Plumber, Maintenance | | 26.18 |
| 23820 - Pneudraulic Systems Mechanic | | 28.10 |
| 23850 - Rigger | | 23.83 |
| 23870 - Scale Mechanic | | 24.71 |
| 23890 - Sheet-Metal Worker, Maintenance | | 26.36 |
| 23910 - Small Engine Mechanic | | 21.58 |
| 23931 - Telecommunications Mechanic I | | 28.59 |
| 23932 - Telecommunications Mechanic II | | 30.23 |
| 23950 - Telephone Lineman | | 32.21 |
| 23960 - Welder, Combination, Maintenance | | 23.24 |
| 23965 - Well Driller | | 26.30 |
| 23970 - Woodcraft Worker | | 28.10 |
| 23980 - Woodworker | | 21.38 |
| | | |
| 24000 - Personal Needs Occupations | | |
| 24550 - Case Manager | | 20.70 |
| 24570 - Child Care Attendant | | 13.74 |
| 24580 - Child Care Center Clerk | | 17.13 |
| 24610 - Chore Aide | | 12.01 |
| 24620 - Family Readiness And Support Services Coordinator | | 20.70 |
| 24630 - Homemaker | | 20.70 |
| | | |
| 25000 - Plant And System Operations Occupations | | |
| 25010 - Boiler Tender | | 28.74 |
| 25040 - Sewage Plant Operator | | 24.20 |
| 25070 - Stationary Engineer | | 28.74 |
| 25190 - Ventilation Equipment Tender | | 20.33 |
| 25210 - Water Treatment Plant Operator | | 24.20 |
| | | |
| 27000 - Protective Service Occupations | | |
| 27004 - Alarm Monitor | | 23.28 |
| 27007 - Baggage Inspector | | 15.85 |
| 27008 - Corrections Officer | | 24.53 |
| 27010 - Court Security Officer | | 28.68 |
| 27030 - Detection Dog Handler | | 17.73 |
| 27040 - Detention Officer | | 24.53 |
| 27070 - Firefighter | | 34.27 |
| 27101 - Guard I | | 15.85 |
| 27102 - Guard II | | 17.73 |
| 27131 - Police Officer I | | 30.92 |
| 27132 - Police Officer II | | 34.37 |
| | | |
| 28000 - Recreation Occupations | | |
| 28041 - Carnival Equipment Operator | | 16.98 |
| 28042 - Carnival Equipment Repairer | | 18.27 |
| 28043 - Carnival Worker | | 12.88 |
| 28210 - Gate Attendant/Gate Tender | | 17.97 |
| 28310 - Lifeguard | | 12.23 |
| 28350 - Park Attendant (Aide) | | 20.10 |
| 28510 - Recreation Aide/Health Facility Attendant | | 14.67 |
| 28515 - Recreation Specialist | | 24.90 |
| 28630 - Sports Official | | 16.01 |
| 28690 - Swimming Pool Operator | | 21.11 |
| | | |
| 29000 - Stevedoring/Longshoremen Occupational Services | | |
| 29010 - Blocker And Bracer | | 29.73 |
| 29020 - Hatch Tender | | 29.73 |
| 29030 - Line Handler | | 29.73 |
| 29041 - Stevedore I | | 27.72 |
| 29042 - Stevedore II | | 31.81 |
| | | |
| 30000 - Technical Occupations | | |
| 30010 - Air Traffic Control Specialist, Center (HFO) | (see 2) | 46.75 |
| 30011 - Air Traffic Control Specialist, Station (HFO) | (see 2) | 32.24 |
| 30012 - Air Traffic Control Specialist, Terminal (HFO) | (see 2) | 35.50 |
| 30021 - Archeological Technician I | | 18.73 |
| 30022 - Archeological Technician II | | 20.95 |
| 30023 - Archeological Technician III | | 25.95 |
| 30030 - Cartographic Technician | | 25.95 |
| 30040 - Civil Engineering Technician | | 29.57 |
| 30051 - Cryogenic Technician I | | 28.74 |
| 30052 - Cryogenic Technician II | | 31.73 |
| 30061 - Drafter/CAD Operator I | | 18.73 |
| 30062 - Drafter/CAD Operator II | | 20.95 |
| 30063 - Drafter/CAD Operator III | | 23.35 |
| 30064 - Drafter/CAD Operator IV | | 28.74 |
| 30081 - Engineering Technician I | | 16.89 |

| | | |
|---|---|---|
| 30082 - Engineering Technician II | | 18.96 |
| 30083 - Engineering Technician III | | 21.21 |
| 30084 - Engineering Technician IV | | 26.27 |
| 30085 - Engineering Technician V | | 32.13 |
| 30086 - Engineering Technician VI | | 38.87 |
| 30090 - Environmental Technician | | 24.53 |
| 30095 - Evidence Control Specialist | | 25.95 |
| 30210 - Laboratory Technician | | 25.05 |
| 30221 - Latent Fingerprint Technician I | | 25.53 |
| 30222 - Latent Fingerprint Technician II | | 28.19 |
| 30240 - Mathematical Technician | | 31.59 |
| 30361 - Paralegal/Legal Assistant I | | 22.31 |
| 30362 - Paralegal/Legal Assistant II | | 27.64 |
| 30363 - Paralegal/Legal Assistant III | | 33.80 |
| 30364 - Paralegal/Legal Assistant IV | | 40.90 |
| 30375 - Petroleum Supply Specialist | | 31.73 |
| 30390 - Photo-Optics Technician | | 25.95 |
| 30395 - Radiation Control Technician | | 31.73 |
| 30461 - Technical Writer I | | 26.29 |
| 30462 - Technical Writer II | | 32.16 |
| 30463 - Technical Writer III | | 38.91 |
| 30491 - Unexploded Ordnance (UXO) Technician I | | 29.71 |
| 30492 - Unexploded Ordnance (UXO) Technician II | | 35.95 |
| 30493 - Unexploded Ordnance (UXO) Technician III | | 43.09 |
| 30494 - Unexploded (UXO) Safety Escort | | 29.71 |
| 30495 - Unexploded (UXO) Sweep Personnel | | 29.71 |
| 30501 - Weather Forecaster I | | 28.74 |
| 30502 - Weather Forecaster II | | 34.96 |
| 30620 - Weather Observer, Combined Upper Air Or Surface Programs | (see 2) | 23.35 |
| 30621 - Weather Observer, Senior | (see 2) | 25.95 |
| | | |
| 31000 - Transportation/Mobile Equipment Operation Occupations | | |
| 31010 - Airplane Pilot | | 35.95 |
| 31020 - Bus Aide | | 17.46 |
| 31030 - Bus Driver | | 24.03 |
| 31043 - Driver Courier | | 17.57 |
| 31260 - Parking and Lot Attendant | | 13.60 |
| 31290 - Shuttle Bus Driver | | 18.18 |
| 31310 - Taxi Driver | | 14.15 |
| 31361 - Truckdriver, Light | | 18.90 |
| 31362 - Truckdriver, Medium | | 20.37 |
| 31363 - Truckdriver, Heavy | | 23.84 |
| 31364 - Truckdriver, Tractor-Trailer | | 23.84 |
| | | |
| 99000 - Miscellaneous Occupations | | |
| 99020 - Cabin Safety Specialist | | 17.53 |
| 99030 - Cashier | | 13.83 |
| 99050 - Desk Clerk | | 14.05 |
| 99095 - Embalmer | | 27.72 |
| 99130 - Flight Follower | | 29.71 |
| 99251 - Laboratory Animal Caretaker I | | 15.25 |
| 99252 - Laboratory Animal Caretaker II | | 16.41 |
| 99260 - Marketing Analyst | | 36.49 |
| 99310 - Mortician | | 28.38 |
| 99410 - Pest Controller | | 20.47 |
| 99510 - Photofinishing Worker | | 16.68 |
| 99710 - Recycling Laborer | | 24.97 |
| 99711 - Recycling Specialist | | 29.65 |
| 99730 - Refuse Collector | | 22.48 |
| 99810 - Sales Clerk | | 14.50 |
| 99820 - School Crossing Guard | | 18.14 |
| 99830 - Survey Party Chief | | 27.55 |
| 99831 - Surveying Aide | | 19.23 |
| 99832 - Surveying Technician | | 22.95 |
| 99840 - Vending Machine Attendant | | 14.83 |
| 99841 - Vending Machine Repairer | | 18.43 |
| 99842 - Vending Machine Repairer Helper | | 14.83 |

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors, applies to all contracts subject to the Service Contract Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is the victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Note: Executive Order 13658 generally applies to contracts subject to the Service Contract Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.65 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the cor
Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:

HEALTH & WELFARE: $5.55 per hour, up to 40 hours per week, or $222.00 per week or $962.00 per month

HEALTH & WELFARE EO 13706: $5.09 per hour, up to 40 hours per week, or $203.60 per week, or $882.27 per month*

*This rate is to be used only when compensating employees for performance on an SCA-covered contract also covered by EO 13706, Establishing Paid Sick Leave for Federal Contractors. A contractor may not receive credit toward its SCA obligations for any paid sick leave provided pursuant to EO 13706.

VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor, 3 weeks after 5 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HOLIDAYS: A minimum of eleven paid holidays per year: New Year's Day, Martin Luther King Jr.'s Birthday, Washington's Birthday, Memorial Day, Juneteenth National Independence Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4.174)

THE OCCUPATIONS WHICH HAVE NUMBERED FOOTNOTES IN PARENTHESES RECEIVE THE FOLLOWING:

1) COMPUTER EMPLOYEES: This wage determination does not apply to any individual employed in a bona fide executive, administrative, or professional capacity, as defined in 29 C.F.R. Part 541. (See 41 C.F.R. 6701(3)). Because most Computer Systems Analysts and Computer Programmers who are paid at least $27.63 per hour (or at least $684 per week if paid on a salary or fee basis) likely qualify as exempt computer professionals under 29 U.S.C. 213(a)(1) and 29 U.S.C. 213(a)(17), this wage determination may not include wage rates for all occupations within those job families. In such instances, a conformance will be necessary if there are nonexempt employees in these job families working on the contract.

Job titles vary widely and change quickly in the computer industry, and are not determinative of whether an employee is an exempt computer professional. To be exempt, computer employees who satisfy the compensation requirements must also have a primary duty that consists of:

(1) The application of systems analysis techniques and procedures, including consulting with users, to determine hardware, software or system functional specifications;

(2) The design, development, documentation, analysis, creation, testing or modification of computer systems or programs, including prototypes, based on and related to user or system design specifications;

(3) The design, documentation, testing, creation or modification of computer programs related to machine operating systems; or

(4) A combination of the aforementioned duties, the performance of which requires the same level of skills. (29 C.F.R. 541.400).

Any computer employee who meets the applicable compensation requirements and the above duties test qualifies as an exempt computer professional under both section 13(a)(1) and section 13(a)(17) of the Fair Labor Standards Act. (Field Assistance Bulletin No. 2006-3 (Dec. 14, 2006)). Accordingly, this wage determination will not apply to any exempt computer employee regardless of which of these two exemptions is utilized.

2) AIR TRAFFIC CONTROLLERS AND WEATHER OBSERVERS - NIGHT PAY & SUNDAY PAY: If you work at night as part of a regular tour of duty, you will earn a night differential and receive an additional 10% of basic pay for any hours worked between 6pm and 6am. If you are a full-time employed (40 hours a week) and Sunday is part of your regularly scheduled workweek, you are paid at your rate of basic pay plus a Sunday premium of 25% of your basic rate for each hour of Sunday work which is not overtime (i.e. occasional work on Sunday outside the normal tour of duty is considered overtime work).

** HAZARDOUS PAY DIFFERENTIAL **

An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordnance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordnance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives. Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving re-grading and cleaning of artillery ranges.

A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close proximity to ordnance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and hauling of ordnance, explosive, and incendiary ordnance material other than small arms ammunition. These differentials are only applicable to work that has been specifically designated by the agency for ordnance, explosives, and incendiary material differential pay.

** UNIFORM ALLOWANCE **

If employees are required to wear uniforms in the performance of this contract (either by the terms of the Government contract, by the employer, by the state or local law, etc.), the cost of furnishing such uniforms and maintaining (by laundering or dry cleaning) such uniforms is an expense that may not be borne by an

employee where such cost reduces the hourly rate below that required by the wage determination. The Department of Labor will accept payment in accordance with the following standards as compliance:

The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of $3.35 per week (or $.67 cents per day). However, in those instances where the uniforms furnished are made of """"wash and wear"""" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

** SERVICE CONTRACT ACT DIRECTORY OF OCCUPATIONS **

The duties of employees under job titles listed are those described in the """"Service Contract Act Directory of Occupations"""", Fifth Edition (Revision 1), dated September 2015, unless otherwise indicated.

** REQUEST FOR AUTHORIZATION OF ADDITIONAL CLASSIFICATION AND WAGE RATE, Standard Form 1444 (SF-1444) **

Conformance Process:

The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination (See 29 CFR 4.6(b)(2)(i)). Such conforming procedures shall be initiated by the contractor prior to the performance of contract work by such unlisted class(es) of employees (See 29 CFR 4.6(b)(2)(ii)). The Wage and Hour Division shall make a final determination of conformed classification, wage rate, and/or fringe benefits which shall be paid to all employees performing in the classification from the first day of work on which contract work is performed by them in the classification. Failure to pay such unlisted employees the compensation agreed upon by the interested parties and/or fully determined by the Wage and Hour Division retroactive to the date such class of employees commenced contract work shall be a violation of the Act and this contract. (See 29 CFR 4.6(b)(2)(v)). When multiple wage determinations are included in a contract, a separate SF-1444 should be prepared for each wage determination to which a class(es) is to be conformed.

The process for preparing a conformance request is as follows:

1) When preparing the bid, the contractor identifies the need for a conformed occupation(s) and computes a proposed rate(s).

2) After contract award, the contractor prepares a written report listing in order the proposed classification title(s), a Federal grade equivalency (FGE) for each proposed classification(s), job description(s), and rationale for proposed wage rate(s), including information regarding the agreement or disagreement of the authorized representative of the employees involved, or where there is no authorized representative, the employees themselves. This report should be submitted to the contracting officer no later than 30 days after such unlisted class(es) of employees performs any contract work.

3) The contracting officer reviews the proposed action and promptly submits a report of the action, together with the agency's recommendations and pertinent information including the position of the contractor and the employees, to the U.S. Department of Labor, Wage and Hour Division, for review (See 29 CFR 4.6(b)(2)(ii)).

4) Within 30 days of receipt, the Wage and Hour Division approves, modifies, or disapproves the action via transmittal to the agency contracting officer, or notifies the contracting officer that additional time will be required to process the request.

5) The contracting officer transmits the Wage and Hour Division's decision to the contractor.

6) Each affected employee shall be furnished by the contractor with a written copy of such determination or it shall be posted as a part of the wage determination (See 29 CFR 4.6(b)(2)(iii)).

Information required by the Regulations must be submitted on SF-1444 or bond paper.

When preparing a conformance request, the """"Service Contract Act Directory of Occupations"""" should be used to compare job definitions to ensure that duties requested are not performed by a classification already listed in the wage determination. Remember, it is not the job title, but the required tasks that determine whether a class is included in an established wage determination. Conformances may not be used to artificially split, combine, or subdivide classifications listed in the wage determination (See 29 CFR 4.152(c)(1))."""

"General Decision Number: TX20260231 05/18/2026

State: Texas

Construction Types: Building

Counties: Texas Counties of
Bexar

| Modification Number | Publication Date |
|---|---|
| 0 | 01/02/2026 |
| 1 | 05/18/2026 |

ASBE0087-014 06/03/2024

| | Rates | Fringes |
|---|---|---|
| ASBESTOS WORKER/HEAT & FROST INSULATOR (DUCT, PIPE AND MECHANICAL SYSTEM INSULATION) | $ 29.50 | 8.79 |

BOIL0074-003 01/01/2025

| | Rates | Fringes |
|---|---|---|
| BOILERMAKER | $ 33.17 | 24.92 |

ELEC0060-003 05/26/2025

| | Rates | Fringes |
|---|---|---|
| ELECTRICIAN (COMMUNICATION TECHNICIAN ONLY) | $ 37.45 | 12.19 |

ELEC0060-004 05/26/2025

| | Rates | Fringes |
|---|---|---|
| ELECTRICIAN (EXCLUDES LOW VOLTAGE WIRING) | $ 37.45 | 12.19 |

ELEV0081-001 01/01/2026

| | Rates | Fringes |
|---|---|---|
| ELEVATOR MECHANIC: FOOTNOTES: A. 6% UNDER 5 YEARS BASED ON REGULAR HOURLY RATE FOR ALL HOURS WORKED. 8% OVER 5 YEARS BASED ON REGULAR HOURLY RATE FOR ALL HOURS WORKED. B. HOLIDAYS: NEW YEAR'S DAY; MEMORIAL DAY; INDEPENDENCE DAY; LABOR DAY; THANKSGIVING DAY; FRIDAY AFTER THANKSGIVING DAY; CHRISTMAS DAY; AND VETERANS DAY | $ 53.40 | 38.98 |

ENGI0450-002 04/01/2024

| | Rates | Fringes |
|---|---|---|
| POWER EQUIPMENT OPERATOR (CRANES) | $ 39.47 | 10.39 |

IRON0066-013 06/01/2025

| | Rates | Fringes |
|---|---|---|
| IRONWORKER, STRUCTURAL | $ 27.95 | 8.03 |

IRON0084-011 06/01/2024

| | Rates | Fringes |
|---|---|---|
| IRONWORKER: ORNAMENTAL | $ 28.26 | 8.13 |

PLUM0142-009 07/02/2025

| | Rates | Fringes |
|---|---|---|
| PLUMBER (EXCLUDES HVAC PIPE INSTALLATION) | $ 38.97 | 11.48 |
| PIPEFITTER: INCLUDING HVAC PIPE INSTALLATION | $ 38.97 | 11.48 |
| HVAC MECHANIC (ELECTRICAL TEMPERATURE CONTROL INSTALLATION & UNIT INSTALLATION ONLY) | $ 38.97 | 11.48 |

SFTX0669-002 04/01/2025

| | Rates | Fringes |
|---|---|---|
| SPRINKLER FITTER (FIRE SPRINKLERS) | $ 38.57 | 24.47 |

SHEE0067-004 07/01/2025

| | Rates | Fringes |
|---|---|---|
| SHEET METAL WORKER (HVAC DUCT INSTALLATION ONLY) | $ 34.10 | 16.10 |
| SHEET METAL WORKER (EXCLUDES HVAC DUCT INSTALLATION) | $ 34.10 | 16.10 |

SUTX2014-006 07/21/2014

| | Rates | Fringes |
|---|---|---|
| TRUCK DRIVER: WATER TRUCK | $ 12.00 | 4.11 |
| TRUCK DRIVER: SEMI-TRAILER TRUCK | $ 12.50 | 0.00 |
| TRUCK DRIVER: FLATBED TRUCK | $ 19.65 | 8.57 |
| TRUCK DRIVER: DUMP TRUCK | $ 12.39 | 1.18 |
| TILE SETTER | $ 14.94 | 0.00 |
| TILE FINISHER | $ 11.32 | 0.00 |
| ROOFER | $ 12.00 | 0.00 |
| PAINTER (BRUSH, ROLLER AND SPRAY), EXCLUDES DRYWALL FINISHING/TAPING | $ 13.07 | 0.00 |
| OPERATOR: ROLLER | $ 12.00 | 0.00 |
| OPERATOR: PAVER (ASPHALT, AGGREGATE, AND CONCRETE) | $ 16.03 | 0.00 |
| OPERATOR: MECHANIC | $ 18.75 | 5.12 |
| OPERATOR: LOADER | $ 12.79 | 0.00 |
| OPERATOR: GRADER/BLADE | $ 23.00 | 5.07 |
| OPERATOR: FORKLIFT | $ 12.50 | 0.00 |
| OPERATOR: DRILL | $ 14.50 | 0.00 |
| OPERATOR: BULLDOZER | $ 14.00 | 0.00 |
| OPERATOR: BOBCAT/SKID STEER/SKID LOADER | $ 14.00 | 0.00 |
| OPERATOR: BACKHOE/EXCAVATOR/TRACKHOE | $ 15.98 | 0.00 |
| LABORER: LANDSCAPE AND IRRIGATION | $ 8.00 | 0.00 |
| LABORER: ROOF TEAROFF | $ 11.28 | 0.00 |
| LABORER: PIPELAYER | $ 11.00 | 0.00 |
| LABORER: MASON TENDER - CEMENT/CONCRETE | $ 12.00 | 0.00 |
| LABORER: MASON TENDER - BRICK | $ 11.88 | 0.00 |
| LABORER: COMMON OR GENERAL | $ 10.75 | 0.00 |
| IRONWORKER, REINFORCING | $ 12.27 | 0.00 |
| ELECTRICIAN (LOW VOLTAGE WIRING ONLY) | $ 20.39 | 3.04 |
| DRYWALL HANGER AND METAL STUD INSTALLER | $ 15.18 | 0.00 |
| DRYWALL FINISHER/TAPER | $ 13.81 | 0.00 |
| CEMENT MASON/CONCRETE FINISHER | $ 22.27 | 5.30 |
| CAULKER | $ 15.00 | 0.00 |
| CARPENTER, EXCLUDES ACOUSTICAL CEILING INSTALLATION, DRYWALL HANGING, FORM WORK, AND METAL STUD INSTALLATION | $ 16.86 | 4.17 |
| CARPENTER (FORM WORK ONLY) | $ 13.63 | 0.00 |
| CARPENTER (ACOUSTICAL CEILING INSTALLATION ONLY) | $ 17.83 | 0.00 |

BRICKLAYER.....$ 22.15 0.00

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.65 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

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The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ⍰SU⍰, ⍰UAVG⍰, ⍰SA⍰, or ⍰SC⍰ denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in

processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ⿰SU⿰ identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

⿰SU⿰ wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ⿰SA⿰ identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ⿰SA⿰ identifier took effect under state law in the state from which the rates were adopted.

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WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION

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W9126G26RA028-0003

"General Decision Number: TX20260291 05/18/2026

State: Texas

Construction Types: Highway

Counties: Texas Counties of
Atascosa, Bandera, Bastrop, Bell, Bexar,
Brazos, Burleson, Caldwell, Comal,
Coryell, Guadalupe, Hays, Kendall,
Lampasas, McLennan, Medina, Robertson,
Travis, Williamson and Wilson

| Modification Number | Publication Date |
|---|---|
| 0 | 01/02/2026 |
| 1 | 05/18/2026 |

SATX2025-004 11/15/2023

| | Rates | Fringes |
|---|---|---|
| WORK ZONE BARRICADE SERVICER | $ 17.75 | 0.00 |
| WELDER | $ 23.38 | 0.00 |
| TRUCK DRIVER, TANDEM AXLE TRACTOR WITH SEMI TRAILER | $ 21.71 | 0.00 |
| TRUCK DRIVER, SINGLE OR TANDEM AXLE DUMP TRUCK | $ 20.91 | 0.00 |
| TRUCK DRIVER, SINGLE AXLE | $ 19.70 | 0.00 |
| TRUCK DRIVER LOWBOY FLOAT | $ 25.96 | 0.00 |
| TRAFFIC SIGNAL/LIGHT POLE WORKER | $ 21.99 | 0.00 |
| SPREADER BOX OPERATOR | $ 19.31 | 0.00 |
| SIGN ERECTOR | $ 17.52 | 0.00 |
| SERVICER | $ 23.75 | 0.00 |
| SCRAPER OPERATOR | $ 17.52 | 0.00 |
| ROLLER OPERATOR, OTHER | $ 17.52 | 0.00 |
| ROLLER OPERATOR, ASPHALT | $ 20.24 | 0.00 |
| REINFORCING STEEL WORKER | $ 22.46 | 0.00 |
| RECLAIMER/PULVERIZER OPERATOR | $ 19.05 | 0.00 |
| PIPELAYER | $ 19.23 | 0.00 |
| PAVEMENT MARKING MACHINE OPERATOR | $ 22.00 | 0.00 |
| PAINTER, STRUCTURES | $ 23.76 | 0.00 |
| OFF ROAD HAULER | $ 17.52 | 0.00 |
| MOTOR GRADER OPERATOR, ROUGH | $ 22.95 | 0.00 |
| MOTOR GRADER OPERATOR, FINE GRADE | $ 26.56 | 0.00 |
| MILLING MACHINE OPERATOR | $ 21.73 | 0.00 |
| MECHANIC | $ 26.15 | 0.00 |
| LOADER/BACKHOE OPERATOR | $ 20.32 | 0.00 |
| LABORER, UTILITY | $ 19.05 | 0.00 |
| LABORER, COMMON | $ 17.52 | 0.00 |
| FRONT END LOADER OPERATOR, OVER 3 CY | $ 20.20 | 0.00 |
| FRONT END LOADER OPERATOR, 3 CY OR LESS | $ 20.33 | 0.00 |
| FOUNDATION DRILL OPERATOR, TRUCK MOUNTED | $ 24.28 | 0.00 |
| FORM SETTER, PAVING & CURB | $ 19.18 | 0.00 |
| FORM BUILDER/SETTER, STRUCTURES | $ 20.63 | 0.00 |
| FLAGGER | $ 15.52 | 0.00 |
| EXCAVATOR OPERATOR, OVER 50,000 POUNDS | $ 22.90 | 0.00 |
| EXCAVATOR OPERATOR, 50,000 POUNDS OR LESS | $ 22.93 | 0.00 |
| ELECTRICIAN | $ 30.54 | 0.00 |

| | | |
|---|---|---|
| DIRECTIONAL DRILLING OPERATOR | $ 25.19 | 0.00 |
| DIRECTIONAL DRILLING LOCATOR | $ 21.39 | 0.00 |
| CRAWLER TRACTOR OPERATOR | $ 20.92 | 0.00 |
| CRANE OPERATOR, LATTICE BOOM OVER 80 TONS | $ 28.87 | 0.00 |
| CRANE OPERATOR, LATTICE BOOM 80 TONS OR LESS | $ 26.47 | 0.00 |
| CRANE OPERATOR, HYDRAULIC 80 TONS OR LESS | $ 29.24 | 0.00 |
| CONCRETE SAW OPERATOR | $ 25.97 | 0.00 |
| CONCRETE PAVEMENT FINISHING MACHINE OPERATOR | $ 22.81 | 0.00 |
| CONCRETE FINISHER, PAVING AND STRUCTURES | $ 20.61 | 0.00 |
| BROOM OR SWEEPER OPERATOR | $ 18.09 | 0.00 |
| BOOM TRUCK OPERATOR | $ 27.82 | 0.00 |
| ASPHALT RAKER | $ 19.40 | 0.00 |
| ASPHALT PAVING MACHINE OPERATOR | $ 22.12 | 0.00 |
| ASPHALT DISTRIBUTOR OPERATOR | $ 24.07 | 0.00 |
| AGRICULTURAL TRACTOR OPERATOR | $ 19.14 | 0.00 |

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.65 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

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Union Rate Identifiers

A four-letter identifier beginning with characters other than ◆SU◆, ◆UAVG◆, ◆SA◆, or ◆SC◆ denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ◆SU◆ identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

◆SU◆ wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ◆SA◆ identifier indicates that the classifications and

prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ﾊSAﾊ identifier took effect under state law in the state from which the rates were adopted.

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WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
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Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION

"

W9126G26RA028-0003

"General Decision Number: TX20260007 05/18/2026

State: Texas

Construction Types: Heavy

Counties: Texas Counties of
Atascosa, Bandera, Bastrop, Bell, Bexar,
Brazos, Burleson, Caldwell, Comal,
Coryell, Guadalupe, Hays, Kendall,
Lampasas, McLennan, Medina, Robertson,
Travis, Williamson and Wilson

HEAVY (excluding tunnels and dams, not to be used for work on Sewage or Water Treatment Plants or Lift / Pump Stations in Bell, Coryell, McLennan and Willi

| Modification Number | Publication Date |
|---|---|
| 0 | 01/02/2026 |
| 1 | 05/18/2026 |

SUTX2011-006 08/03/2011

| | Rates | Fringes |
|---|---|---|
| WELDER | $ 15.97 | 0.00 |
| TRUCK DRIVER: TANDEM AXLE TRACTOR W/SEMI TRAILER | $ 12.81 | 0.00 |
| TRUCK DRIVER: SINGLE OR TANDEM AXLE DUMP TRUCK | $ 11.68 | 0.00 |
| TRUCK DRIVER (SINGLE AXLE) | $ 11.79 | 0.00 |
| TRUCK DRIVER (OFF ROAD HAULER) | $ 11.88 | 0.00 |
| TRUCK DRIVER (LOWBOY-FLOAT) | $ 15.66 | 0.00 |
| TRAFFIC SIGNALIZATION: TRAFFIC SIGNAL INSTALLATION, (TRAFFIC SIGNAL/LIGHT POLE WORKER) | $ 16.00 | 0.00 |
| STEEL WORKER (STRUCTURAL) | $ 19.29 | 0.00 |
| STEEL WORKER (REINFORCING) | $ 14.00 | 0.00 |
| SERVICER | $ 14.51 | 0.00 |
| POWER EQUIPMENT OPERATOR: SCRAPER | $ 12.27 | 0.00 |
| POWER EQUIPMENT OPERATOR: MOTOR GRADER, ROUGH | $ 14.63 | 0.00 |
| POWER EQUIPMENT OPERATOR: MOTOR GRADER, FINE GRADE | $ 18.51 | 0.00 |
| POWER EQUIPMENT OPERATOR: MECHANIC | $ 17.10 | 0.00 |
| POWER EQUIPMENT OPERATOR: FRONT END LOADER, 3 CY OR LESS | $ 13.04 | 0.00 |
| POWER EQUIPMENT OPERATOR: FOUNDATION DRILL, TRUCK MOUNTED | $ 16.93 | 0.00 |
| POWER EQUIPMENT OPERATOR: CRAWLER TRACTOR | $ 15.67 | 0.00 |
| POWER EQUIPMENT OPERATOR: BROOM OR SWEEPER | $ 11.04 | 0.00 |
| POWER EQUIPMENT OPERATOR: BOOM TRUCK | $ 18.36 | 0.00 |
| POWER EQUIPMENT OPERATOR: ASPHALT DISTRIBUTOR | $ 15.55 | 0.00 |
| POWER EQUIPMENT OPERATOR: (TRENCHING MACHINE, HEAVY) | $ 18.48 | 0.00 |
| POWER EQUIPMENT OPERATOR: (SPREADER BOX) | $ 14.04 | 0.00 |
| POWER EQUIPMENT OPERATOR: (ROLLER, OTHER) | $ 10.50 | 0.00 |
| POWER EQUIPMENT OPERATOR: (ROLLER, ASPHALT) | $ 12.78 | 0.00 |
| POWER EQUIPMENT OPERATOR: (RECLAIMER/PULVERIZER) | $ 12.88 | 0.00 |
| POWER EQUIPMENT OPERATOR: (PAVEMENT MARKING MACHINE) | $ 19.17 | 0.00 |
| POWER EQUIPMENT OPERATOR: (MILLING MACHINE) | $ 14.18 | 0.00 |
| POWER EQUIPMENT OPERATOR: (LOADER/BACKHOE) | $ 14.12 | 0.00 |
| POWER EQUIPMENT OPERATOR: (FRONT END LOADER, OVER 3 CY) | $ 13.21 | 0.00 |
| POWER EQUIPMENT OPERATOR: (EXCAVATOR OVER 50,000 LBS) | $ 17.71 | 0.00 |
| POWER EQUIPMENT OPERATOR: (EXCAVATOR 50,000 LBS OR LESS) | $ 12.88 | 0.00 |
| POWER EQUIPMENT OPERATOR: (DIRECTIONAL DRILLING OPERATOR) | $ 17.24 | 0.00 |
| POWER EQUIPMENT OPERATOR: (DIRECTIONAL DRILLING LOCATOR) | $ 11.67 | 0.00 |
| POWER EQUIPMENT OPERATOR: (CRANE, LATTICE BOOM OVER 80 TONS) | $ 19.38 | 0.00 |
| POWER EQUIPMENT OPERATOR: (CRANE, LATTICE BOOM 80 TONS OR LESS) | $ 15.87 | 0.00 |
| POWER EQUIPMENT OPERATOR: (CRANE, HYDRAULIC 80 TONS OR LESS) | $ 18.36 | 0.00 |
| POWER EQUIPMENT OPERATOR: (CONCRETE PAVEMENT FINISHING MACHINE) | $ 15.48 | 0.00 |
| POWER EQUIPMENT OPERATOR: (ASPHALT PAVING MACHINE) | $ 14.36 | 0.00 |
| POWER EQUIPMENT OPERATOR: (AGRICULTURAL TRACTOR) | $ 12.69 | 0.00 |
| PAINTER (STRUCTURES) | $ 18.34 | 0.00 |
| LABORER: PIPELAYER | $ 12.79 | 0.00 |
| LABORER: ASPHALT RAKER | $ 12.12 | 0.00 |
| LABORER (WORK ZONE BARRICADE SERVICER) | $ 11.85 | 0.00 |
| LABORER (LABORER, UTILITY) | $ 12.27 | 0.00 |
| LABORER (LABORER, COMMON) | $ 10.50 | 0.00 |
| LABORER (FLAGGER) | $ 9.45 | 0.00 |
| FORM BUILDER/FORM SETTER (STRUCTURES) | $ 12.87 | 0.00 |
| FORM BUILDER/FORM SETTER (PAVING & CURB) | $ 12.94 | 0.00 |
| ELECTRICIAN | $ 26.35 | 0.00 |
| CEMENT MASON/CONCRETE FINISHER (PAVING AND STRUCTURES) | $ 12.56 | 0.00 |

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.65 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

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The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ⿰SU⿱, ⿰UAVG⿱, ⿰SA⿱, or ⿰SC⿱ denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ⿰SU⿱ identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that

classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

SU wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The SA identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the SA identifier took effect under state law in the state from which the rates were adopted.

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WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

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Wage and Hour Division
U.S. Department of Labor
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Wage and Hour Administrator
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Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION

"

SECTION 01 00 00.00 44

CONSTRUCTION SCHEDULE
<AMENDMENT 0003>

PART 1 GENERAL

1.1 SCHEDULE

Commence, prosecute, and complete the work under this contract in accordance with the following schedule and Section 00 73 00 SPECIAL CONTRACT REQUIREMENTS 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 days |
|---|---|---|---|---|
| (1) | All work, including O&M Manuals and Final Record Drawings for the Dining Classroom Facility #4 | Upon receipt of Notice to Proceed. | 800 | $ 8,436.71 |

NOTE: All work on this project shall be completed within the number of calendar days stated in Item of Work (1) above, inclusive of all review periods and Government phasing requirements specified. The liquidated damages stated above will be applied for each calendar day the Contractor exceeds the Contract scheduled duration.

Operation and Maintenance Manuals: See Section 01 78 00 CLOSEOUT SUBMITTALS, paragraph OPERATION AND MAINTENANCE MANUALS for requirements and to ensure completion of O&M Manuals.

Record Drawings: See Section 01 78 00 CLOSEOUT SUBMITTALS, paragraph titled RECORD DRAWINGS for requirements and to ensure completion of record drawings.

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 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 FAR 52.249-10 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

| JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 3 | 4 | 3 | 4 | 6 | 3 | 4 | 5 | 5 | 5 | 3 |

c. Upon receipt 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.

d. 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)."

1.3 WORK RESTRICTIONS

1.3.1 Working Hours

Normal working hours are Monday through Friday, 0700 to 1700 hours[Monday through Friday, 0700 to 1700 hours]. Requests to work at times other than the stated working hours, including scheduled utility outages discussed below, shall be submitted to the Contracting Officer for approval. Contractor shall not work outside of the above stated working hours without prior written approval of the Contracting Officer.

1.3.2 Security Requirements

1.3.2.1 Installation Entrance Requirements

Entrance requirements to the Installation are specified in Section 01 35 17.00 44 SPECIAL PROJECT PROCEDURES FOR LACKLAND AIR FORCE BASE.

For the duration of this Contract, the Contractor shall anticipate a delay of 30 minutes or more to access Lackland AFB. These delays are due to increased security precautions, including the checking of vehicle occupants' IDs, vehicle manifests, and the searching of all vehicles. Any general or specific threat to the safety of those working or living at the Installation could result in longer waiting times at the access points to the Installation.

The following are the minimum requirements for contractor employees entering Lackland AFB:

All delivery trucks must have a bill of lading and delivery truck drivers must have a picture ID.

1.3.3 Identification of Employees

Contractor personnel shall wear visible Contractor-furnished employee identification badges while physically on the Installation. Each badge shall include, as a minimum, the company name, employee name, photograph, Contract Title, Contract Number, and the expiration date of the badge. Contractor and subcontractor personnel shall wear identifying markings on hard hats and high visibility vest clearly identifying the company for whom the employee works.

1.4 UTILITIES

1.4.1 Payment for Utility Services

Utility availability and Payment For Utility Services are specified in Section 01 50 00.17 44 TEMPORARY CONSTRUCTION FACILITIES FOR LACKLAND AFB.

1.4.2 Coordination

The Contractor shall coordinate with local phone company for contractor telephone and internet service during construction.

1.4.3 Outages

The Contractor shall coordinate all requests for utility outages with the <AM#0003>Base Civil Engineering, JBSA Privatized Utility Provider (PUP) and other local utility provider (where applicable) in writing 45 days prior to date of requested outage~~Contracting Officer in writing 21 calendar days prior to date of requested outage~~:</AM#0003>

a. Water, gas, steam, 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. All utility outages shall be scheduled only on Saturdays, Sundays, or holidays unless specific approval is otherwise received.

See Section 01 35 17.00 44 - SPECIAL PROJECT PROCEDURES FOR LACKLAND AIR FORCE BASE for additional information regarding UTILITIES.

1.5 PAPERLESS CONTRACT SUBMISSION

a. GENERAL INFORMATION ON PAPERLESS CONTRACT SUBMISSION

The goal is to reduce waste, decrease time, decrease associated costs, and to streamline most file transmission procedures.

b. METHODS OF DIGITAL SUBMISSION

This contract shall use digital submission methods to the greatest extent practicable. Acceptable methods are as follows, in order of precedence:

1. RMS - will be used to the greatest extent practicable. Some items may not be submittable via RMS due to program constraints. Those items shall use an alternate method. All ENGR 4025's shall be generated and submitted in RMS.

2. Secure, Password Protected Web-Based System Access must be allowed and approved by the Government Representative. This method shall not be used for security sensitive documents.

3. E-mail – Items not submitted via RMS, as discussed above, shall be submitted via e-mail, if possible. E-mail limitations for file size must be considered prior to submission.

4. CD/DVD – Will be accepted if no other method is possible and upon prior approval.

c. ITEMS TO BE SUBMITTED VIA HARDCOPY

Product samples, color boards, and any other item not feasible to submit digitally, shall be submitted hard copy. ENGR 4025 shall be submitted digitally always. The Government reserves the right to request hard copy submission on any item, if deemed necessary. Contractor shall be prepared to provide requested hard copy at any time.

1.6 CONTRACTOR PERFORMANCE EVALUATIONS

In accordance with the provisions of Subpart 36.201 (Evaluation of Contractor Performance) of the Federal Acquisition Regulation (FAR), construction contractor's performance shall be evaluated throughout the performance of the contract. The United States Army Corps of Engineers (USACE) follows the procedures outlined in Engineering Regulation 415-1-17 to fulfill this FAR requirement. For construction contracts awarded at or above $750,000.00, the USACE will evaluate contractor's performance and prepare a performance report using the Contractor Performance Assessment Reporting System (CPARS), which is now a web-based system. After an evaluation (interim or final) is written up by the USACE, the contractor will have the ability to access, review and comment on the evaluation for a period of 60 days. Accessing and using CPARS requires specific software, called PKI certification, which is installed on the user's computer. The certification is a Department of Defense requirement and was implemented to provide security in electronic transactions. The certification software could cost approximately $110 - $125 per certificate per year and is purchased from an External Certificate Authorities (ECA) vendor. Current

information about the PKI certification process and for contacting vendors can be found on the web site: http://www.cpars.csd.disa.mil/. If the Contractor wishes to participate in the performance evaluation process, access to CPARS and PKI certification is the sole responsibility of the Contractor.

1.7 CONTRACTOR PAYROLL RECORD

Contractor shall be required to log payrolls for all their own employees and subcontractors utilizing ENG Form 3180. Each subcontractor requires a separate ENG 3180 for their payrolls. The Contractor shall maintain the ENG 3180, along with the payrolls, on site and available for review by the Contracting Officer's Representative. The ENG 3180's shall be updated weekly as payrolls are submitted. After making copies for their files, the Contractor is required to submit the originals of each week’s payrolls to the Resident Office. Before final payment, the Contractor shall provide the completed ENG 3180’s to the Contracting Officer's Representatives.

1.8 CONTRACTOR SUPPLY and USE OF ELECTRONIC SOFTWARE FOR PROCESSING WAGE RATE REQUIREMENTS CERTIFIED LABOR PAYROLLS

(a) The contractor is required to use a commercially-available electronic system to process and submit certified payrolls electronically to the Government. The requirements for preparing, processing and providing certified labor payrolls are established by the Wage Rate Requirements statute.

(b) The contractor shall be responsible for obtaining and providing for all access, licenses, and other services required to provide for receipt, processing, certifying, electronically transmitting to the Government, and storing weekly payrolls and other data required for the contractor to comply with the Wage Rate Requirements statute. When the contractor uses an electronic payroll system, the electronic payroll service shall be used by the contractor to prepare, process, and maintain the relevant payrolls and basic records during all work under this construction contract and the electronic payroll service shall be capable of preserving these payrolls and related basic records for the required 3 years after contract completion. The contractor shall obtain and provide electronic system access to the Government, as required to comply with the Wage Rate Requirements over the duration of this construction contract. The access shall include electronic review access by the Government contract administration office to the electronic payroll processing system used by the contractor.

(c) The contractor's provision and use of an electronic payroll processing system shall meet the following basic functional criteria:

(1) commercially available;

(2) compliant with appropriate Wage Rate Requirements statute payroll provisions in the Federal Acquisition Regulation (FAR);

(3) able to accommodate the required numbers of employees and subcontractors planned to be employed under the contract

(4) capable of producing an Excel spreadsheet-compatible electronic output of weekly payroll records for export in an Excel spreadsheet;

(5) demonstrated security of data and data entry rights;

(6) ability to produce contractor-certified electronic versions of weekly payroll data;

(7) ability to identify erroneous entries and track the date/time of all versions of the certified Wage Rate Requirements statute payrolls submitted to the government over the life of the contract;

(8) capable of generating a durable record copy, that is, a CD or DVD and PDF file record of data from the system database at end of the contract closeout. This durable record copy of data from the electronic payroll processing system shall be provided to the Government during contract closeout.

(d) All contractor-incurred costs related to the contractor's provision and use of an electronic payroll processing service shall be included in the contractor's price for the overall work under the contract. The costs for compliance with the Wage Rate Requirements statute by using electronic payroll processing services shall not be a separately bid or reimbursed item under this contract.

1.9 ADDITIONAL CONTRACTOR PAYROLL RECORD

(1) The Fort Worth District requires the contractor and all sub-contractors to use an electronic payroll system meeting the requirements above referenced and the following.

(a) The Certified Labor Payrolls must be tracked electronically via WEB-based software and all data must be submitted via WEB. Payroll guidelines, "Instructions to Contractors on Contract Labor Requirements, published as "Appendix A, SWFP 1185-1-1" (also known as the Green book), will be provided to advise/inform contractors how these labor provisions will be administered and enforced.

(b) The WEB-based software must be capable of downloading data directly from existing electronic payrolls, track workers to ensure that overtime is being paid when overtime status is reached on Government contracts whether on one or multiple contracts or different sub-contractors. The software must track apprentices and journeyman ratios, create and track SF-1444 "Request for Authorization of Additional Classification and Rate", track workers by name/address/with or without Social Security Numbers, allow automated redaction of information appearing on payroll statements for agency response to Freedom of Information Act (FOIA requests), and provide free online training by the software provider to any user of the software.

(c) The software must allow fringe benefit statement to track fringe benefits "whether cash or into an approved plan, fund, or program. If the fringe benefits are paid into a plan, fund, or program the company's name (receiving benefits), phone number, and address shall be listed on the Statement of Compliance Form (DD Form 879 or WH-347).

(d) Software must provide a method of tracking standard and non-standard deductions such as restitution, alimony, child support, and allow for custom entries. Method of tracking must list the deductions on the statement of compliance or be listed as an attachment.

(e) The Contractor is required to provide the updated 3180's and notify the Contracting Officer's Representatives weekly by email when the current payrolls are complete and ready for inspection/review on the WEB. Before

final payment, the Contractor shall provide the completed ENG Form 3180's and complete copies of the Contractor and sub-contractor's payrolls/attachments, to the Contracting Officer's Representatives.

(2) Electronic copies of electronically/manually signed forms/memos/letters such as SF 1413 Statement of Acknowledgement (sub-contractor agreement), SF-1444 "Request for Authorization of Additional Classification and Rate", employee deduction authorization, certification of apprentices and trainees shall be provided to the Contracting Officer's Representative as required by FAR.

1.10 STREET CLOSINGS

See Section 01 35 17.00 44 SPECIAL PROJECT PROCEDURES FOR LACKLAND AFB

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

SECTION 01 33 00

SUBMITTAL PROCEDURES
<AMENDMENT 0003>

# PART 1 GENERAL

## 1.1 SUMMARY

### 1.1.1 Submittal Information

The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

Units of weights and measures used on all submittals are to be the same as those used in the contract drawings.

### 1.1.2 Project Type

The Contractor's Quality Control (CQC) System Manager shall check and approve all items before submittal and stamp, sign, and date indicating action taken. Proposed deviations from the contract requirements are to be clearly identified. Include within submittals items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals.

### 1.1.3 Submission of Submittals

Schedule and provide submittals requiring Government approval before acquiring the material or equipment covered thereby. Pick up and dispose of samples not incorporated into the work in accordance with manufacturer's Safety Data Sheets (SDS) and in compliance with existing laws and regulations.

## 1.2 DEFINITIONS

### 1.2.1 Submittal Descriptions (SD)

Submittal requirements are specified in the technical sections. Examples and descriptions of submittals identified by the Submittal Description (SD) numbers and titles follow:

SD-01 Preconstruction Submittals

Submittals that are required prior to or at the start of construction (work) or the next major phase of the construction on a multiphase contract.

Preconstruction Submittals include schedules and a tabular list of locations, features, and other pertinent information regarding products, materials, equipment, or components to be used in the work.

Certificates Of Insurance

Surety Bonds

List Of Proposed Subcontractors

List Of Proposed Products

Baseline Network Analysis Schedule (NAS)

Submittal Register

Schedule Of Prices Or Earned Value Report

Accident Prevention Plan

Work Plan

Quality Control (QC) plan

Environmental Protection Plan

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials, systems or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. Unless specified in another section, testing must have been within three years of date of contract award for the project.

Report that includes findings of a test required to be performed on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report that includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after

installation.

Investigation reports

Daily logs and checklists

Final acceptance test and operational test procedure

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that the product, system, or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a manufacturer, supplier, installer or Subcontractor through Contractor. The document purpose is to further promote the orderly progression of a portion of the work by documenting procedures, acceptability of methods, or personnel qualifications.

Confined space entry permits

Text of posted operating instructions

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and Safety Data Sheets(SDS)concerning impedances, hazards and safety precautions.

SD-10 Operation and Maintenance Data

Data provided by the manufacturer, or the system provider, including manufacturer's help and product line documentation, necessary to maintain and install equipment, for operating and maintenance use by facility personnel.

Data required by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

Data incorporated in an operations and maintenance manual or control system.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

Submittals required for Guiding Principle Validation (GPV) or Third Party Certification (TPC).

Special requirements necessary to properly close out a construction contract. For example, Record Drawings and as-built drawings. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract.

1.2.2 Approving Authority

Office or designated person authorized to approve the submittal.

1.2.3 Work

As used in this section, on-site and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction. In exception, excludes work to produce SD-01 submittals.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Submittal Register; G

1.4 SUBMITTAL CLASSIFICATION

1.4.1 Government Approved (G)

Government approval is required for extensions of design, critical materials, variations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Government.

Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, submittals are considered to be "shop drawings."

1.4.2 For Information Only

Submittals not requiring Government approval will be for information only. Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, they are not considered to be "shop drawings."

1.4.3 Sustainability Reporting Submittals (S)

Submittals for Guiding Principle Validation (GPV) or Third Party Certification (TPC) are indicated with an "S" designation. These submittals are for information only and for use as specified in Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.

Schedule submittals for these items throughout the course of construction as provided; do not wait until closeout.

1.5 PREPARATION

1.5.1 Transmittal Form

Use the ENG Form 4025-R transmittal form for submitting both Government-approved and information-only submittals. Submit in accordance

with the instructions on the reverse side of the form. These forms or similar forms are included in the RMS CM software that the Contractor is required to use for this contract. Properly complete this form by filling out all the heading blank spaces and identifying each item submitted. Exercise special care to ensure proper listing of the specification paragraph and sheet number of the contract drawings pertinent to the data submitted for each item.

1.5.2 Submittal Format

1.5.2.1 Format of SD-01 Preconstruction Submittals

When the submittal includes a document that is to be used in the project, or is to become part of the project record, other than as a submittal, do not apply the Contractor's approval stamp to the document itself, but to a separate sheet accompanying the document.

Provide data in the unit of measure used in the contract documents.

1.5.2.2 Format for SD-02 Shop Drawings

Provide shop drawings not less than 8 1/2 by 11 inches nor more than 30 by 42 inches, except for full-size patterns or templates. Prepare drawings to accurate size, with scale indicated, unless another form is required. Ensure drawings are suitable for reproduction and of a quality to produce clear, distinct lines and letters, with dark lines on a white background.

a. Include the nameplate data, size, and capacity on drawings. Also include applicable federal, military, industry, and technical society publication references.

b. Dimension drawings, except diagrams and schematic drawings. Prepare drawings demonstrating interface with other trades to scale. Use the same unit of measure for shop drawings as indicated on the contract drawings. Identify materials and products for work shown.

c. Submit an electronic copy of drawings in PDF format.

1.5.2.2.1 Drawing Identification

Include on each drawing the drawing title, number, date, and revision numbers and dates.

Number drawings in a logical sequence. Each drawing is to bear the number of the submittal in a uniform location next to the title block. Place the Government contract number in the margin, immediately below the title block, for each drawing.

1.5.2.3 Format of SD-03 Product Data

Present product data submittals for each section. Include a table of contents, listing the page and catalog item numbers for product data.

Indicate, by prominent notation, each product that is being submitted; indicate the specification section number and paragraph number to which it pertains.

1.5.2.3.1 Product Information

Supplement product data with material prepared for the project to satisfy the submittal requirements where product data does not exist. Identify this material as developed specifically for the project, with information and format as required for submission of SD-07 Certificates.

Provide product data in units used in the Contract documents. Where product data are included in preprinted catalogs with another unit, submit the dimensions in contract document units, on a separate sheet.

1.5.2.3.2 Standards

Where equipment or materials are specified to conform to industry or technical-society reference standards of such organizations as the American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), or Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the Contracting Officer. State on the certificate that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

1.5.2.3.3 Data Submission

Collect required data submittals for each specific material, product, unit of work, or system into a single submittal that is marked for choices, options, and portions applicable to the submittal. Mark each copy of the product data identically. Partial submittals will not be accepted for expedition of the construction effort.

Submit the manufacturer's instructions before installation.

1.5.2.4 Format of SD-04 Samples

1.5.2.4.1 Sample Characteristics

Furnish samples in the following sizes, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately the same size as specified:

a. Sample of Equipment or Device: Full size.

b. Sample of Materials Less Than 2 by 3 inches: Built up to 8 1/2 by 11 inches.

c. Sample of Materials Exceeding 8 1/2 by 11 inches: Cut down to 8 1/2 by 11 inches and adequate to indicate color, texture, and material variations.

d. Sample of Linear Devices or Materials: 10 inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.

e. Sample Volume of Nonsolid Materials: Pint. Examples of nonsolid materials are sand and paint.

f. Color Selection Samples: 2 by 4 inches. Where samples are specified for selection of color, finish, pattern, or texture, submit the full set of available choices for the material or product specified. Sizes and quantities of samples are to represent their respective standard unit.

g. Sample Panel: 4 by 4 feet.

h. Sample Installation: 100 square feet.

1.5.2.4.2 Sample Incorporation

Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples are to be in undamaged condition at the time of use.

Recording of Sample Installation: Note and preserve the notation of any area constituting a sample installation, but remove the notation at the final clean-up of the project.

1.5.2.4.3 Comparison Sample

Samples Showing Range of Variation: Where variations in color, finish, pattern, or texture are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range. Mark each unit to describe its relation to the range of the variation.

When color, texture, or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.

1.5.2.5 Format of SD-05 Design Data

Provide design data and certificates electronically in PDF format.

1.5.2.6 Format of SD-06 Test Reports

By prominent notation, indicate each report in the submittal. Indicate the specification number and paragraph number to which each report pertains.

1.5.2.7 Format of SD-07 Certificates

Provide design data and certificates electronically in PDF format.

1.5.2.8 Format of SD-08 Manufacturer's Instructions

Present manufacturer's instructions submittals for each section. Include the manufacturer's name, trade name, place of manufacture, and catalog model or number on product data. Also include applicable federal, military, industry, and technical-society publication references. If supplemental information is needed to clarify the manufacturer's data, submit it as specified for SD-07 Certificates.

Submit the manufacturer's instructions before installation.

1.5.2.8.1 Standards

Where equipment or materials are specified to conform to industry or technical-society reference standards of such organizations as the American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), or Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the Contracting Officer. State on the certificate that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

1.5.2.9 Format of SD-09 Manufacturer's Field Reports

Provide manufacturer's field reports electronically in PDF format, compiled in a single document.

By prominent notation, indicate each report in the submittal. Indicate the specification number and paragraph number to which each report pertains.

1.5.2.10 Format of SD-10 Operation and Maintenance Data (O&M)

Comply with the requirements specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA for O&M Data format.

1.5.2.11 Format of SD-11 Closeout Submittals

When the submittal includes a document that is to be used in the project or is to become part of the project record, other than as a submittal, do not apply the Contractor's approval stamp to the document itself, but to a separate sheet accompanying the document.

Provide data in the unit of measure used in the contract documents.

1.5.3 Source Drawings for Shop Drawings

1.5.3.1 Source Drawings

The entire set of source drawing files (DWG) will be provided to the Contractor after award.

1.5.3.2 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse is at the sole risk of the Contractor and without liability or legal exposure to the Government. The Contractor must make no claim, and waives to the fullest extent permitted by law any claim or cause of action of any nature against the Government, its agents, or its subconsultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold the Government harmless against all damages, liabilities, or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic source drawing files are not construction documents. Differences may exist between the source drawing files and the corresponding construction documents. The Government makes no representation regarding the accuracy or completeness of the electronic source drawing files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. The Contractor is responsible for determining if any conflict exists. In the event that a conflict arises between the signed and sealed construction documents prepared by the Government and the furnished source drawing files, the signed and sealed construction documents govern. Use of these source drawing files does not relieve the Contractor of the duty to fully comply with the contract documents, including and without limitation the need to check, confirm and coordinate the work of all contractors for the project. If the Contractor uses, duplicates or modifies these electronic source drawing files for use in producing construction data related to this contract, remove all previous indication of ownership (seals, logos, signatures, initials and dates).

### 1.5.4 Electronic File Format

Provide submittals in electronic format, with the exception of material samples required for SD-04 Samples items. Compile the submittal file as a single, complete document, to include the Transmittal Form described within, and also separately attach the native files which were used to create PDF. The attached files should include the original digital files used to create the submittal. Name the electronic submittal file specifically according to its contents, and coordinate the file naming convention with the Contracting Officer. Electronic files must be of sufficient quality that all information is legible. Use PDF as the electronic format, unless otherwise specified or directed by the Contracting Officer. Generate PDF files from original documents with bookmarks so that the text included in the PDF file is searchable and can be copied. If documents are scanned, optical character resolution (OCR) routines are required. Index and bookmark files exceeding 30 pages to allow efficient navigation of the file. When required, the electronic file must include a valid electronic signature or a scan of a signature.

E-mail electronic submittal documents smaller than 10MB to an e-mail address as directed by the Contracting Officer. Provide electronic documents too large for RMS, through an electronic file sharing system such as the DOD SAFE Web Application located at the following website: https://safe.apps.mil/.

## 1.6 QUANTITY OF SUBMITTALS

For all submittal types, besides SD-04, electronic submittals are required. Hard copies shall be provided only when requested by the Contracting Officer.

### 1.6.1 Number of SD-04 Samples

a. Submit two samples, or two sets of samples showing the range of variation, of each required item. One approved sample or set of samples will be retained by the approving authority and one will be returned to the Contractor.

b. Submit one sample panel or provide one sample installation where directed. Include components listed in the technical section or as directed.

c. Submit one sample installation, where directed.

d. Submit one sample of nonsolid materials.

1.7 INFORMATION ONLY SUBMITTALS

Submittals without a "G" designation must be certified by the QC manager prior to submitting to the Contracting Officer for information-only. Provide information-only submittals to the Contracting Officer a minimum of 14 calendar days prior to the Preparatory Meeting for the associated Definable Feature of Work (DFOW). Approval of the Contracting Officer is not required on information only submittals. The Contracting Officer will mark "receipt acknowledged" on submittals for information and will return only the transmittal cover sheet to the Contractor. Normally, submittals for information only will not be returned. However, the Government reserves the right to return unsatisfactory submittals and require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

1.8 PROJECT SUBMITTAL REGISTER

A sample Project Submittal Register showing items of equipment and materials for which submittals are required by the specifications is provided as "Submittal Register."

1.8.1 Submittal Management

Prepare and maintain a submittal register, as the work progresses. Do not change data that is output in columns (c), (d), (e), and (f) as delivered by Government; retain data that is output in columns (a), (g), (h), and (i) as approved. As an attachment, provide a submittal register showing items of equipment and materials for which submittals are required by the specifications. This list may not be all-inclusive and additional submittals may be required. Maintain a submittal register for the project in accordance with Section 01 45 00.15 10 RESIDENT MANAGEMENT SYSTEM CONTRACTOR MODE(RMS CM). The Government will provide the initial submittal register in electronic format with the following fields completed, to the extent that will be required by the Government during subsequent usage.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD Number. and type, e.g., SD-02 Shop Drawings) required in each specification section.

Column (e): Lists one principal paragraph in each specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting the project requirements.

Thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns and all dates on which submittals are received by and returned by the Government.

1.8.2 Preconstruction Use of Submittal Register

Submit the submittal register. Verify that all submittals required for the project are listed and add missing submittals. Coordinate and complete the following fields on the register:

Column (a) Activity Number: Activity number from the project schedule.

Column (g) Contractor Submit Date: Scheduled date for the approving authority to receive submittals.

Column (h) Contractor Approval Date: Date that Contractor needs approval of submittal.

Column (i) Contractor Material: Date that Contractor needs material delivered to Contractor control.

1.8.3 Contractor Use of Submittal Register

Update the following fields in the Government-furnished submittal register program or equivalent fields in the program used by the Contractor with each submittal throughout the contract.

Column (b) Transmittal Number: List of consecutive, Contractor-assigned numbers.

Column (j) Action Code (k): Date of action used to record Contractor's review when forwarding submittals to QC.

Column (l) Date submittal transmitted.

Column (q) Date approval was received.

1.8.4 Approving Authority Use of Submittal Register

Update the following fields:

Column (b) Transmittal Number: List of consecutive, Contractor-assigned numbers.

Column (l) Date submittal was received.

Column (m) through (p) Dates of review actions.

Column (q) Date of return to Contractor.

1.8.5 Action Codes

1.8.5.1 Contractor Action Codes

| DESIGN BID BUILD SUBMITTALS | | | |
|---|---|---|---|
| Submittal Classifications shown in UFGS Sections | Submittal Classification | Corresponding SpecsIntact Submittal Register Code which is populated in the SI Submittal Register. Software Limitations: (The software shows one character delineation in the SpecsIntact Submittal Register) | RMS - The following Submittal Classifications are populated in RMS when the SpecsIntact Submittal Data File is pulled into RMS) |
| G | Submittal requires Government Approval | G | GA |
| BLANK | Submittal is For Information Only (FIO) | BLANK | FIO |
| S | Submittal is for documentation of Sustainable requirements | S | S/FIO |

1.8.6 Delivery of Copies

Submit an updated electronic copy of the submittal register to the Contracting Officer with each invoice request. Provide an updated Submittal Register monthly regardless of whether an invoice is submitted.

1.9 VARIATIONS

Variations from contract requirements require Contracting Officer approval pursuant to contract Clause FAR 52.236-21 Specifications and Drawings for Construction, and will be considered where advantageous to the Government.

1.9.1 Considering Variations

Discussion of variations with the Contracting Officer before submission of a variation submittal will help ensure that functional and quality requirements are met and minimize rejections and resubmittals. For variations that include design changes or some material or product substitutions, the Government may require an evaluation and analysis by a licensed professional engineer hired by the contractor, other than the QC manager.

Specifically point out variations from contract requirements in a ENG Form 4025. Failure to point out variations may cause the Government to require rejection and removal of such work at no additional cost to the Government.

1.9.2 Proposing Variations

Check the column "variation" of ENG Form 4025 for submittals that include variations proposed by the Contractor. Set forth in writing the reason for any variations and note such variations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted variations.

1.9.3 Warranting that Variations are Compatible

When delivering a variation for approval, the Contractor warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.9.4 Review Schedule Extension

In addition to the normal submittal review period, a period of 14 calendar days will be allowed for the Government to consider submittals with variations.

1.10 SCHEDULING

Schedule and submit concurrently product data and shop drawings covering component items forming a system or items that are interrelated. Submit pertinent certifications at the same time. No delay damages or time extensions will be allowed for time lost in late submittals. Allow an additional 10 calendar days for review and approval of submittals for food service equipment<AM#0003>, Fire Sprinkler and Fire Alarm systems, Cyber-Security</AM#0003> and refrigeration and HVAC control systems<AM#0003> to include DDC systems.</AM#0003>

a. Coordinate scheduling, sequencing, preparing, and processing of submittals with performance of work so that work will not be delayed by submittal processing. The Contractor is responsible for additional time required for Government reviews resulting from required resubmittals. The review period for each resubmittal is the same as for the initial submittal.

b. Submittals required by the contract documents are listed on the submittal register. If a submittal is listed in the submittal register but does not pertain to the contract work, the Contractor is to include the submittal in the register and annotate it "N/A" with a brief explanation. Approval by the Contracting Officer does not relieve the Contractor of supplying submittals required by the contract documents but that have been omitted from the register or marked "N/A."

c. Resubmit the submittal register and annotate it monthly with actual submission and approval dates. When all items on the register have been fully approved, no further resubmittal is required.

d. <AM#0003>~~Contracting Officer review will be completed within 21 calendar days after the date of submission. Any item submitted after close of business, will be considered next business day.~~No work to include reviews of submittals, badging requests, responses to Requests for Information (RFI) shall be performed during the period December 24 through January 1, without a two-week prior written approval of the Contracting Officer. Badging, submittals, and RFI response times must be adjusted to consider this 9-calendar day period. This work

exclusionary period has been considered in computing the time allowed for the performance of this contract.</AM#0003>

1.11 GOVERNMENT APPROVING AUTHORITY

When the approving authority is the Contracting Officer, the Government will:

a. Note the date on which the submittal was received.

b. Review submittals for approval within the scheduling period specified and only for conformance with project design concepts and compliance with contract documents.

c. Identify returned submittals with one of the actions defined in paragraph REVIEW NOTATIONS and with comments and markings appropriate for the action indicated.

1.11.1 Review Notations

Submittals will be returned to the Contractor with the following notations:

a. Submittals marked "approved" or "accepted" authorize proceeding with the work covered.

b. Submittals marked "approved as noted" or "approved, except as noted, resubmittal not required," authorize proceeding with the work covered provided that the Contractor takes no exception to the corrections.

c. Submittals marked "not approved," "disapproved," or "revise and resubmit" indicate incomplete submittal or noncompliance with the contract requirements or design concept. Resubmit with appropriate changes. Do not proceed with work for this item until the resubmittal is approved.

d. Submittals marked "not reviewed" indicate that the submittal has been previously reviewed and approved, is not required, does not have evidence of being reviewed and approved by Contractor, or is not complete. A submittal marked "not reviewed" will be returned with an explanation of the reason it is not reviewed. Resubmit submittals returned for lack of review by Contractor or for being incomplete, with appropriate action, coordination, or change.

e. Submittals marked "receipt acknowledged" indicate that submittals have been received by the Government. This applies only to "information-only submittals" as previously defined.

<AM#0003>

f. Submittals will be returned to the Contractor with the notations outlined in the table below:

| Code | Status | Action Required/ Description |
|---|---|---|
| Code A | Approved | Approved as submitted; authorized to proceed with the work covered. |

| Code | Status | Action Required/ Description |
|---|---|---|
| Code B | Approved / Noted | Approved, except as noted on drawings. Resubmission not required. Authorized to proceed with the work covered provided that the Contractor takes no exception to the corrections. |
| Code C | Approved / Comments | Approved, except as noted on drawings. Refer to attached comments. Resubmission is required to address incomplete submittal or noncompliance. Do not proceed with work for this item until approved. |
| Code D | Pending | Will be returned by separate correspondence. |
| Code E | Disapproved | Disapproved, refer to attached comments. Resubmission is required to address incomplete submittal or noncompliance. Do not proceed with work for this item until approved. |

</AM#0003>

1.12 DISAPPROVED SUBMITTALS

Make corrections required by the Contracting Officer. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications, give notice to the Contracting Officer as required under the FAR clause titled CHANGES. The Contractor is responsible for the dimensions and design of connection details and the construction of work. Failure to point out variations may cause the Government to require rejection and removal of such work at the Contractor's expense.

If changes are necessary to submittals, make such revisions and resubmit in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.13 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals is not to be construed as a complete check, and indicates only thatthe general method of construction, materials, detailing, and other information are satisfactory.

Approval or acceptance by the Government for a submittal does not relieve the Contractor of the responsibility for meeting the contract requirements or for any error that may exist, because under the Quality Control (QC) requirements of this contract, the Contractor is responsible for ensuring information contained with in each submittal accurately conforms with the requirements of the contract documents.

After submittals have been approved or accepted by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

## 1.14 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is to not be construed to change or modify any contract requirements. Before submitting samples, provide assurance that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for materials and equipment incorporated in the work. If requested, approved samples, including those that may be damaged in testing, will be returned to the Contractor, at its expense, upon completion of the contract. Unapproved samples will also be returned to the Contractor at its expense, if so requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make as that material. The Government reserves the right to disapprove any material or equipment that has previously proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the Contracting Officer for testing. Samples failing to meet contract requirements will automatically void previous approvals. Replace such materials or equipment to meet contract requirements.

## 1.15 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

## 1.16 CERTIFICATION OF SUBMITTAL DATA

Certify the submittal data as follows on Form ENG 4025: "I certify that the above submitted items had been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.

_____NAME OF CONTRACTOR _____ SIGNATURE OF CONTRACTOR

| |
|---|
| CONTRACTOR |
| |
| (Firm Name) |
| |
| |

_____ Approved

_____ Approved with corrections as noted on submittal data and/or attached sheet (s)

SIGNATURE: _____

TITLE: _____

DATE: _____

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

| ACTIVITY NO | TRANSMITTAL NO | SPEC SECT | DESCRIPTION ITEM SUBMITTED | PARAGRAPH # | CLASSIFICATION | GOVT OR A/E REVWR | CONTRACTOR: SCHEDULE DATES | | | CONTRACTOR ACTION | | | APPROVING AUTHORITY | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | SUBMIT | APPROVAL NEEDED BY | MATERIAL NEEDED BY | ACTION CODE | DATE OF ACTION | DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR | DATE FWD TO OTHER REVIEWER | DATE RCD FROM OTH REVIEWER | ACTION CODE | DATE OF ACTION | MAILED TO CONTR/ DATE RCD FRM APPR AUTH | REMARKS |
| (a) | (b) | (c) | (d) | (e) | (f) | | (g) | (h) | (i) | (j) | (k) | (l) | (m) | (n) | (o) | (p) | (q) | (r) |
| | | 01 30 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | View Location Map | 1.4 | | | | | | | | | | | | | | |
| | | | Progress and Completion | 1.5 | | | | | | | | | | | | | | |
| | | | Pictures | | | | | | | | | | | | | | | |
| | | | Field Office Overhead | 1.8 | | | | | | | | | | | | | | |
| | | | Field Office Overhead | 1.8.1 | | | | | | | | | | | | | | |
| | | | Field Office Overhead | 1.8.2 | | | | | | | | | | | | | | |
| | | | Accounting Practice | 1.8 | | | | | | | | | | | | | | |
| | | | Delegation Of Authority | 1.9 | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Color Boards | 1.3 | G | | | | | | | | | | | | | |
| | | 01 32 01.00 10 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Project Scheduler Qualifications | 1.3 | G | | | | | | | | | | | | | |
| | | | Preliminary Project Schedule | 3.4.1 | G | | | | | | | | | | | | | |
| | | | Initial Project Schedule | 3.4.2 | G | | | | | | | | | | | | | |
| | | | Periodic Schedule Update | 3.6.2 | G | | | | | | | | | | | | | |
| | | 01 33 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Submittal Register | 1.8 | G | | | | | | | | | | | | | |
| | | 01 33 29 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Preliminary High Performance | 1.5.3.2 | G | | | | | | | | | | | | | |
| | | | and Sustainable Building Checklist | | | | | | | | | | | | | | | |
| | | | Sustainability Action Plan | 1.4.1 | G | | | | | | | | | | | | | |
| | | | Preliminary Sustainability | 1.5.3.2 | G | | | | | | | | | | | | | |
| | | | eNotebook | | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
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# SUBMITTAL REGISTER

CONTRACT NO.

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| | | 01 33 29 | Final High Performance and | 1.5.3.2 | G | | | | | | | | | | | | | |
| | | | Sustainable Building Checklist | | | | | | | | | | | | | | | |
| | | | Final Sustainability eNotebook | 1.5.3.2 | G | | | | | | | | | | | | | |
| | | | Amended Final Sustainability | 1.5.3.2 | G | | | | | | | | | | | | | |
| | | | eNotebook | | | | | | | | | | | | | | | |
| | | | Amended Final High | 1.5.3.2 | G | | | | | | | | | | | | | |
| | | | Performance and Sustainable | | | | | | | | | | | | | | | |
| | | | Building Checklist | | | | | | | | | | | | | | | |
| | | | Third Party Certification | 3.2 | G | | | | | | | | | | | | | |
| | | | Certificate, Assessment, or | | | | | | | | | | | | | | | |
| | | | Validation and Compliance Report | | | | | | | | | | | | | | | |
| | | 01 35 13.30 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Digital Photos | | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Surveys | | | | | | | | | | | | | | | |
| | | | ESRI File Geodatabase | | | | | | | | | | | | | | | |
| | | | Maps | | | | | | | | | | | | | | | |
| | | 01 35 26 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Accident Prevention Plan (APP) | 1.8 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Accident Reports | 1.12.2 | G | | | | | | | | | | | | | |
| | | | LHE Inspection Reports | 1.12.3 | | | | | | | | | | | | | | |
| | | | Monthly Exposure Reports | 1.5 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Activity Hazard Analysis (AHA) | 1.9 | G | | | | | | | | | | | | | |
| | | | Certificate of Compliance | 1.12.4 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
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| | | 01 35 26 | Hot Work Permit | 1.13 | | | | | | | | | | | | | | |
| | | | License Certificates | 1.14 | | | | | | | | | | | | | | |
| | | | Portable Gauge Operations | 1.14.1 | G | | | | | | | | | | | | | |
| | | | Planning Worksheet | | | | | | | | | | | | | | | |
| | | | Radiography Operation Planning | 1.14.1 | G | | | | | | | | | | | | | |
| | | | Work Sheet | | | | | | | | | | | | | | | |
| | | | Standard Lift Plan | 1.12.4 | G | | | | | | | | | | | | | |
| | | 01 45 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Contractor Quality Control (CQC) | 1.5.2 | G | | | | | | | | | | | | | |
| | | | Plan | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Verification Statement | 1.12.3 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Certificate Of Readiness | 1.6.6.1 | G | | | | | | | | | | | | | |
| | | 01 45 35 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Written NDT Practices | 3.1.2 | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Daily Reports | 3.1.2 | | | | | | | | | | | | | | |
| | | | Biweekly Reports | 3.1.1 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | AISC Certified Steel Fabricator | 2.1 | | | | | | | | | | | | | | |
| | | | Steel Joist Institute Membership | 2.1 | | | | | | | | | | | | | | |
| | | | Certified Plant | 2.1 | | | | | | | | | | | | | | |
| | | | Certificate of Compliance | 2.1 | | | | | | | | | | | | | | |
| | | | Special Inspector | 1.5 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 01 45 35 | Interim Report | 3.1.2 | G | | | | | | | | | | | | | |
| | | | Comprehensive Final Report | 3.1.2 | G | | | | | | | | | | | | | |
| | | 01 52 00.00 44 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Government Field Office | 2.2 | G | | | | | | | | | | | | | |
| | | | Network Diagram | | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Fiber Optic Test Reports | | G | | | | | | | | | | | | | |
| | | 01 56 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Dust Control | 3.1 | G | | | | | | | | | | | | | |
| | | | Products and Procedures | 2.1 | G | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Recordkeeping | 1.7 | | | | | | | | | | | | | | |
| | | 01 57 20 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | ENVIRONMENTAL | 1.6 | G | | | | | | | | | | | | | |
| | | | PROTECTION PLAN | | | | | | | | | | | | | | | |
| | | | Fish and Wildlife Protection | | G | | | | | | | | | | | | | |
| | | | Measures | | | | | | | | | | | | | | | |
| | | | Environmental Permit | | G | | | | | | | | | | | | | |
| | | | Asbestos Work Plans | | G | | | | | | | | | | | | | |
| | | | Asbestos Certifications | | G | | | | | | | | | | | | | |
| | | | Asbestos Transporter License | | G | | | | | | | | | | | | | |
| | | | Asbestos Medical clearances | | G | | | | | | | | | | | | | |
| | | | Asbestos Training Certificates | | G | | | | | | | | | | | | | |
| | | | Asbestos TDSHS License | | G | | | | | | | | | | | | | |
| | | | Unsigned copy of State | | G | | | | | | | | | | | | | |
| | | | Renovation | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 01 57 20 | Unsigned Demolition Notifications | | G | | | | | | | | | | | | | |
| | | | Edwards Aquifer Protection Plan | | G | | | | | | | | | | | | | |
| | | | Lead Work Plans | | G | | | | | | | | | | | | | |
| | | | Lead Occupant Protection Plan | | G | | | | | | | | | | | | | |
| | | | Texas Department of State | | G | | | | | | | | | | | | | |
| | | | Health Services Lead Licenses | | | | | | | | | | | | | | | |
| | | | Lead Notifications | | G | | | | | | | | | | | | | |
| | | | Acknowledgement Of Api Std 650 | | G | | | | | | | | | | | | | |
| | | | Aboveground Piping Systems | | G | | | | | | | | | | | | | |
| | | | Stormwater Pollution Prevention | 1.5.4 | G | | | | | | | | | | | | | |
| | | | Plan | | | | | | | | | | | | | | | |
| | | | Equipment Inventory List | | G | | | | | | | | | | | | | |
| | | | Waste Disposal Plan | | G | | | | | | | | | | | | | |
| | | | Construction Tpdes Notice Of | | G | | | | | | | | | | | | | |
| | | | Intent And Site Notices | | | | | | | | | | | | | | | |
| | | | Construction Site Notice Or | | G | | | | | | | | | | | | | |
| | | | Notice Of Intent | | | | | | | | | | | | | | | |
| | | | Hazardous Waste Management | | G | | | | | | | | | | | | | |
| | | | Plan | | | | | | | | | | | | | | | |
| | | | Integrated Solid Waste | | G | | | | | | | | | | | | | |
| | | | Management Plan | | | | | | | | | | | | | | | |
| | | | Hazardous Material List | | G | | | | | | | | | | | | | |
| | | | Emergency Response Plan | | G | | | | | | | | | | | | | |
| | | | And/Or Site Specific Spill | | | | | | | | | | | | | | | |
| | | | Prevention Response Plan | | | | | | | | | | | | | | | |
| | | | Summary Transmittal Letter | 1.5.2 | G | | | | | | | | | | | | | |

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| | | 01 57 20 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Safety Data Sheets (SDS) For All | | G | | | | | | | | | | | | | |
| | | | Materials | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Commercial Facility Lead | | G | | | | | | | | | | | | | |
| | | | Contaminated Waste Shall Be | | | | | | | | | | | | | | | |
| | | | Characterized, Profiled, And | | | | | | | | | | | | | | | |
| | | | Manifested | | | | | | | | | | | | | | | |
| | | | Return Manifests And Weight | | G | | | | | | | | | | | | | |
| | | | Tickets | | | | | | | | | | | | | | | |
| | | | Monthly Diversion And Landfill | | G | | | | | | | | | | | | | |
| | | | Reports | | | | | | | | | | | | | | | |
| | | | Any Asbestos Inspection Reports | | G | | | | | | | | | | | | | |
| | | | That Were Not Included In The | | | | | | | | | | | | | | | |
| | | | Original Assessment Or As A | | | | | | | | | | | | | | | |
| | | | Result To A Change In The Sow | | | | | | | | | | | | | | | |
| | | | Or Found As Unknown And | | | | | | | | | | | | | | | |
| | | | Unforseen Discoveries During Any | | | | | | | | | | | | | | | |
| | | | Phase Of He Project | | | | | | | | | | | | | | | |
| | | | Asbestos Inspection Reports | | G | | | | | | | | | | | | | |
| | | | That Have Not Been Provided By | | | | | | | | | | | | | | | |
| | | | The Area Specific Env Office | | | | | | | | | | | | | | | |
| | | | Lead Based Paint Reports -Not | | G | | | | | | | | | | | | | |
| | | | Included In Original Assessment | | | | | | | | | | | | | | | |
| | | | Or Results In Change Of Sow | | | | | | | | | | | | | | | |
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| | | 01 57 20 | Lead Inspection Reports- Not | | G | | | | | | | | | | | | | |
| | | | Provided By JBSA Env Office or | | | | | | | | | | | | | | | |
| | | | by licensed Lead Inspector | | | | | | | | | | | | | | | |
| | | | OSHA Air Monitoring | | G | | | | | | | | | | | | | |
| | | | Lead OSHA Negative Exposure | | G | | | | | | | | | | | | | |
| | | | Assessment | | | | | | | | | | | | | | | |
| | | | Asbestos Air Monitoring reports | | G | | | | | | | | | | | | | |
| | | | Lead Air Monitoring reports | | G | | | | | | | | | | | | | |
| | | | Analytical Results | 3.6.1.6 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Certificate Of Training Asbestos | | G | | | | | | | | | | | | | |
| | | | Certificate Lead Training | | G | | | | | | | | | | | | | |
| | | | EPA Lead Training Or Lead | | G | | | | | | | | | | | | | |
| | | | Awareness Training (Min 8Hr) | | | | | | | | | | | | | | | |
| | | | Stormwater Notice Of Change | | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Notice Of Termination | | G | | | | | | | | | | | | | |
| | | 01 57 23 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Storm Water Pollution Prevention | 1.3.2 | G | | | | | | | | | | | | | |
| | | | Plan | | | | | | | | | | | | | | | |
| | | | Storm Water Notice of Intent | 1.3.2 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Erosion and Sediment Controls | 1.3 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Mill Certificate or Affidavit | 2.1.3 | | | | | | | | | | | | | | |
| | | 01 57 24.01 44 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |

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| | | 01 57 24.01 44 | Storm Water Pollution Prevention | 3.5.7 | G | | | | | | | | | | | | | |
| | | | Plan | | | | | | | | | | | | | | | |
| | | | Notice of Termination | 3.13 | G | | | | | | | | | | | | | |
| | | 01 58 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Preliminary One Line | | G | | | | | | | | | | | | | |
| | | | Sign Legend Orders | 1.3.1 | G | | | | | | | | | | | | | |
| | | 01 74 19 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Construction Waste Management | 1.7 | G | | | | | | | | | | | | | |
| | | | Plan | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Monthly Reporting | | | | | | | | | | | | | | | |
| | | | Quarterly Reports | 1.9.2 | | | | | | | | | | | | | | |
| | | | Annual Report | 1.9.3 | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Final Construction Waste | 1.10 | S | | | | | | | | | | | | | |
| | | | Diversion Report | | | | | | | | | | | | | | | |
| | | 01 78 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Preliminary Record Drawings | 1.5.1 | | | | | | | | | | | | | | |
| | | | Final Record Drawings | 1.5.1.1 | | | | | | | | | | | | | | |
| | | | Final Record Drawings | 1.5.1.2 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Warranty Management Plan | 1.9.1 | | | | | | | | | | | | | | |
| | | | Warranty Tags | 1.9.5 | | | | | | | | | | | | | | |
| | | | Spare Parts Data | 1.7 | | | | | | | | | | | | | | |
| | | | warranty report | 1.9.4 | | | | | | | | | | | | | | |
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| | | 01 78 00 | Inventory of Contractor Furnished | | | | | | | | | | | | | | | |
| | | | and Insttalled Equipment | | | | | | | | | | | | | | | |
| | | | Inventory of Government | | | | | | | | | | | | | | | |
| | | | Furnished Contractor Insttalled | | | | | | | | | | | | | | | |
| | | | Equipment (GF/CI) | | | | | | | | | | | | | | | |
| | | | video | 3.6.1.1 | | | | | | | | | | | | | | |
| | | | Red Zone Meeting | 3.6.5 | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Instructions | 1.9.1 | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Operation and Maintenance | 3.6 | G | | | | | | | | | | | | | |
| | | | Manuals | | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | As-Built Drawings | 3.1 | G | | | | | | | | | | | | | |
| | | | Record Drawings | 3.3 | G | | | | | | | | | | | | | |
| | | | Record Model | 2.2 | G | | | | | | | | | | | | | |
| | | | As-Built Record of Equipment | 3.5 | | | | | | | | | | | | | | |
| | | | and Materials | | | | | | | | | | | | | | | |
| | | | Warranted Equipment and | 1.9.1 | | | | | | | | | | | | | | |
| | | | Materials | | | | | | | | | | | | | | | |
| | | | Final Approved Shop Drawings | 3.4 | G | | | | | | | | | | | | | |
| | | | Certification of EPA Designated | | G | | | | | | | | | | | | | |
| | | | Items | | | | | | | | | | | | | | | |
| | | | Certification Of USDA | 2.3 | G | | | | | | | | | | | | | |
| | | | Designated Items | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 01 78 00 | Interim DD FORM 1354 | 3.8.1 | G | | | | | | | | | | | | | |
| | | | High Performance and | 3.8.2 | G | | | | | | | | | | | | | |
| | | | Sustainable Building (HPSB) | | | | | | | | | | | | | | | |
| | | | Checklist | | | | | | | | | | | | | | | |
| | | | List Of Installed Building | 3.8.2 | | | | | | | | | | | | | | |
| | | | Equipment Items For DD Form | | | | | | | | | | | | | | | |
| | | | 1354 | | | | | | | | | | | | | | | |
| | | | Checklist For Form Dd1354 | 3.8 | | | | | | | | | | | | | | |
| | | 01 78 23 | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Training Plan | 3.1.1 | G | | | | | | | | | | | | | |
| | | | Training Outline | 3.1.3 | G | | | | | | | | | | | | | |
| | | | Training Content | 3.1.2 | G | | | | | | | | | | | | | |
| | | | Operation And Maintenance | 3.2.1 | G | | | | | | | | | | | | | |
| | | | Manual, Progress Submittal | | | | | | | | | | | | | | | |
| | | | Operation And Maintenance | 3.2.2 | G | | | | | | | | | | | | | |
| | | | Manual, Prefinal Submittal | | | | | | | | | | | | | | | |
| | | | Operation And Maintenance | 3.2.3 | G | | | | | | | | | | | | | |
| | | | Manual, Final Submittal | | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Training Video Recording | 3.1.4 | G | | | | | | | | | | | | | |
| | | | Validation of Training Completion | 3.1.6 | G | | | | | | | | | | | | | |
| | | | Training Plan | 3.1.1 | G | | | | | | | | | | | | | |
| | | | Record Drawings And Utility | 1.6.6.7 | G | | | | | | | | | | | | | |
| | | | Systems | | | | | | | | | | | | | | | |
| | | 01 91 00.15 10 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 01 91 00.15 10 | Commissioning Firm | 1.8 | G | DO | | | | | | | | | | | | |
| | | | Lead Commissioning Specialist | 1.8.1 | G | DO | | | | | | | | | | | | |
| | | | Technical Commissioning | 1.8.2 | G | DO | | | | | | | | | | | | |
| | | | Specialists | | | | | | | | | | | | | | | |
| | | | Commissioning Firm's Contract | 1.8 | G | DO | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Interim Construction Phase | 3.1.2.1 | G | DO | | | | | | | | | | | | |
| | | | Commissioning Plan | | | | | | | | | | | | | | | |
| | | | Final Construction Phase | 3.1.2.2 | G | DO | | | | | | | | | | | | |
| | | | Commissioning Plan | | | | | | | | | | | | | | | |
| | | | Template Building Envelope | 3.1.2.1.2 | G | DO | | | | | | | | | | | | |
| | | | Inspection Checklists | | | | | | | | | | | | | | | |
| | | | Building Envelope Inspection | 3.1.5.2 | G | DO | | | | | | | | | | | | |
| | | | Checklists | | | | | | | | | | | | | | | |
| | | | Pre-Functional Checklists | 3.1.5.3 | G | DO | | | | | | | | | | | | |
| | | | Issues Log | 1.10 | | | | | | | | | | | | | | |
| | | | Commissioning Report | 3.2 | G | DO | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Certificate of Readiness | 1.11 | G | DO | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Training Plan | 3.1.6 | G | RO | | | | | | | | | | | | |
| | | | Training Attendance Rosters | 3.1.6 | G | RO | | | | | | | | | | | | |
| | | | Systems Manual | 3.1.7 | G | DO | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Final Commissioning Report | 3.2 | S | DO | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 01 91 00.15 10 | Final Construction Phase | 3.1.2.2 | S | | | | | | | | | | | | | |
| | | | Commissioning Plan | | | | | | | | | | | | | | | |
| | | 03 30 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Quality Control Plan | 1.6.6 | G | | | | | | | | | | | | | |
| | | | Quality Control Personnel | 1.6.7 | G | | | | | | | | | | | | | |
| | | | Certifications | | | | | | | | | | | | | | | |
| | | | Laboratory Accreditation | 1.6.9 | G | | | | | | | | | | | | | |
| | | | Maturity Method Data | 3.3.10 | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Reinforcing Steel | 1.6.2.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Joint Sealants | 2.4.5 | | | | | | | | | | | | | | |
| | | | Joint Filler | 2.4.4 | | | | | | | | | | | | | | |
| | | | Formwork Materials | 2.1 | | | | | | | | | | | | | | |
| | | | Cementitious Materials | 2.3.1 | | | | | | | | | | | | | | |
| | | | Vapor Barrier | 2.4.6 | | | | | | | | | | | | | | |
| | | | Concrete Curing Materials | 2.4.1 | | | | | | | | | | | | | | |
| | | | Reinforcement | 2.6 | | | | | | | | | | | | | | |
| | | | Liquid Chemical Floor Hardeners | 2.4.3.1 | | | | | | | | | | | | | | |
| | | | and Sealers | | | | | | | | | | | | | | | |
| | | | Admixtures | 2.3.4 | | | | | | | | | | | | | | |
| | | | Mechanical Reinforcing Bar | 2.6.2 | | | | | | | | | | | | | | |
| | | | Connectors | | | | | | | | | | | | | | | |
| | | | Waterstops | 2.2.2 | | | | | | | | | | | | | | |
| | | | Local/Regional Materials | 1.8.1 | | | | | | | | | | | | | | |
| | | | Finishing Plan | 1.6.3.2 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 03 30 00 | Nonshrink Grout | 2.4.2 | | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | | |
| | | | Concrete Mix Design | 1.6.1.1 | G | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | | |
| | | | Concrete Mix Design | 1.6.1.1 | G | | | | | | | | | | | | | | |
| | | | Pozzolan | 1.2 | | | | | | | | | | | | | | | |
| | | | Pozzolan | 1.7.1 | | | | | | | | | | | | | | | |
| | | | Pozzolan | 2.3.1.2 | | | | | | | | | | | | | | | |
| | | | Pozzolan | 2.3.1.2 | | | | | | | | | | | | | | | |
| | | | Pozzolan | 2.3.1.3 | | | | | | | | | | | | | | | |
| | | | Pozzolan | 2.3.1.3 | | | | | | | | | | | | | | | |
| | | | Pozzolan | 2.5.2.4 | | | | | | | | | | | | | | | |
| | | | Pozzolan | 2.5.2.4 | | | | | | | | | | | | | | | |
| | | | Aggregates | 1.6.4.1 | | | | | | | | | | | | | | | |
| | | | Tolerance Report | 3.10.2.1 | | | | | | | | | | | | | | | |
| | | | Compressive Strength Tests | 3.13.3.3 | G | | | | | | | | | | | | | | |
| | | | Air Content | 3.13.3.4 | | | | | | | | | | | | | | | |
| | | | Slump Tests | 3.13.3.1 | | | | | | | | | | | | | | | |
| | | | Water | 2.3.2 | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | | |
| | | | Reinforcing Bars | 2.6.1 | | | | | | | | | | | | | | | |
| | | | Welder Qualifications | 1.9 | | | | | | | | | | | | | | | |
| | | | Safety Data Sheets | 1.6.3.3 | | | | | | | | | | | | | | | |
| | | | Field Testing Technician and | 1.6.7.2 | | | | | | | | | | | | | | | |
| | | | Testing Agency | | | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 03 30 00 | Liquid Chemical Floor Hardeners | 2.4.3.1 | | | | | | | | | | | | | | |
| | | | and Sealers | | | | | | | | | | | | | | | |
| | | | Joint Sealants | 2.4.5 | | | | | | | | | | | | | | |
| | | | Curing Compound | 2.4.1 | | | | | | | | | | | | | | |
| | | 03 41 33 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Fabrication Drawings | 2.1 | G | | | | | | | | | | | | | |
| | | | Installation Drawings | 2.1 | G | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Normal-Weight Concrete | 2.1.1.1 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Normal-Weight Concrete Air | 1.3.4.2 | G | | | | | | | | | | | | | |
| | | | Content | | | | | | | | | | | | | | | |
| | | | Air Entrainment for | 1.3.4.2 | G | | | | | | | | | | | | | |
| | | | Normal-Weight Concrete | | | | | | | | | | | | | | | |
| | | | Normal-Weight Concrete | 2.1.1.1 | G | | | | | | | | | | | | | |
| | | | Compressive Strength | | | | | | | | | | | | | | | |
| | | | Design Mix | 1.3.4.2 | G | | | | | | | | | | | | | |
| | | | Unit Weight | 1.3.4.2 | G | | | | | | | | | | | | | |
| | | | Anchorages | 2.3.3.5 | | | | | | | | | | | | | | |
| | | | Nondestructive Testing | 3.3.6.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Qualifications for Welding Work | 1.3.3 | G | | | | | | | | | | | | | |
| | | | Installers | 1.3.2 | | | | | | | | | | | | | | |
| | | | Manufacturer | 1.3.1 | G | | | | | | | | | | | | | |
| | | | Pretensioning | 2.2.7 | G | | | | | | | | | | | | | |
| | | | Detensioning | 2.2.16 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 03 41 33 | Welding Procedures | 1.3.3 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Installation Instructions | 1.3.3 | | | | | | | | | | | | | | |
| | | | Welding Sequence and | 1.3.3 | | | | | | | | | | | | | | |
| | | | Procedure | | | | | | | | | | | | | | | |
| | | | Epoxy-Resin Grout | 2.3.5 | | | | | | | | | | | | | | |
| | | | Epoxy-Resin Adhesive | 2.3.5 | | | | | | | | | | | | | | |
| | | 03 45 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Pre-Installation Meeting | 1.12.5 | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Precast Drawings | 1.12.1 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Cast-In Embedded Items And | 2.4 | G | | | | | | | | | | | | | |
| | | | Connectors | | | | | | | | | | | | | | | |
| | | | Connection Devices | 2.4.2 | G | | | | | | | | | | | | | |
| | | | Admixtures | 2.3.6 | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Concrete Wall Panel Surface | 1.12.3 | G | | | | | | | | | | | | | |
| | | | Finish | | | | | | | | | | | | | | | |
| | | | Mock-up | 1.12.4 | | | | | | | | | | | | | | |
| | | | Full Size Sample Wall Panel | 1.12.3 | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Design Calculations | 1.5.5 | | | | | | | | | | | | | | |
| | | | Concrete Mix Design | 2.2.1 | G | | | | | | | | | | | | | |
| | | | Repair of Surface Defects | 2.5.9 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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TITLE AND LOCATION
Lackland DCF4

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| | | 03 45 00 | Moisture and Thermal | 1.5.6 | G | | | | | | | | | | | | | |
| | | | Performance Calculations | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Strength Tests | 1.11.2 | G | | | | | | | | | | | | | |
| | | | Slump | 1.11.2 | | | | | | | | | | | | | | |
| | | | Air Content | 1.11.1 | | | | | | | | | | | | | | |
| | | | Air Content | 1.11.2 | | | | | | | | | | | | | | |
| | | | Test for Concrete Materials | 1.11.1 | | | | | | | | | | | | | | |
| | | | Water | 2.3.7 | | | | | | | | | | | | | | |
| | | | Testing Precast Units for | 3.6.4 | | | | | | | | | | | | | | |
| | | | Strength | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Manufacturer's Qualifications | 1.4 | G | | | | | | | | | | | | | |
| | | | Fabricator Quality Certifications | 1.8.1 | | | | | | | | | | | | | | |
| | | | Erector Certification | 1.9 | | | | | | | | | | | | | | |
| | | | Erector's Post Audit Declaration | 1.10 | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Installation | 3.3 | G | | | | | | | | | | | | | |
| | | | Cleaning | 3.8 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Recycled Content for Fly Ash and | 2.3.1 | S | | | | | | | | | | | | | |
| | | | Pozzolan | | | | | | | | | | | | | | | |
| | | 04 20 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Detail Drawings | 3.4.1.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Hot Weather Procedures | 1.5.1 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

| ACTIVITY NO | TRANSMITTAL NO | SPEC SECT | DESCRIPTION ITEM SUBMITTED | PARAGRAPH # | CLASSIFICATION | GOVT OR A/E REVWR | CONTRACTOR: SCHEDULE DATES | | | CONTRACTOR ACTION | | | APPROVING AUTHORITY | | | | | |
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| | | 04 20 00 | Cold Weather Procedures | 1.5.2 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Mock-Up Panel | 1.3.1.1 | G | | | | | | | | | | | | | |
| | | | Clay or Shale Brick | 2.2.2 | G | | | | | | | | | | | | | |
| | | | Glazed Structural Clay Facing | 2.2.3.4 | G | | | | | | | | | | | | | |
| | | | Tile | | | | | | | | | | | | | | | |
| | | | Concrete Masonry Units (CMU) | 2.2.3.2 | G | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Masonry Compressive Strength | 2.1.2 | G | | | | | | | | | | | | | |
| | | | Fire-Rated Concrete Masonry | 2.2.3.3 | | | | | | | | | | | | | | |
| | | | Units | | | | | | | | | | | | | | | |
| | | | Bracing Calculations | 3.2.5 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Efflorescence Test | 2.2.2.1.4 | | | | | | | | | | | | | | |
| | | | Fire-Rated Concrete Masonry | 2.2.3.3 | | | | | | | | | | | | | | |
| | | | Units | | | | | | | | | | | | | | | |
| | | | Field Testing of Mortar | 3.6.1.1 | G | | | | | | | | | | | | | |
| | | | Field Testing of Grout | 3.6.1.2 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Take-Back Program | 3.8 | | | | | | | | | | | | | | |
| | | 05 05 23.13 10 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Personnel Qualification | 1.4.1 | G | | | | | | | | | | | | | |
| | | | Procedure description | 2.1.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Equipment and accessories | 2.1.1 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 05 05 23.13 10 | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Equipment Qualifications | 1.4.5 | | | | | | | | | | | | | | |
| | | | Inspection Test Reports | 3.4.1 | | | | | | | | | | | | | | |
| | | 05 12 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Fabrication Drawings | 1.4.2 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Shop Primer | 2.6.2 | | | | | | | | | | | | | | |
| | | | Welding Electrodes and Rods | 2.4.1 | | | | | | | | | | | | | | |
| | | | Direct Tension Indicator Washers | 2.3.2.3 | | | | | | | | | | | | | | |
| | | | Non-Shrink Grout | 2.4.2 | | | | | | | | | | | | | | |
| | | | Tension Control Bolts | 2.3.3 | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Class B Coating | 2.6.2 | | | | | | | | | | | | | | |
| | | | Bolts, Nuts, and Washers | 2.3 | | | | | | | | | | | | | | |
| | | | Weld Inspection Reports | 3.7.1.2 | | | | | | | | | | | | | | |
| | | | Direct Tension Indicator Washer | 3.7.2.1 | | | | | | | | | | | | | | |
| | | | Inspection Reports | | | | | | | | | | | | | | | |
| | | | Bolt Testing Reports | 3.7.3.1 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Steel | 2.2 | | | | | | | | | | | | | | |
| | | | Bolts, Nuts, and Washers | 2.3 | | | | | | | | | | | | | | |
| | | | Galvanizing | 2.5 | | | | | | | | | | | | | | |
| | | | AISC Structural Steel Fabricator | 1.3 | | | | | | | | | | | | | | |
| | | | Quality Certification | | | | | | | | | | | | | | | |
| | | | Welding Procedures and | 1.4.3.1 | | | | | | | | | | | | | | |
| | | | Qualifications | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 05 12 00 | Welding Electrodes and Rods | 2.4.1 | | | | | | | | | | | | | | |
| | | | Certified Welding Inspector | 3.7.1.1 | | | | | | | | | | | | | | |
| | | | NDT Technician | 3.7.1.2 | | | | | | | | | | | | | | |
| | | | Welding Procedure Specifications | 3.4 | | | | | | | | | | | | | | |
| | | | (WPS) | | | | | | | | | | | | | | | |
| | | 05 21 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Welder Qualification | 1.3.2 | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Steel Joist Framing | 1.3.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Recycled Content Of Steel | 2.3 | S | | | | | | | | | | | | | |
| | | | Products | | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Design Calculations | 2.2 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Erection Inspection | 3.3 | | | | | | | | | | | | | | |
| | | | Welding Inspections | 3.3 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Certification of Compliance | 1.3.2 | | | | | | | | | | | | | | |
| | | 05 30 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Fabrication Drawings | 1.3.5 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Accessories | 2.2 | | | | | | | | | | | | | | |
| | | | Deck Units | 2.1 | | | | | | | | | | | | | | |
| | | | Galvanizing Repair Paint | 2.1.6 | | | | | | | | | | | | | | |
| | | | Mechanical Fasteners | 2.2.17 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 05 30 00 | Touch-Up Paint | 2.1.6 | | | | | | | | | | | | | | |
| | | | Welding Rods and Accessories | 1.3.3 | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Metal Roof Deck Units | 2.1.1 | | | | | | | | | | | | | | |
| | | | Flexible Closure Strips | 2.2.4 | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Deck Units | 2.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Powder-Actuated Tool Operator | 1.3.2 | | | | | | | | | | | | | | |
| | | | Fire Safety | 1.3.4.1 | | | | | | | | | | | | | | |
| | | | Wind Storm Resistance | 1.3.4.2 | | | | | | | | | | | | | | |
| | | | Manufacturer's Certificate | 1.3.1 | | | | | | | | | | | | | | |
| | | 05 40 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Framing Components | 1.5.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Studs, Joists | 2.1 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Welds | 3.1.1 | | | | | | | | | | | | | | |
| | | 05 50 13 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Bollards/Pipe Guards | 2.3 | G | | | | | | | | | | | | | |
| | | | Roof Hatches | 2.4 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Roof Hatches | 2.4 | G | | | | | | | | | | | | | |
| | | 05 51 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Iron and Steel Hardware | 2.1 | G | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 05 51 00 | Steel Shapes, Plates, Bars, and | 2.1 | G | | | | | | | | | | | | | |
| | | | Strips | | | | | | | | | | | | | | | |
| | | | Metal Stair System | 2.2.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Tread Plank | 2.2.2.5 | G | | | | | | | | | | | | | |
| | | | Landing Floor Plank | 2.2.2.5 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Welding Procedures | 1.3.1 | G | | | | | | | | | | | | | |
| | | | Welder Qualification | 1.3.1 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Tread | 2.2.3 | G | | | | | | | | | | | | | |
| | | | Landing Floor Plank | 2.2.2.5 | G | | | | | | | | | | | | | |
| | | 05 51 33 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Ladders | 2.3 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Ladders | 2.3 | | | | | | | | | | | | | | |
| | | | Ladder Safety Devices | 2.3.2 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Fabricator Certification for Ladder | 1.3 | | | | | | | | | | | | | | |
| | | | Assembly | | | | | | | | | | | | | | | |
| | | | Fabricator Certification for Ships | 1.3 | | | | | | | | | | | | | | |
| | | | Ladder Assembly | | | | | | | | | | | | | | | |
| | | 05 52 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Fabrication Drawings | 1.2.1 | G | | | | | | | | | | | | | |
| | | | Steel Shapes, Plates, Bars and | 1.2.1 | G | | | | | | | | | | | | | |
| | | | Strips | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 05 52 00 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Anchorage and Fastening | 1.2.1 | G | | | | | | | | | | | | | |
| | | | Systems | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Welding Procedures | 1.4.1 | G | | | | | | | | | | | | | |
| | | | Welder Qualification | 1.4.2 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Installation Instructions | 3.2 | G | | | | | | | | | | | | | |
| | | 06 10 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Trussed Rafters | 2.4.2 | G | | | | | | | | | | | | | |
| | | | Trussed Joists | 2.4.3 | G | | | | | | | | | | | | | |
| | | | Fabricated Structural Members | 1.9.1 | G | | | | | | | | | | | | | |
| | | | Modifications of Structural | 1.9.2 | G | | | | | | | | | | | | | |
| | | | Members | | | | | | | | | | | | | | | |
| | | | Nailing Strips | 2.2.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Fire-Retardant Treatment | 1.8 | | | | | | | | | | | | | | |
| | | | Oriented Strand Board | 2.3 | | | | | | | | | | | | | | |
| | | | Adhesives | 2.4.6 | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Modifications of Structural | 1.9.2 | G | | | | | | | | | | | | | |
| | | | Members | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Preservative-treated | 1.4.3 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Certificates of Grade | 1.11.1 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 06 10 00 | Certified Sustainably Harvested | 2.2.1 | S | | | | | | | | | | | | | |
| | | | Framing Lumber | | | | | | | | | | | | | | | |
| | | | Preservative Treatment | 1.7 | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Aerosol | 2.4.6 | S | | | | | | | | | | | | | |
| | | | Adhesives | | | | | | | | | | | | | | | |
| | | 06 61 16 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Installation | 3.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Solid Polymer | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Indoor air quality for solid surface | 2.2.2 | S | | | | | | | | | | | | | |
| | | | seam and sealant products | | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Material | 2.1 | G | | | | | | | | | | | | | |
| | | | Counter Tops | 2.3.5 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Test Report Results | 2.1.1 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Qualifications | 1.4.1 | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for solid | 2.1.1 | S | | | | | | | | | | | | | |
| | | | surface fabrication products | | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Solid Polymer | 2.1.1 | G | | | | | | | | | | | | | |
| | | 07 05 23 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Work Plan | 1.4 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 07 05 23 | Thermal Imaging Camera | 2.2 | G | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Envelope Surface Area | 3.2 | G | | | | | | | | | | | | | |
| | | | Calculations | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Pressure Test Agency | 1.6.2.1 | | | | | | | | | | | | | | |
| | | | Thermographer Qualifications | 1.6.2.2 | | | | | | | | | | | | | | |
| | | | Test Instruments | 1.6.3 | | | | | | | | | | | | | | |
| | | | Date Of Last Calibration | 1.6.3 | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Pressure Test Procedures | 3.5 | G | | | | | | | | | | | | | |
| | | | Air Leakage Test Report | 1.6.4 | G | | | | | | | | | | | | | |
| | | | Air Leakage Test Report | 3.5.6 | G | | | | | | | | | | | | | |
| | | | Diagnostic Test Report | 1.6.4 | G | | | | | | | | | | | | | |
| | | | Diagnostic Test Report | 3.6.5 | G | | | | | | | | | | | | | |
| | | 07 13 53 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Manufacturer's Standard Details | 1.3 | G | | | | | | | | | | | | | |
| | | | Elastomeric Waterproofing Sheet | 2.2 | G | | | | | | | | | | | | | |
| | | | Material | | | | | | | | | | | | | | | |
| | | | Protection Board | 2.5 | G | | | | | | | | | | | | | |
| | | | Primers, Adhesives, and Mastics | 1.4 | G | | | | | | | | | | | | | |
| | | | Primers, Adhesives, and Mastics | 2.2 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Elastomeric Waterproofing Sheet | 2.2 | G | | | | | | | | | | | | | |
| | | | Material | | | | | | | | | | | | | | | |
| | | | Field Quality Control | 3.6 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

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Lackland DCF4

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| | | 07 13 53 | Protective Covering | 3.7 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Elastomeric Waterproofing Sheet | 2.2 | | | | | | | | | | | | | | |
| | | | Material | | | | | | | | | | | | | | | |
| | | | Primers, Adhesives, and Mastics | 1.4 | G | | | | | | | | | | | | | |
| | | | Primers, Adhesives, and Mastics | 2.2 | G | | | | | | | | | | | | | |
| | | | Protective Coverings | 1.4 | G | | | | | | | | | | | | | |
| | | | Special Warranties | 1.8 | G | | | | | | | | | | | | | |
| | | | Special Warranties | 1.8 | G | | | | | | | | | | | | | |
| | | | Certificates Of Compliance | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Certificates Of Compliance | 2.1.2 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Primers, Adhesives, and Mastics | 1.4 | G | | | | | | | | | | | | | |
| | | | Primers, Adhesives, and Mastics | 2.2 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Certificates Of Compliance | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Certificates Of Compliance | 2.1.2 | G | | | | | | | | | | | | | |
| | | 07 14 10 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Waterproof Flooring Surfacing | 2.1 | | | | | | | | | | | | | | |
| | | | System | | | | | | | | | | | | | | | |
| | | | Solvent | 3.6 | | | | | | | | | | | | | | |
| | | | Moisture meter | 3.7.1 | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Color | 3.3.1 | G | | | | | | | | | | | | | |
| | | 07 17 00 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Bentonite Materials | 2.1 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 07 17 00 | Bentonite Panels | 2.1.3 | G | | | | | | | | | | | | | |
| | | | Accessories | 1.3 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Application | 3.2 | | | | | | | | | | | | | | |
| | | | Protection | 3.3 | | | | | | | | | | | | | | |
| | | | Corrections | 3.5 | G | | | | | | | | | | | | | |
| | | 07 21 13 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Manufacturer's Standard Details | 1.3 | G | | | | | | | | | | | | | |
| | | | Block or Board Insulation | 2.1 | G | | | | | | | | | | | | | |
| | | | Vapor Retarder | 2.2 | G | | | | | | | | | | | | | |
| | | | Vapor Retarder | 2.2 | G | | | | | | | | | | | | | |
| | | | Vapor Retarder | 3.1 | G | | | | | | | | | | | | | |
| | | | Vapor Retarder | 3.6.1 | G | | | | | | | | | | | | | |
| | | | Pressure Sensitive Tape | 2.2 | G | | | | | | | | | | | | | |
| | | | Protection Board or Coatings | 1.4 | G | | | | | | | | | | | | | |
| | | | Accessories | 2.4 | G | | | | | | | | | | | | | |
| | | | Recycled Content for Block or | 2.1.4 | S | | | | | | | | | | | | | |
| | | | Board Insulation | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Block or Board Insulation | 2.1 | G | | | | | | | | | | | | | |
| | | | Vapor Retarder | 2.2 | G | | | | | | | | | | | | | |
| | | | Vapor Retarder | 2.2 | G | | | | | | | | | | | | | |
| | | | Vapor Retarder | 3.1 | G | | | | | | | | | | | | | |
| | | | Vapor Retarder | 3.6.1 | G | | | | | | | | | | | | | |
| | | | Protection Board or Coating | 2.3 | G | | | | | | | | | | | | | |
| | | | Special Warranties | 1.8 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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TITLE AND LOCATION
Lackland DCF4

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| | | 07 21 13 | Special Warranties | 1.8 | G | | | | | | | | | | | | | |
| | | | Indoor Air Quality For Block Or | 2.1.5 | S | | | | | | | | | | | | | |
| | | | Board Insulation | | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Block or Board Insulation | 2.1 | | | | | | | | | | | | | | |
| | | | Adhesive | 2.4.1 | | | | | | | | | | | | | | |
| | | 07 21 16 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Blanket Insulation | 2.1 | | | | | | | | | | | | | | |
| | | | Recycled Content for Insulation | 2.1.2 | S | | | | | | | | | | | | | |
| | | | Materials | | | | | | | | | | | | | | | |
| | | | Accessories | 2.2 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Adhesives | 2.2.1 | S | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Insulation | 3.1.1 | | | | | | | | | | | | | | |
| | | 07 22 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Insulation Board Layout | 1.3 | G | | | | | | | | | | | | | |
| | | | Verification of Existing Conditions | 1.3 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Insulation | 2.1 | G | | | | | | | | | | | | | |
| | | | Cover Board | 1.4 | G | | | | | | | | | | | | | |
| | | | Fasteners | 2.3 | G | | | | | | | | | | | | | |
| | | | Recycled Content For Insulation | 2.1.2 | S | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Flame Spread Rating | 1.7.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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TITLE AND LOCATION
Lackland DCF4

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| | | 07 22 00 | Installer Qualifications | 1.6 | G | | | | | | | | | | | | | |
| | | | Certificates Of Compliance For | 1.6 | G | | | | | | | | | | | | | |
| | | | Felt Materials | | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Fasteners | 2.3 | G | | | | | | | | | | | | | |
| | | | Insulation | 2.1 | G | | | | | | | | | | | | | |
| | | 07 26 16 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | material | 2.1 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | material | 2.1 | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Installation | 3.2 | | | | | | | | | | | | | | |
| | | 07 27 10.00 10 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Air Barrier System Shop | 2.1 | G | | | | | | | | | | | | | |
| | | | Drawings | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Air Barrier System Product Data | 2.1 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Mock-Up | 3.1.2 | G | | | | | | | | | | | | | |
| | | | Material Samples For Air Barrier | 2.1 | G | | | | | | | | | | | | | |
| | | | System | | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Design Data And Calculations | 1.8 | G | | | | | | | | | | | | | |
| | | | For The Air Barrier System | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Design Review Report | 1.8 | G | | | | | | | | | | | | | |

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| | | 07 27 10.00 10 | Testing and Inspection | 3.1.3 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Air Barrier Inspector | 1.7 | G | RO | | | | | | | | | | | | |
| | | 07 27 26 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Qualifications of Manufacturer | 1.8.1 | G | | | | | | | | | | | | | |
| | | | Qualifications of Installer | 1.8.2 | G | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Fluid-Applied Membrane Air | 1.4 | G | | | | | | | | | | | | | |
| | | | Barrier | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Fluid-Applied Membrane Air | 1.4 | G | | | | | | | | | | | | | |
| | | | Barrier | | | | | | | | | | | | | | | |
| | | | Transition Membrane | 2.3 | G | | | | | | | | | | | | | |
| | | | Primers, Adhesives, and Mastics | 2.2 | G | | | | | | | | | | | | | |
| | | | Reinforcement | 2.6 | G | | | | | | | | | | | | | |
| | | | Safety Data Sheets | 1.4.2 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Mockup | 1.4.3 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Capillary Moisture Test | 1.4.4 | G | | | | | | | | | | | | | |
| | | | Field Peel Adhesion Test | 1.4.4 | G | | | | | | | | | | | | | |
| | | | Flame Propagation of Wall | 1.4.4 | G | | | | | | | | | | | | | |
| | | | Assemblies | | | | | | | | | | | | | | | |
| | | | Flame Spread and Smoke | 1.4.4 | G | | | | | | | | | | | | | |
| | | | Developed Index Ratings | | | | | | | | | | | | | | | |
| | | | Site Inspections | 3.4.1 | G | | | | | | | | | | | | | |

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Lackland DCF4

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| | | 07 27 26 | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Fluid-Applied Membrane Air | 1.4 | G | | | | | | | | | | | | | |
| | | | Barrier | | | | | | | | | | | | | | | |
| | | | Transition Membrane | 2.3 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Fluid-Applied Membrane Air | 1.4 | G | | | | | | | | | | | | | |
| | | | Barrier | | | | | | | | | | | | | | | |
| | | | Transition Membrane | 2.3 | G | | | | | | | | | | | | | |
| | | | Primers, Adhesives, and Mastics | 2.2 | G | | | | | | | | | | | | | |
| | | 07 27 36 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Qualification of Manufacturer | 1.10.1 | G | | | | | | | | | | | | | |
| | | | Qualification of Installer | 1.10.2 | G | | | | | | | | | | | | | |
| | | | Quality Control Plan | 1.11 | G | | | | | | | | | | | | | |
| | | | Safety Plan | 1.11 | G | | | | | | | | | | | | | |
| | | | Fire Prevention Plan | 1.9.1 | G | | | | | | | | | | | | | |
| | | | Respirator Plan | 1.9.2 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Closed Cell | 2.1.2 | G | | | | | | | | | | | | | |
| | | | Transition Membrane | 2.2 | G | | | | | | | | | | | | | |
| | | | Primers, Adhesives, and Mastics | 2.3 | G | | | | | | | | | | | | | |
| | | | Sealants | 2.5 | G | | | | | | | | | | | | | |
| | | | Safety Data Sheets | 1.5.2 | G | | | | | | | | | | | | | |
| | | | Thermal Barrier Materials | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Ignition Barrier Coatings | 1.12.3 | G | | | | | | | | | | | | | |
| | | | Ignition Barrier Coatings | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Accessories | 2.1.6 | G | | | | | | | | | | | | | |

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Lackland DCF4

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| | | 07 27 36 | Recycled Content for Closed Cell | 2.1.2 | S | | | | | | | | | | | | | |
| | | | Spray Foam Air Barrier | | | | | | | | | | | | | | | |
| | | | Blowing Agent | 2.1.5 | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Spray Foam Air Barrier | 1.5 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Field Peel Adhesion Test | 1.5.4 | G | | | | | | | | | | | | | |
| | | | Thermographic Test | 3.4.5.1 | G | | | | | | | | | | | | | |
| | | | Air Barrier Test | 1.8 | G | | | | | | | | | | | | | |
| | | | Primers | 1.5.3 | G | | | | | | | | | | | | | |
| | | | Fire-Ratings Of Thermal and | 1.5.4 | G | | | | | | | | | | | | | |
| | | | Ignition Barrier Materials | | | | | | | | | | | | | | | |
| | | | Flame Spread And Smoke | 1.5.4 | G | | | | | | | | | | | | | |
| | | | Developed Index Ratings Of SPF | | | | | | | | | | | | | | | |
| | | | Products | | | | | | | | | | | | | | | |
| | | | Site Inspections | 3.4.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Spray Foam | 2.1.5 | S | | | | | | | | | | | | | |
| | | | Air Barrier | | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | SPF Handling, Storage, and | 1.6.1 | G | | | | | | | | | | | | | |
| | | | Spray Procedures | | | | | | | | | | | | | | | |
| | | | Substrate Preparation | 3.2.1 | G | | | | | | | | | | | | | |
| | | | Thermal Barrier | 1.5.1 | G | | | | | | | | | | | | | |
| | | | Ignition Barrier | 1.5.1 | G | | | | | | | | | | | | | |
| | | | Transition Membrane | 2.2 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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TITLE AND LOCATION
Lackland DCF4

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| | | 07 27 36 | Primers, Adhesives, and Mastics | 2.3 | G | | | | | | | | | | | | | |
| | | | SD-09 Manufacturer's Field | | | | | | | | | | | | | | | |
| | | | Reports | | | | | | | | | | | | | | | |
| | | | Core Samples | 1.11 | | | | | | | | | | | | | | |
| | | | Daily Work Record | 3.3.3 | | | | | | | | | | | | | | |
| | | | Visual Inspection and Thermal | 3.4.5 | | | | | | | | | | | | | | |
| | | | Scanning | | | | | | | | | | | | | | | |
| | | 07 41 13 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Roofing Panels | 1.4.5 | G | | | | | | | | | | | | | |
| | | | Flashing and Accessories | 1.4.5 | G | | | | | | | | | | | | | |
| | | | Gutter/Downspout Assembly | 1.4.5 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Roof Panels | 2.1 | G | | | | | | | | | | | | | |
| | | | Factory-Applied Color Finish | 1.4.5 | G | | | | | | | | | | | | | |
| | | | Accessories | 2.4 | G | | | | | | | | | | | | | |
| | | | Fasteners | 1.4.5 | G | | | | | | | | | | | | | |
| | | | Pressure Sensitive Tape | 1.4.5 | G | | | | | | | | | | | | | |
| | | | Underlayments | 2.7 | G | | | | | | | | | | | | | |
| | | | Gaskets and Sealing/Insulating | 2.8 | G | | | | | | | | | | | | | |
| | | | Compounds | | | | | | | | | | | | | | | |
| | | | Coil Stock | 1.4.5 | G | | | | | | | | | | | | | |
| | | | Enamel Repair Paint | 1.4.5 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Roof Panels | 2.1 | G | | | | | | | | | | | | | |
| | | | Factory-applied Color Finish | 1.4.5 | G | | | | | | | | | | | | | |
| | | | Accessories | 2.4 | G | | | | | | | | | | | | | |

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Lackland DCF4

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| | | 07 41 13 | Fasteners | 1.4.5 | G | | | | | | | | | | | | | | |
| | | | Gaskets and Sealant/Insulating | 1.4.5 | G | | | | | | | | | | | | | | |
| | | | Compounds | | | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | | |
| | | | Engineering Calculations | 1.4.6 | G | | | | | | | | | | | | | | |
| | | | Wind Uplift Resistance | 1.2.1.2 | G | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | | |
| | | | Leakage Test Report | 1.2.1.1 | G | | | | | | | | | | | | | | |
| | | | Wind Uplift Test Report | 1.2.1.2 | G | | | | | | | | | | | | | | |
| | | | Factory Finish and Color | 2.2 | G | | | | | | | | | | | | | | |
| | | | Performance Requirements | | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | | |
| | | | Roof Panels | 2.1 | G | | | | | | | | | | | | | | |
| | | | Coil Stock Compatibility | 1.4.5 | G | | | | | | | | | | | | | | |
| | | | Self-Adhering Modified Bitumen | 2.7.1 | G | | | | | | | | | | | | | | |
| | | | Polymer Film Underlayment | | | | | | | | | | | | | | | | |
| | | | Qualification of Manufacturer | 1.4.1 | G | | | | | | | | | | | | | | |
| | | | Qualification of Applicator | 1.4.2 | G | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | | |
| | | | Insulation | 2.6 | G | | | | | | | | | | | | | | |
| | | | Installation Manual | 1.4.5 | G | | | | | | | | | | | | | | |
| | | | SD-09 Manufacturer’s Field | | | | | | | | | | | | | | | | |
| | | | Reports | | | | | | | | | | | | | | | | |
| | | | Manufacturer's Field Inspection | 3.10.1 | G | | | | | | | | | | | | | | |
| | | | Reports | | | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | | |

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| | | 07 41 13 | Warranties | 1.8 | G | | | | | | | | | | | | | |
| | | | Information Card | 3.11 | G | | | | | | | | | | | | | |
| | | 07 42 13 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Qualification of Manufacturer | 1.5.3 | G | | | | | | | | | | | | | |
| | | | Qualification of Installation | 1.5.4 | G | | | | | | | | | | | | | |
| | | | Contractor | | | | | | | | | | | | | | | |
| | | | Warranty | 1.8 | G | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Installation Drawings | 1.5.1.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Wall Panels | 1.2 | G | | | | | | | | | | | | | |
| | | | Factory Color Finish | 2.2.4 | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Wall Panels | 1.2 | G | | | | | | | | | | | | | |
| | | | Metal Closure Strips | 1.5.1 | G | | | | | | | | | | | | | |
| | | | Metal Closure Strips | 2.5.1 | G | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Wind load design analysis | 1.5.1.2 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Leakage Tests | 3.7.2 | G | | | | | | | | | | | | | |
| | | | Coating | 2.2.4.2 | G | | | | | | | | | | | | | |
| | | | Chalking | 2.2.4.2 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Installation | 3.3 | G | | | | | | | | | | | | | |
| | | | SD-09 Manufacturer’s Field | | | | | | | | | | | | | | | |
| | | | Reports | | | | | | | | | | | | | | | |

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| | | 07 42 13 | Manufacturer's Field Reports | 3.8.1 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Warranty | 1.8 | G | | | | | | | | | | | | | |
| | | | Maintenance Instructions | 1.5.6 | G | | | | | | | | | | | | | |
| | | | 20 year 'No Dollar Limit' warranty | 1.8.1 | | | | | | | | | | | | | | |
| | | | for labor and material | | | | | | | | | | | | | | | |
| | | 07 54 19 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Detail Drawings | 1.6 | G | | | | | | | | | | | | | |
| | | | Roof Plan | 1.6 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | PVC Roofing Membrane | 3.2.2 | G | | | | | | | | | | | | | |
| | | | Energy Star Label for roof | 2.1.2 | S | | | | | | | | | | | | | |
| | | | membrane | | | | | | | | | | | | | | | |
| | | | Bonding Adhesive | 2.1.5 | | | | | | | | | | | | | | |
| | | | Flashing | 1.5.4 | | | | | | | | | | | | | | |
| | | | Flashing | 3.2.2.2 | | | | | | | | | | | | | | |
| | | | Membrane Fasteners and Plates | 2.1.8 | | | | | | | | | | | | | | |
| | | | Roof Insulation | 2.1.11 | | | | | | | | | | | | | | |
| | | | Pre-Manufactured Accessories | 2.1.9 | | | | | | | | | | | | | | |
| | | | Information Card | 2.1.1 | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Wind Uplift Resistance | 1.3.2 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Qualification of Manufacturer | 1.5.1 | G | | | | | | | | | | | | | |
| | | | Qualifications of Applicator | 1.5.2 | G | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 07 54 19 | Qualification of Engineer of | 1.5.3 | | | | | | | | | | | | | | |
| | | | Record | | | | | | | | | | | | | | | |
| | | | Wind Uplift Resistance | 1.3.2 | G | | | | | | | | | | | | | |
| | | | Fire Resistance | 1.3.1 | G | | | | | | | | | | | | | |
| | | | Minimum Polymer Thickness | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Minimum Polymer Thickness | 2.1.7 | G | | | | | | | | | | | | | |
| | | | Sample | 1.10 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Application Method | 3.2 | G | | | | | | | | | | | | | |
| | | | Membrane Flashing | 2.1.7 | G | | | | | | | | | | | | | |
| | | | Membrane Flashing | 3.3.2 | G | | | | | | | | | | | | | |
| | | | Perimeter Attachment | 3.2.4 | | | | | | | | | | | | | | |
| | | | Auxiliary Fasteners | 2.1.8.2 | | | | | | | | | | | | | | |
| | | | Pre-Manufactured Accessories | 2.1.9 | | | | | | | | | | | | | | |
| | | | Cold Weather | 1.8 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Warranty | 1.10 | G | | | | | | | | | | | | | |
| | | | Information Card | 2.1.1 | | | | | | | | | | | | | | |
| | | | Instructions to Government | 3.8 | G | | | | | | | | | | | | | |
| | | | Personnel | | | | | | | | | | | | | | | |
| | | 07 60 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Exposed Sheet Metal | 2.2.1 | G | | | | | | | | | | | | | |
| | | | Gutters | 3.1.16 | G | | | | | | | | | | | | | |
| | | | Downspouts | 3.1.17 | G | | | | | | | | | | | | | |
| | | | Expansion Joints | 3.1.23 | G | | | | | | | | | | | | | |
| | | | Gravel Stops and fascia | 2.2.1 | G | | | | | | | | | | | | | |

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| | | 07 60 00 | Splash Pans | 3.1.19 | G | | | | | | | | | | | | | |
| | | | Base Flashing | 3.1.11 | G | | | | | | | | | | | | | |
| | | | Counterflashing | 3.1.12 | G | | | | | | | | | | | | | |
| | | | Flashing at Roof Penetrations | 3.1.24 | G | | | | | | | | | | | | | |
| | | | and Equipment Supports | | | | | | | | | | | | | | | |
| | | | Reglets | 2.2.10 | G | | | | | | | | | | | | | |
| | | | Copings | 3.1.27 | G | | | | | | | | | | | | | |
| | | | Drip Edges | 3.1.15 | G | | | | | | | | | | | | | |
| | | | Conductor Heads | 3.1.18 | G | | | | | | | | | | | | | |
| | | | Open Valley Flashing | 3.1.20 | G | | | | | | | | | | | | | |
| | | | Eave Flashing | 3.1.21 | G | | | | | | | | | | | | | |
| | | | Recycled Content | 2.1 | S | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Finish Samples | 1.4.2 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Instructions for Installation | 1.4.3 | G | | | | | | | | | | | | | |
| | | | Quality Control Plan | 3.5 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Cleaning and Maintenance | 1.4.3 | G | | | | | | | | | | | | | |
| | | 07 81 00 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Fireproofing Material | 3.3 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Fire Resistance Rating | 1.2.2 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Installer Qualifications | 1.4.1 | G | | | | | | | | | | | | | |

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| | | 07 84 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Firestopping System | 2.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Firestopping Materials | 2.2 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Inspection | 3.3 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Inspector Qualifications | 1.5.2 | | | | | | | | | | | | | | |
| | | | Firestopping Materials | 2.2 | | | | | | | | | | | | | | |
| | | | Installer Qualifications | 1.5.1 | G | | | | | | | | | | | | | |
| | | 07 92 00 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Sealants | 2.1 | G | | | | | | | | | | | | | |
| | | | Primers | 2.3 | G | | | | | | | | | | | | | |
| | | | Bond Breakers | 2.4 | G | | | | | | | | | | | | | |
| | | | Backstops | 2.5 | G | | | | | | | | | | | | | |
| | | | Field Adhesion | 3.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality For Interior | 2.1.1 | S | | | | | | | | | | | | | |
| | | | Sealants | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality For Interior | 2.1.3 | S | | | | | | | | | | | | | |
| | | | Floor Joint Sealants | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality For Interior | 2.1.4 | S | | | | | | | | | | | | | |
| | | | Acoustical Sealants | | | | | | | | | | | | | | | |
| | | 08 11 13 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Doors | 2.1 | G | | | | | | | | | | | | | |
| | | | Doors | 2.1 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 08 11 13 | Frames | 2.5 | G | | | | | | | | | | | | | |
| | | | Frames | 2.5 | G | | | | | | | | | | | | | |
| | | | Accessories | 2.3 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Doors | 2.1 | G | | | | | | | | | | | | | |
| | | | Recycled Content for Steel Door | 2.1 | S | | | | | | | | | | | | | |
| | | | Product | | | | | | | | | | | | | | | |
| | | | Frames | 2.5 | G | | | | | | | | | | | | | |
| | | | Accessories | 2.3 | | | | | | | | | | | | | | |
| | | 08 11 16 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Door and Frame Assembly | 1.5.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Door and Frame Assembly | 1.5.1 | G | | | | | | | | | | | | | |
| | | | Recycled Content of Aluminum | 2.2.3 | S | | | | | | | | | | | | | |
| | | | Material | | | | | | | | | | | | | | | |
| | | | Air Infiltration | 1.2.2 | G | | | | | | | | | | | | | |
| | | | Water Penetration | 1.2.3 | G | | | | | | | | | | | | | |
| | | | NFRC Project Label Certificates | 1.2.4 | G | | | | | | | | | | | | | |
| | | | for Fenestration | | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Door and Frame Assembly | 1.5.1 | G | | | | | | | | | | | | | |
| | | | Adjustments, Cleaning, and | 1.5.3 | G | | | | | | | | | | | | | |
| | | | Maintenance | | | | | | | | | | | | | | | |
| | | | NFRC Project Label Certificates | 1.2.4 | G | | | | | | | | | | | | | |
| | | | for Fenestration | | | | | | | | | | | | | | | |
| | | 08 22 20 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 08 22 20 | Doors | 2.1.1.5 | G | | | | | | | | | | | | | |
| | | | Frames | 2.1.1.5 | G | | | | | | | | | | | | | |
| | | | Weather-stripping | 1.2.1 | G | | | | | | | | | | | | | |
| | | | Smoke Seals | 1.2.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Doors | 2.1.1.5 | G | | | | | | | | | | | | | |
| | | | Frames | 2.1.1.5 | G | | | | | | | | | | | | | |
| | | | Door Hardware Components and | 1.2.1 | G | | | | | | | | | | | | | |
| | | | Accessories | | | | | | | | | | | | | | | |
| | | | Weather-stripping | 1.2.1 | G | | | | | | | | | | | | | |
| | | | Smoke Seals | 1.2.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Sample Warranty | 1.2.1 | G | | | | | | | | | | | | | |
| | | | Warranty | 3.4.1 | G | | | | | | | | | | | | | |
| | | 08 31 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Access Doors And Panels | 1.3 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Access Doors And Panels | 1.3 | G | | | | | | | | | | | | | |
| | | | Hardware | 1.3.2 | G | | | | | | | | | | | | | |
| | | | Accessories | 2.2.8 | G | | | | | | | | | | | | | |
| | | | Recycled Content | 2.1 | S | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Finishes | 2.5 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Fire-rating(s) of Assemblies | 1.3.1 | G | | | | | | | | | | | | | |
| | | | Acoustical Ratings of Assemblies | 1.3.1 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 08 33 23 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Overhead Coiling Doors | 2.2.1 | G | | | | | | | | | | | | | |
| | | | Counterbalancing Mechanism | 2.2.3 | G | | | | | | | | | | | | | |
| | | | Electric Door Operators | 2.2.4 | G | | | | | | | | | | | | | |
| | | | Guides | 2.1.1.1 | G | | | | | | | | | | | | | |
| | | | Hood | 2.2.2.2 | G | | | | | | | | | | | | | |
| | | | Installation Drawings | 2.1.1.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Overhead Coiling Doors | 2.2.1 | G | | | | | | | | | | | | | |
| | | | Hardware | 2.2.2 | G | | | | | | | | | | | | | |
| | | | Counterbalancing Mechanism | 2.2.3 | G | | | | | | | | | | | | | |
| | | | Electric Door Operators | 2.2.4 | G | | | | | | | | | | | | | |
| | | | Recycled content for steel curtain | 2.2.1.1 | S | | | | | | | | | | | | | |
| | | | slats | | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Overhead Coiling Doors | 2.2.1 | G | | | | | | | | | | | | | |
| | | | Hardware | 2.2.2 | G | | | | | | | | | | | | | |
| | | | Electric Door Operators | 2.2.4 | G | | | | | | | | | | | | | |
| | | | Fire-Rated Door | 1.3 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Operation and Maintenance | 1.3.2 | G | | | | | | | | | | | | | |
| | | | Manuals | | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Warranty | 1.3.1 | G | | | | | | | | | | | | | |
| | | 08 33 43 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 08 33 43 | Warranty Information | 1.10 | | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | | |
| | | | shop drawings | 3.1 | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | | |
| | | | Substrate | 3.1 | | | | | | | | | | | | | | | |
| | | | Substrate | 3.1 | | | | | | | | | | | | | | | |
| | | | Installation Means and Methods | 3.3 | | | | | | | | | | | | | | | |
| | | | Storage and Handling | 1.8 | | | | | | | | | | | | | | | |
| | | 08 41 13 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | | |
| | | | Sample Warranty | 1.2.1 | G | | | | | | | | | | | | | | |
| | | | List of Product Installations | 1.2.1 | G | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | | |
| | | | Installation Drawings | 3.3 | G | | | | | | | | | | | | | | |
| | | | Fabrication Drawings | 2.2 | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | | |
| | | | Manufacturer's Catalog Data | 1.2.1 | G | | | | | | | | | | | | | | |
| | | | Finish | 2.2.3 | G | | | | | | | | | | | | | | |
| | | | Recycled Content of Aluminum | 2.1.1.2 | S | | | | | | | | | | | | | | |
| | | | Material | | | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | | |
| | | | Finish and Color Samples | 1.2.1 | G | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | | |
| | | | Certified Test Reports | 1.2.1 | G | | | | | | | | | | | | | | |
| | | | Deflection | 3.4.3 | | | | | | | | | | | | | | | |
| | | | Air Infiltration | 3.4.1 | | | | | | | | | | | | | | | |
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# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 08 41 13 | Condensation Resistance and | 3.4.4 | | | | | | | | | | | | | | |
| | | | Thermal Transmittance | | | | | | | | | | | | | | | |
| | | | Water Infiltration | 3.4.5 | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Manufacturer's Instructions | 3.3 | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Manufacturer's Product Warranty | 3.6 | | | | | | | | | | | | | | |
| | | 08 44 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Glazed Curtain Wall System | 1.6 | G | | | | | | | | | | | | | |
| | | | Fire Rated Curtain Wall | 1.4.4.4 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Glazed Curtain Wall System | 1.6 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Field Water Spray Test Results | 1.5.1 | G | | | | | | | | | | | | | |
| | | | Air Infiltration Test Results | 1.5.2 | G | | | | | | | | | | | | | |
| | | | Water Penetration Test Results | 1.5.2.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Energy Performance Certificates | 1.4.4.6 | G | | | | | | | | | | | | | |
| | | | Qualifications for the Curtain-Wall | 1.4.2 | G | | | | | | | | | | | | | |
| | | | Installer | | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Glazed Curtain Wall System | 1.6 | G | | | | | | | | | | | | | |
| | | | Insulating Glass | 3.3.8 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Warranty | 1.8 | G | | | | | | | | | | | | | |
| | | 08 51 13 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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TITLE AND LOCATION
Lackland DCF4

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| | | 08 51 13 | Windows | 2.1 | G | | | | | | | | | | | | | |
| | | | Fire Rated Windows | 2.1.4 | G | | | | | | | | | | | | | |
| | | | Fabrication Drawings | 1.6 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Windows | 2.1 | G | | | | | | | | | | | | | |
| | | | Fire Rated Windows | 2.1.4 | G | | | | | | | | | | | | | |
| | | | Recycled Content of Aluminum | 2.1 | S | | | | | | | | | | | | | |
| | | | Windows | | | | | | | | | | | | | | | |
| | | | Hardware | 2.2.7.1 | G | | | | | | | | | | | | | |
| | | | Window Performance | 1.7 | G | | | | | | | | | | | | | |
| | | | Thermal-Barrier Windows | 2.3 | G | | | | | | | | | | | | | |
| | | | Screens | 2.2.10 | G | | | | | | | | | | | | | |
| | | | Weatherstripping | 2.1.7 | G | | | | | | | | | | | | | |
| | | | Accessories | 2.2.7 | G | | | | | | | | | | | | | |
| | | | Adhesives | 2.2.3 | | | | | | | | | | | | | | |
| | | | Thermal Performance | 1.7.5 | G | | | | | | | | | | | | | |
| | | | Energy Star Label For | 1.7.5 | S | | | | | | | | | | | | | |
| | | | Residential Aluminum Window | | | | | | | | | | | | | | | |
| | | | Products | | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Finish Sample | 1.3.4.1 | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Structural Calculations for | 2.1 | G | | | | | | | | | | | | | |
| | | | Deflection | | | | | | | | | | | | | | | |
| | | | Design Analysis | 1.3.5 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 08 51 13 | Minimum Condensation | 2.1 | | | | | | | | | | | | | | |
| | | | Resistance Factor | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Engineer's Qualifications | 1.3.3 | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Windows | 2.1 | G | | | | | | | | | | | | | |
| | | 08 71 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Manufacturer's Detail Drawings | 1.3 | G | | | | | | | | | | | | | |
| | | | Hardware Schedule | 1.5 | G | | | | | | | | | | | | | |
| | | | Keying System | 2.3.7 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Hardware Items | 2.3 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Installation | 3.1 | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Hardware Schedule | 1.5 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Key Bitting | 1.6.1 | | | | | | | | | | | | | | |
| | | 08 81 00 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Insulating Glass | 2.3 | | | | | | | | | | | | | | |
| | | | Glazing Accessories | 1.3 | | | | | | | | | | | | | | |
| | | | Fire Rated Glass | 1.4 | | | | | | | | | | | | | | |
| | | | Fire Rated Glass Framing | 2.2.7 | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |

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| | | 08 81 00 | Insulated Glass Units | 1.7.1 | | | | | | | | | | | | | | |
| | | 08 91 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Wall Louvers | 1.4 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Metal Wall Louvers | 2.2 | | | | | | | | | | | | | | |
| | | 09 22 00 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Metal Support Systems | 2.1 | | | | | | | | | | | | | | |
| | | | Recycled Content for Metal | 2.1 | S | | | | | | | | | | | | | |
| | | | Support Systems | | | | | | | | | | | | | | | |
| | | 09 29 00 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Cementitious Backer Units | 2.1.3 | | | | | | | | | | | | | | |
| | | | Glass Mat Covered or Reinforced | 2.1.2 | | | | | | | | | | | | | | |
| | | | Gypsum Sheathing | | | | | | | | | | | | | | | |
| | | | Glass Mat Covered or Reinforced | 2.1.2.1 | | | | | | | | | | | | | | |
| | | | Gypsum Sheathing Sealant | | | | | | | | | | | | | | | |
| | | | Gypsum Board | 2.1.1 | | | | | | | | | | | | | | |
| | | | VOC Content of Joint Compound | 2.1.4 | S | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Asbestos Free Materials | 2.1 | G | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Gypsum | 2.1.1 | S | | | | | | | | | | | | | |
| | | | Board | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Non-aerosol | 2.1.6 | S | | | | | | | | | | | | | |
| | | | Adhesives | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Aerosol | 2.1.6 | S | | | | | | | | | | | | | |
| | | | Adhesives | | | | | | | | | | | | | | | |
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# SUBMITTAL REGISTER

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| | | 09 29 00 | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Manufacturer Maintenance | 2.1 | | | | | | | | | | | | | | |
| | | | Instructions | | | | | | | | | | | | | | | |
| | | 09 30 10 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Mosaic Tile | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Recycled Content for Mosaic Tile | 2.1.1 | S | | | | | | | | | | | | | |
| | | | Transition Strips | 2.1 | G | | | | | | | | | | | | | |
| | | | Mortar, Grout, and Adhesive | 2.4 | G | | | | | | | | | | | | | |
| | | | Reinforcing Wire Fabric | 2.2.2 | | | | | | | | | | | | | | |
| | | | Cementitious Backer Units | 2.5.1 | G | | | | | | | | | | | | | |
| | | | Glass-Mat Gypsum | | G | | | | | | | | | | | | | |
| | | | Water-Resistant Backing Board | | | | | | | | | | | | | | | |
| | | | Waterproof Membrane | 2.7 | G | | | | | | | | | | | | | |
| | | | Crack Isolation Membrane | | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Tile | 2.1 | G | | | | | | | | | | | | | |
| | | | Transition Strips | 2.1 | G | | | | | | | | | | | | | |
| | | | Grout | 2.4.4 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Water Absorption Rates | 1.3.1 | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Manufacturer's Approved | 3.6 | | | | | | | | | | | | | | |
| | | | Cleaning Instructions | | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
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| | | 09 30 10 | Mosaic Tile | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Transition Strips | 2.1 | G | | | | | | | | | | | | | |
| | | 09 51 00 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Recycled Content for Type III | 2.2.1.1 | S | | | | | | | | | | | | | |
| | | | Ceiling Tiles | | | | | | | | | | | | | | | |
| | | | Recycled Content for Suspension | 2.4 | S | | | | | | | | | | | | | |
| | | | Systems | | | | | | | | | | | | | | | |
| | | | Acoustical Performance | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Fiberglass Reinforced Plastic | 2.3 | G | | | | | | | | | | | | | |
| | | | (FRP) Ceiling Panels | | | | | | | | | | | | | | | |
| | | | FRP Panel Trim and Moldings | 2.3 | G | | | | | | | | | | | | | |
| | | | Adhesives And Sealants | 2.3 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Acoustical Units | 2.2 | G | | | | | | | | | | | | | |
| | | | Acoustical Ceiling Tiles | 2.2.1.1 | G | | | | | | | | | | | | | |
| | | | Fiberglass Reinforced Plastic | 2.3 | G | | | | | | | | | | | | | |
| | | | (FRP) Ceiling Panels | | | | | | | | | | | | | | | |
| | | | FRP Panel Trim And Moldings | 2.3 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Type III | 2.2.1.1 | S | | | | | | | | | | | | | |
| | | | Ceiling Tiles | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Adhesives | 2.6 | S | | | | | | | | | | | | | |
| | | | Indoor Air Quality For FRP Panel | 1.3.1.2 | S | | | | | | | | | | | | | |
| | | | Adhesives And Sealants | | | | | | | | | | | | | | | |
| | | 09 65 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
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# SUBMITTAL REGISTER

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| | | 09 65 00 | Resilient Flooring and | 2.6 | G | | | | | | | | | | | | | | |
| | | | Accessories | | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | | |
| | | | Resilient Flooring and | 2.6 | G | | | | | | | | | | | | | | |
| | | | Accessories | | | | | | | | | | | | | | | | |
| | | | Adhesives | 2.4 | | | | | | | | | | | | | | | |
| | | | Vinyl Composition Tile | 2.1 | | | | | | | | | | | | | | | |
| | | | Recycled content for Vinyl | 2.1 | S | | | | | | | | | | | | | | |
| | | | Composition Tile | | | | | | | | | | | | | | | | |
| | | | Luxury Vinyl Tile | 3.6 | | | | | | | | | | | | | | | |
| | | | Luxury Vinyl Tile | 3.6 | | | | | | | | | | | | | | | |
| | | | Wall Base | 2.2 | | | | | | | | | | | | | | | |
| | | | Stair Treads, Risers and | 2.3 | | | | | | | | | | | | | | | |
| | | | Stringers | | | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | | |
| | | | Resilient Flooring and | 2.6 | G | | | | | | | | | | | | | | |
| | | | Accessories | | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | | |
| | | | Moisture, Alkalinity and Bond | 3.3 | G | | | | | | | | | | | | | | |
| | | | Tests | | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Vinyl | 2.1 | S | | | | | | | | | | | | | | |
| | | | Composition Tile | | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Wall Base | 2.2 | S | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Adhesives | 2.4 | S | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | | |

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| | | 09 65 00 | Surface Preparation | 3.2 | G | | | | | | | | | | | | | |
| | | | Installation | 3.1 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Resilient Flooring and | 2.6 | G | | | | | | | | | | | | | |
| | | | Accessories | | | | | | | | | | | | | | | |
| | | 09 67 23.13 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Installation Drawings | 2.1 | G | | | | | | | | | | | | | |
| | | | Fabrication Drawings | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Manufacturer's Catalog Data | 1.2.2 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Hardboard Mounted Epoxy | 1.5.3 | G | | | | | | | | | | | | | |
| | | | Flooring | | | | | | | | | | | | | | | |
| | | | Floor Topping | 3.1.5 | G | | | | | | | | | | | | | |
| | | | Mockups | 1.5.1 | G | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Design Mix Data | 1.2.3 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Listing of Product Installations | 1.5.2 | | | | | | | | | | | | | | |
| | | | Referenced Standards | 1.5 | | | | | | | | | | | | | | |
| | | | Certificates | | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Warranty | 1.6 | G | | | | | | | | | | | | | |
| | | 09 68 00 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Carpet | 2.1 | G | | | | | | | | | | | | | |

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| | | 09 68 00 | Carpet Cushion | 2.3 | G | | | | | | | | | | | | | |
| | | | Recycled Content for Carpeting | 2.1.1 | S | | | | | | | | | | | | | |
| | | | Recycled Content for Rubber | 2.3.2 | S | | | | | | | | | | | | | |
| | | | Cushion | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Aerosol | 2.4 | S | | | | | | | | | | | | | |
| | | | Adhesives | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for | 2.4 | S | | | | | | | | | | | | | |
| | | | Non-Aerosol Adhesives | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Concrete | 2.4 | S | | | | | | | | | | | | | |
| | | | Primer | | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Carpet | 2.1 | G | | | | | | | | | | | | | |
| | | | Carpet Cushion | 2.3 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Moisture and Alkalinity Tests | 3.2 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Carpet | 2.1.2 | S | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Fiber | 2.3.1 | S | | | | | | | | | | | | | |
| | | | Cushion | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Rubber | 2.3.2 | S | | | | | | | | | | | | | |
| | | | Cushion | | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Surface Preparation | 3.1 | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Cleaning and Protection | 3.5 | | | | | | | | | | | | | | |

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| | | 09 68 00 | Maintenance Service | 3.7.2 | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Warranty | 1.6 | | | | | | | | | | | | | | |
| | | 09 84 20 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Approved Detail Drawings | 2.2 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Installation | 3.2 | | | | | | | | | | | | | | |
| | | | Acoustical Wall Panels | 2.2 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Acoustical Wall Panels | 2.2 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Acoustical Wall Panels | 2.2 | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Warranty | 1.4 | | | | | | | | | | | | | | |
| | | 09 90 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Piping Identification | 3.9 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Coating | 2.1 | G | | | | | | | | | | | | | |
| | | | Product Data Sheets | 2.1 | | | | | | | | | | | | | | |
| | | | Sealant | 3.2.5 | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Color | 2.2 | G | | | | | | | | | | | | | |
| | | | Textured Wall Coating System | 1.6.7 | G | | | | | | | | | | | | | |
| | | | Sample Textured Wall Coating | 1.6.8 | G | | | | | | | | | | | | | |
| | | | System Mock-Up | | | | | | | | | | | | | | | |
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| | | 09 90 00 | Qualification Testing | 1.6.6.2 | G | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Paints and | 1.6.5 | | | | | | | | | | | | | | |
| | | | Primers | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality for | 1.6.5 | | | | | | | | | | | | | | |
| | | | Consolidated Latex Paints | | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Mixing | 2.1 | | | | | | | | | | | | | | |
| | | | Manufacturer's Safety Data | 1.8.1 | | | | | | | | | | | | | | |
| | | | Sheets | | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Coatings | 2.1 | G | | | | | | | | | | | | | |
| | | 09 96 59 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | High-Build Glaze Coatings | 2.1.5 | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | High-Build Glaze Coatings | 2.1.5 | G | | | | | | | | | | | | | |
| | | | Coating System | 2.1.5 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Filler Material | 2.1.1 | | | | | | | | | | | | | | |
| | | | Primers | 2.1.2 | | | | | | | | | | | | | | |
| | | | Top Coating | 2.1.3 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Qualifications of Installer | 1.5 | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Wall Coating System | 2.1 | | | | | | | | | | | | | | |
| | | 10 11 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 10 11 00 | Placement Schedule | 3.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Visual Display Unit | 1.2 | G | | | | | | | | | | | | | |
| | | | Visual Display Unit | 2.1 | G | | | | | | | | | | | | | |
| | | | Projection Screen | 2.4 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Fabric | 2.1 | G | | | | | | | | | | | | | |
| | | | Glass | 2.1 | G | | | | | | | | | | | | | |
| | | | Glass | 2.2.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Indoor air quality for | 2.2.1 | S | | | | | | | | | | | | | |
| | | | markerboards | | | | | | | | | | | | | | | |
| | | | Indoor air quality for tackboards | 2.3 | S | | | | | | | | | | | | | |
| | | | Indoor air quality for projection | 2.4 | S | | | | | | | | | | | | | |
| | | | screen | | | | | | | | | | | | | | | |
| | | | Certificate of Compliance | 1.2 | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Manufacturer's Cleaning | 3.3 | | | | | | | | | | | | | | |
| | | | Instructions | | | | | | | | | | | | | | | |
| | | | Manufacturer's Printed | 3.2 | G | | | | | | | | | | | | | |
| | | | Installation Instructions | | | | | | | | | | | | | | | |
| | | 10 14 00.20 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Detail Drawings | 1.4.2 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Room Identification And | 2.1 | G | | | | | | | | | | | | | |
| | | | Directional Signage System | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

| ACTIVITY NO | TRANSMITTAL NO | SPEC SECT | DESCRIPTION ITEM SUBMITTED | PARAGRAPH # | CLASSIFICATION | GOVT OR A/E REVWR | CONTRACTOR: SCHEDULE DATES | | | CONTRACTOR ACTION | | | APPROVING AUTHORITY | | | | | MAILED TO CONTR/ DATE RCD FRM APPR AUTH | REMARKS |
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| | | 10 14 00.20 | Stair Signage | 2.2 | G | | | | | | | | | | | | | | |
| | | | Exit Door Tactile Sign | 2.3 | G | | | | | | | | | | | | | | |
| | | | Building Directories | 2.4 | G | | | | | | | | | | | | | | |
| | | | Door Tags | 2.5 | G | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | | |
| | | | Interior Signage | 1.4.1 | G | | | | | | | | | | | | | | |
| | | | Room Identification And | 2.1 | G | | | | | | | | | | | | | | |
| | | | Directional Signage System | | | | | | | | | | | | | | | | |
| | | | Stair Signage | 2.2 | G | | | | | | | | | | | | | | |
| | | | Exit Door Tactile Sign | 2.3 | G | | | | | | | | | | | | | | |
| | | | Building Directories | 2.4 | G | | | | | | | | | | | | | | |
| | | | Door Tags | 2.5 | G | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | | |
| | | | Approved Manufacturer's | 3.1 | G | | | | | | | | | | | | | | |
| | | | Instructions | | | | | | | | | | | | | | | | |
| | | | Protection and Cleaning | 3.1.2 | G | | | | | | | | | | | | | | |
| | | 10 21 13 | SD-02 Shop Drawings | | | | | | | | | | | | | | | | |
| | | | Fabrication Drawings | 2.1 | | | | | | | | | | | | | | | |
| | | | Installation Drawings | 3.2 | G | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | | |
| | | | Cleaning and Maintenance | 2.1 | | | | | | | | | | | | | | | |
| | | | Instructions | | | | | | | | | | | | | | | | |
| | | | Colors And Finishes | 2.9 | | | | | | | | | | | | | | | |
| | | | Anchoring Devices and | 2.2.2 | | | | | | | | | | | | | | | |
| | | | Fasteners | | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 10 21 13 | Hardware and Fittings | 2.2.4 | | | | | | | | | | | | | | |
| | | | Brackets | 2.2.3 | | | | | | | | | | | | | | |
| | | | Door Hardware | 2.2.5 | | | | | | | | | | | | | | |
| | | | Toilet Enclosures | 2.3.1 | | | | | | | | | | | | | | |
| | | | Urinal Screens | 2.1 | | | | | | | | | | | | | | |
| | | | Pilaster Shoes | 2.7 | | | | | | | | | | | | | | |
| | | | Finishes | 2.2.4.2 | G | | | | | | | | | | | | | |
| | | | Finishes | 2.9.2 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Colors and Finishes | 2.9 | G | | | | | | | | | | | | | |
| | | | Hardware and Fittings | 2.2.4 | | | | | | | | | | | | | | |
| | | | Anchoring Devices and | 2.2.2 | | | | | | | | | | | | | | |
| | | | Fasteners | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Warranty | 1.6 | | | | | | | | | | | | | | |
| | | 10 26 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Corner Guards | 2.2 | G | | | | | | | | | | | | | |
| | | | Wall Guards | 2.3 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Corner Guards | 2.2 | G | | | | | | | | | | | | | |
| | | | Wall Guards | 2.3 | G | | | | | | | | | | | | | |
| | | | Recycled content for steel | 2.2.1 | S | | | | | | | | | | | | | |
| | | | component of corner guards | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 10 26 00 | Recycled content for aluminum | 2.3 | S | | | | | | | | | | | | | |
| | | | component of wall guards, | | | | | | | | | | | | | | | |
| | | | Combination Handrail/Wall guard | | | | | | | | | | | | | | | |
| | | | and handrails | | | | | | | | | | | | | | | |
| | | | Recycled content for aluminum | 2.3.1 | S | | | | | | | | | | | | | |
| | | | component of crash rail locators | | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Corner Guards | 2.2 | G | | | | | | | | | | | | | |
| | | | Wall Guards | 2.3 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Fire Resistance Rating | 2.1.1.2 | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Corner Guards | 2.2 | G | | | | | | | | | | | | | |
| | | | Wall Guards | 2.3 | G | | | | | | | | | | | | | |
| | | 10 28 13 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Product Schedule | 2.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Recycled content for stainless | 2.1 | S | | | | | | | | | | | | | |
| | | | steel toilet accessories | | | | | | | | | | | | | | | |
| | | | Item A5080 | 2.1.3 | G | | | | | | | | | | | | | |
| | | | Item A5084 | 2.1.4 | G | | | | | | | | | | | | | |
| | | | Item A5109 | 2.1.5 | G | | | | | | | | | | | | | |
| | | | Item A5110 | 2.1.6 | G | | | | | | | | | | | | | |
| | | | Item A5135 | 2.1.7 | G | | | | | | | | | | | | | |
| | | | Item A5200 | 2.1.8 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 10 28 13 | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Item A5080 | 2.1.3 | G | | | | | | | | | | | | | |
| | | | Item A5084 | 2.1.4 | G | | | | | | | | | | | | | |
| | | | Item A5109 | 2.1.5 | G | | | | | | | | | | | | | |
| | | | Item A5110 | 2.1.6 | G | | | | | | | | | | | | | |
| | | | Item A5135 | 2.1.7 | G | | | | | | | | | | | | | |
| | | | Item A5200 | 2.1.8 | G | | | | | | | | | | | | | |
| | | 10 44 16 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Cabinets | Part 2 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Fire Extinguishers | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Accessories | Part 2 | G | | | | | | | | | | | | | |
| | | | Cabinets | Part 2 | G | | | | | | | | | | | | | |
| | | | Wall Brackets | 2.2.2 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Fire Extinguishers Certifications | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Manufacturer's Warranty with | 1.4 | G | | | | | | | | | | | | | |
| | | | Inspection Tag | | | | | | | | | | | | | | | |
| | | 10 51 13 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Types | 2.1 | G | | | | | | | | | | | | | |
| | | | Location | 1.4 | G | | | | | | | | | | | | | |
| | | | Installation | 3.1 | | | | | | | | | | | | | | |
| | | | Numbering system | 3.2 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Material | 2.2 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 10 51 13 | Locking Devices | 2.3.1 | | | | | | | | | | | | | | |
| | | | Handles | 2.3.4 | | | | | | | | | | | | | | |
| | | | Finish | 2.2.3 | | | | | | | | | | | | | | |
| | | | components | 2.3 | | | | | | | | | | | | | | |
| | | | Assembly | 3.1 | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Color chips | 1.5.1 | G | | | | | | | | | | | | | |
| | | 10 52 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Location | 1.3 | G | | | | | | | | | | | | | |
| | | | Installation | 3.1 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Finish | 2.1.2 | | | | | | | | | | | | | | |
| | | | Assembly | 3.1 | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Color chips | 1.4.1 | G | | | | | | | | | | | | | |
| | | 11 13 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Dock Bumpers | 2.1.3 | G | | | | | | | | | | | | | |
| | | | Restraining Device, | 2.2.1 | | | | | | | | | | | | | | |
| | | | Detail Drawings | 1.3.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Dock Bumpers | 2.1.3 | G | | | | | | | | | | | | | |
| | | | Restraining Device | 2.2.1 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Operating and Maintenance | 3.5 | G | | | | | | | | | | | | | |
| | | | Instructions | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 11 13 00 | Restraining Device | 2.2.1 | G | | | | | | | | | | | | | |
| | | 11 40 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Shop Drawings | 2.2.27 | G | | | | | | | | | | | | | |
| | | | Shop Drawings | 2.2.27 | G | | | | | | | | | | | | | |
| | | | Rough-in Drawings | 2.2.20 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Equipment List | 2.6.11 | G | | | | | | | | | | | | | |
| | | 11 81 29 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Fabrication Drawings | | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Manufacturer's Data | | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Installer's Certificate | | G | | | | | | | | | | | | | |
| | | | Product Certificate | | G | | | | | | | | | | | | | |
| | | | Qualifications Statement | | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Systems Manual | | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Warranty | | G | | | | | | | | | | | | | |
| | | 12 48 13 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Installation Drawings | 3.2 | G | | | | | | | | | | | | | |
| | | | Detail Drawings | 3.2 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Entrance Floor Mats and Frames | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Adhesives and Concrete Primers | 2.1.2 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 12 48 13 | Entrance Floor Mats and Frames | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Custom Graphics | 2.1.1 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Manufacturer's Instructions | 3.2 | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Protection, Maintenance, and | 3.2 | | | | | | | | | | | | | | |
| | | | Repair Information | | | | | | | | | | | | | | | |
| | | 12 50 00.13 10 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Storage Location | 1.7.3 | G | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Installation Drawings | 3.3.1 | G | | | | | | | | | | | | | |
| | | | Wire Management Locations | 3.3.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Product Data | 2.3 | G | | | | | | | | | | | | | |
| | | | Product Style Options | 2.3 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Fabric and Finishes | 2.3.3 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Authorized Dealer | 1.6 | G | | | | | | | | | | | | | |
| | | | Certified Furniture Installers | 1.6 | G | | | | | | | | | | | | | |
| | | | Manufacturer's Certification | 2.3 | G | | | | | | | | | | | | | |
| | | | Warranty | 1.8 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Furniture, Data Package 1 | 3.5 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

| ACTIVITY NO | TRANSMITTAL NO | SPEC SECT | DESCRIPTION ITEM SUBMITTED | PARAGRAPH # | CLASSIFICATION | GOVT OR A/E REVWR | CONTRACTOR: SCHEDULE DATES | | | CONTRACTOR ACTION | | | APPROVING AUTHORITY | | | | | |
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| | | 12 50 00.13 10 | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Energy Efficient Equipment | 2.1.1 | S | | | | | | | | | | | | | |
| | | | Reduced VOC's for Furniture | 2.1.2 | S | | | | | | | | | | | | | |
| | | | Recycled Content of Furniture | 2.1.3 | S | | | | | | | | | | | | | |
| | | | Bio-Based Content of Furniture | 2.1.4 | S | | | | | | | | | | | | | |
| | | 12 65 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Detailed Drawings | 3.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Installation | 3.1 | | | | | | | | | | | | | | |
| | | | Local/Regional Materials | 2.1 | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Seating and Table Systems | 3.1 | G | | | | | | | | | | | | | |
| | | | Training Table | 2.3 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Recyclable Materials | 2.1 | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Assembly Manuals | 2.5 | | | | | | | | | | | | | | |
| | | | Maintenance Manuals | 3.2 | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Adhesives | 1.4 | | | | | | | | | | | | | | |
| | | | Fresh Paint | 1.4 | | | | | | | | | | | | | | |
| | | 14 24 23 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Elevator | 2.1 | G | | | | | | | | | | | | | |
| | | | Elevator Components | 1.2.1 | G | | | | | | | | | | | | | |
| | | | Elevator Components | 1.2.2 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 14 24 23 | Elevator Machine | 1.2.1 | G | | | | | | | | | | | | | |
| | | | Elevator Controller | 1.2.1 | G | | | | | | | | | | | | | |
| | | | Wiring Diagrams | 1.3.4 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Elevator | 2.1 | G | | | | | | | | | | | | | |
| | | | Elevator Components | 1.2.1 | G | | | | | | | | | | | | | |
| | | | Elevator Components | 1.2.2 | G | | | | | | | | | | | | | |
| | | | Data Sheets | 1.2.2 | G | | | | | | | | | | | | | |
| | | | Elevator Microprocessor | 2.5.2 | G | | | | | | | | | | | | | |
| | | | Controller | | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Emergency Power Systems | 1.2.3.3 | | | | | | | | | | | | | | |
| | | | Heat Loads | 1.2.3.2 | | | | | | | | | | | | | | |
| | | | Reaction Loads | 1.2.3.1 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Price Lists | 1.3.2 | G | | | | | | | | | | | | | |
| | | | Warranty | 1.4 | | | | | | | | | | | | | | |
| | | | Endorsement Letter | 1.3.1.1 | | | | | | | | | | | | | | |
| | | | Welders' Qualifications | 1.2.4 | | | | | | | | | | | | | | |
| | | | Elevator Controller Certification | 2.5.2.3 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Elevator | 2.1 | G | | | | | | | | | | | | | |
| | | | Maintenance Control Program | 1.2.5 | G | | | | | | | | | | | | | |
| | | | (MCP) | | | | | | | | | | | | | | | |
| | | | Software and Documentation | 2.5.2.2 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 21 12 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Standpipe System | 1.4.5 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Pipe and Fittings | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Mechanical Couplings | 2.1.1 | | | | | | | | | | | | | | |
| | | | Pipe Hangers and Supports | 2.1.2 | G | | | | | | | | | | | | | |
| | | | Valves | 2.1.3 | G | | | | | | | | | | | | | |
| | | | Valve Tamper Switch | 2.1.9 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Preliminary Tests | 3.6.1 | G | | | | | | | | | | | | | |
| | | | Acceptance Tests | 3.6.2 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Qualifications of Installer | 1.6.1 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | System As-Built Drawings | 1.6.2 | G | | | | | | | | | | | | | |
| | | 21 13 13 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Qualified Fire Protection | 1.2.3 | G | | | | | | | | | | | | | |
| | | | Engineer (QFPE) | | | | | | | | | | | | | | | |
| | | | Sprinkler System Designer | 1.4.2.1 | G | | | | | | | | | | | | | |
| | | | Sprinkler System Installer | 1.4.2.2 | G | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Shop Drawing | 1.2.1.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Pipe | 2.2.1 | G | | | | | | | | | | | | | |
| | | | Fittings | 2.3.1.2 | G | | | | | | | | | | | | | |
| | | | Valves | 2.3.4 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 21 13 13 | Relief Valves | 2.8.4 | G | | | | | | | | | | | | | |
| | | | Sprinklers | 2.7 | G | | | | | | | | | | | | | |
| | | | Pipe Hangers and Supports | 2.3.3 | G | | | | | | | | | | | | | |
| | | | Sprinkler Alarm Switch | 2.4.1 | G | | | | | | | | | | | | | |
| | | | Valve Supervisory (Tamper) | 2.4.2 | G | | | | | | | | | | | | | |
| | | | Switch | | | | | | | | | | | | | | | |
| | | | Backflow Prevention Assembly | 2.5 | G | | | | | | | | | | | | | |
| | | | Air Vent | 2.8.5 | G | | | | | | | | | | | | | |
| | | | Nameplates | 2.1.2 | G | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Hydraulic Calculations | 1.2.1.2 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Test Procedures | 3.9.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Verification of Compliant | 3.9.2.1 | G | | | | | | | | | | | | | |
| | | | Installation | | | | | | | | | | | | | | | |
| | | | Request for Government Final | 3.9.2.2 | G | | | | | | | | | | | | | |
| | | | Test | | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Operating and Maintenance | 3.11 | G | | | | | | | | | | | | | |
| | | | (O&M) Instructions | | | | | | | | | | | | | | | |
| | | | Spare Parts | 1.6 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | As-built drawings | 3.11 | G | | | | | | | | | | | | | |
| | | 22 00 00 | SD-03 Product Data | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 22 00 00 | Fixtures | 2.5 | G | | | | | | | | | | | | | |
| | | | Flush Valve Water Closets | 2.5.3 | G | | | | | | | | | | | | | |
| | | | Flush Valve Urinals | 2.5.4 | G | | | | | | | | | | | | | |
| | | | Lavatories | 2.5.6 | G | | | | | | | | | | | | | |
| | | | Mop Basin | 2.5.13 | G | | | | | | | | | | | | | |
| | | | Drinking-Water Coolers | 2.5.8 | G | | | | | | | | | | | | | |
| | | | Bottle Fill Stations | 2.2 | G | | | | | | | | | | | | | |
| | | | Pumps | 2.9 | G | | | | | | | | | | | | | |
| | | | Backflow Prevention Assemblies | 3.8.1.1 | G | | | | | | | | | | | | | |
| | | | Vibration-Absorbing Features | 3.3 | G | | | | | | | | | | | | | |
| | | | Plumbing System | 3.8.1 | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Tests, Flushing and Disinfection | 3.8 | | | | | | | | | | | | | | |
| | | | Test of Backflow Prevention | 3.8.1.1 | G | | | | | | | | | | | | | |
| | | | Assemblies | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Materials and Equipment | 1.3 | | | | | | | | | | | | | | |
| | | | Bolts | 2.2.1 | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Plumbing System | 3.8.1 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Water-Efficient Products | 2.1.1 | S | | | | | | | | | | | | | |
| | | 23 05 48.00 40 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Installation Drawings | 1.2 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
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| | | 23 05 48.00 40 | Equipment and Performance | 1.2 | G | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Isolators | 2.2.7 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Type of Isolator | 2.4 | G | | | | | | | | | | | | | |
| | | | Type of Base | 2.4 | G | | | | | | | | | | | | | |
| | | | Allowable Deflection | 2.4 | G | | | | | | | | | | | | | |
| | | | Measured Deflection | 2.4 | G | | | | | | | | | | | | | |
| | | 23 05 93 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Independent TAB Agency and | 1.5.1 | G | | | | | | | | | | | | | |
| | | | Personnel Qualifications | | | | | | | | | | | | | | | |
| | | | TAB Design Review Report | 1.5.4.2 | G | | | | | | | | | | | | | |
| | | | TAB Design Review Report | 1.6.2.1 | G | | | | | | | | | | | | | |
| | | | TAB Firm | 1.5.9.1 | G | | | | | | | | | | | | | |
| | | | TAB Team Engineer | 1.2 | G | | | | | | | | | | | | | |
| | | | TAB Specialist | 1.5.9.2 | G | | | | | | | | | | | | | |
| | | | TAB Team Field Leader | 1.2 | G | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | TAB Schematic Drawings and | 1.3.3 | G | | | | | | | | | | | | | |
| | | | Report Forms | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Equipment and Performance | 1.3 | G | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | TAB Related HVAC Submittals | 1.5.1.3 | G | | | | | | | | | | | | | |
| | | | TAB Related HVAC Submittals | 1.5.9.4 | G | | | | | | | | | | | | | |
| | | | TAB Procedures | 1.5.7 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 23 05 93 | Calibration | 1.5.7 | G | | | | | | | | | | | | | |
| | | | Systems Readiness Check | 1.3.3 | G | | | | | | | | | | | | | |
| | | | TAB Execution | 1.5.10 | G | | | | | | | | | | | | | |
| | | | TAB Verification | 1.5.10.3 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Completed Pre-Final DALT | 3.3.5 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | Certified Final DALT Report | 3.3.8 | G | | | | | | | | | | | | | |
| | | | Prerequisite HVAC Work | 1.5.4.3 | G | | | | | | | | | | | | | |
| | | | Checkout List | | | | | | | | | | | | | | | |
| | | | Prerequisite HVAC Work | 1.5.4.3 | G | | | | | | | | | | | | | |
| | | | Checkout List | | | | | | | | | | | | | | | |
| | | | Prerequisite HVAC Work | 1.5.4.3 | G | | | | | | | | | | | | | |
| | | | Checkout List | | | | | | | | | | | | | | | |
| | | | Proportional Balancing | 3.4.7.1 | G | | | | | | | | | | | | | |
| | | | Proportional Balancing | 3.7 | G | | | | | | | | | | | | | |
| | | | Season 1 | 3.4.7.2 | G | | | | | | | | | | | | | |
| | | | Season 1 | 3.7 | G | | | | | | | | | | | | | |
| | | | Season 2 | 3.4.7.2 | G | | | | | | | | | | | | | |
| | | | Season 2 | 3.7 | G | | | | | | | | | | | | | |
| | | | TAB Design Review Report | 1.5.4.2 | G | | | | | | | | | | | | | |
| | | | TAB Design Review Report | 1.6.2.1 | G | | | | | | | | | | | | | |
| | | | TAB Report for Season 1 | 1.5.11.2 | G | | | | | | | | | | | | | |
| | | | TAB Report for Season 2 | 1.5.11.2 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

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| | | 23 05 93 | Independent TAB Agency and | 1.5.1 | G | | | | | | | | | | | | | |
| | | | Personnel Qualifications | | | | | | | | | | | | | | | |
| | | | DALT and TAB Submittal and | 1.5.4.2 | G | | | | | | | | | | | | | |
| | | | Work Schedule | | | | | | | | | | | | | | | |
| | | | DALT and TAB Submittal and | 1.6.2 | G | | | | | | | | | | | | | |
| | | | Work Schedule | | | | | | | | | | | | | | | |
| | | | TAB Pre-Field Engineering | 1.5.4.3 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | TAB Pre-Field Engineering | 1.6.2.3 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | Instrument Calibration | 1.5.6 | G | | | | | | | | | | | | | |
| | | | Certificates | | | | | | | | | | | | | | | |
| | | | DALT and TAB Procedures | 3.7 | G | | | | | | | | | | | | | |
| | | | Summary | | | | | | | | | | | | | | | |
| | | | Completed Pre-Final DALT Work | 3.7 | G | | | | | | | | | | | | | |
| | | | Checklist | | | | | | | | | | | | | | | |
| | | | Advance Notice of Pre-Final | 3.3.2 | G | | | | | | | | | | | | | |
| | | | DALT Field Work | | | | | | | | | | | | | | | |
| | | | Proportional Balancing | 3.4.7.1 | G | | | | | | | | | | | | | |
| | | | Proportional Balancing | 3.7 | G | | | | | | | | | | | | | |
| | | | Season 1 | 3.4.7.2 | G | | | | | | | | | | | | | |
| | | | Season 1 | 3.7 | G | | | | | | | | | | | | | |
| | | | Season 2 | 3.4.7.2 | G | | | | | | | | | | | | | |
| | | | Season 2 | 3.7 | G | | | | | | | | | | | | | |
| | | | TAB Firm | 1.5.9.1 | G | | | | | | | | | | | | | |
| | | | Design Review Report | 1.3.3 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 23 05 93 | Pre-field DALT Preliminary | 1.6.2.2 | G | | | | | | | | | | | | | |
| | | | Notification | | | | | | | | | | | | | | | |
| | | | Advanced Notice for Season 1 | 1.6.2 | G | | | | | | | | | | | | | |
| | | | TAB Field Work | | | | | | | | | | | | | | | |
| | | | Prerequisite HVAC Work Check | 1.6.2 | G | | | | | | | | | | | | | |
| | | | Out List For Season 1 | | | | | | | | | | | | | | | |
| | | | Advanced Notice for Season 2 | 1.6.2 | G | | | | | | | | | | | | | |
| | | | TAB Field Work | | | | | | | | | | | | | | | |
| | | | Prerequisite HVAC Work Check | 1.6.2 | G | | | | | | | | | | | | | |
| | | | Out List For Season 2 | | | | | | | | | | | | | | | |
| | | 23 07 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | MICA Plates | 3.2.2.4 | G | | | | | | | | | | | | | |
| | | | Pipe Insulation Systems | 2.3 | | | | | | | | | | | | | | |
| | | | Pipe Insulation Systems | 3.2 | | | | | | | | | | | | | | |
| | | | Duct Insulation Systems | 3.3 | | | | | | | | | | | | | | |
| | | | Equipment Insulation Systems | 3.4 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Pipe Insulation Systems | 2.3 | G | | | | | | | | | | | | | |
| | | | Pipe Insulation Systems | 3.2 | G | | | | | | | | | | | | | |
| | | | Duct Insulation Systems | 3.3 | G | | | | | | | | | | | | | |
| | | | Equipment Insulation Systems | 3.4 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Indoor air quality for adhesives | 2.2.1 | S | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Pipe Insulation Systems | 2.3 | G | | | | | | | | | | | | | |
| | | | Pipe Insulation Systems | 3.2 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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TITLE AND LOCATION
Lackland DCF4

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| | | 23 07 00 | Duct Insulation Systems | 3.3 | G | | | | | | | | | | | | | |
| | | | Equipment Insulation Systems | 3.4 | G | | | | | | | | | | | | | |
| | | 23 08 00.00 20 | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Pipe Flushing, Testing, And | 1.6 | G | | | | | | | | | | | | | |
| | | | Water Treatment Reports | | | | | | | | | | | | | | | |
| | | | Seasonal Test Report | 3.7 | G | | | | | | | | | | | | | |
| | | | Full-Load Test Report | 3.8 | G | | | | | | | | | | | | | |
| | | 23 09 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | DDC Contractor Design Drawings | 3.2 | G | | | | | | | | | | | | | |
| | | | Draft As-Built Drawings | 3.2 | G | | | | | | | | | | | | | |
| | | | Final As-Built Drawings | 3.2 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Programming Software | 1.8.1 | G | | | | | | | | | | | | | |
| | | | Programming Software | 1.8.5 | G | | | | | | | | | | | | | |
| | | | Controller Application Programs | 1.8.2 | G | | | | | | | | | | | | | |
| | | | Controller Application Programs | 1.8.6 | G | | | | | | | | | | | | | |
| | | | Configuration Software | 1.8.3 | G | | | | | | | | | | | | | |
| | | | Controller Configuration Settings | 1.8.4 | G | | | | | | | | | | | | | |
| | | | Manufacturer's Product Data | 2.2 | G | | | | | | | | | | | | | |
| | | | Final LNS Database | 1.5 | G | | | | | | | | | | | | | |
| | | | LNS Plug-ins | 1.5 | G | | | | | | | | | | | | | |
| | | | Niagara Framework Supervisory | 1.8.7 | G | | | | | | | | | | | | | |
| | | | Gateway Backups | | | | | | | | | | | | | | | |
| | | | Niagara Framework Engineering | 1.8.8 | G | | | | | | | | | | | | | |
| | | | Tool | | | | | | | | | | | | | | | |
| | | | Niagara Framework Wizards | 1.5 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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TITLE AND LOCATION
Lackland DCF4

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| | | 23 09 00 | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Existing Conditions Report | 1.5 | | | | | | | | | | | | | | |
| | | | Pre-Construction Quality Control | 1.9.1 | G | | | | | | | | | | | | | |
| | | | (QC) Checklist | | | | | | | | | | | | | | | |
| | | | Post-Construction Quality Control | 1.9.2 | G | | | | | | | | | | | | | |
| | | | (QC) Checklist | | | | | | | | | | | | | | | |
| | | | Start-Up Testing Report | 3.4.2 | G | | | | | | | | | | | | | |
| | | | PVT Procedures | 3.5.1 | G | | | | | | | | | | | | | |
| | | | PVT Report | 3.5.3 | G | | | | | | | | | | | | | |
| | | | Control Contractor's Performance | 3.6.5 | G | | | | | | | | | | | | | |
| | | | Verification Testing Plan | | | | | | | | | | | | | | | |
| | | | Equipment Supplier's | 3.6.3.1 | G | | | | | | | | | | | | | |
| | | | Performance Verification Testing | | | | | | | | | | | | | | | |
| | | | Plan | | | | | | | | | | | | | | | |
| | | | Endurance Testing Results | 3.6.8.3 | G | | | | | | | | | | | | | |
| | | | Performance Verification Test | 3.6.9 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Operation and Maintenance | 3.7 | G | | | | | | | | | | | | | |
| | | | (O&M) Instructions | | | | | | | | | | | | | | | |
| | | | Training Documentation | 3.9.1 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Enclosure Keys | 2.5 | G | | | | | | | | | | | | | |
| | | | Password Summary Report | 3.1.6.1 | G | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

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TITLE AND LOCATION
Lackland DCF4

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| | | 23 09 00 | Closeout Quality Control (QC) | 1.9.3 | G | | | | | | | | | | | | | |
| | | | Checklist | | | | | | | | | | | | | | | |
| | | 23 09 13.34 40 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Fabrication Drawings | 1.2 | G | | | | | | | | | | | | | |
| | | | Installation Drawings | 3.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Self-Contained Temperature | 2.1 | G | | | | | | | | | | | | | |
| | | | Control Valves | | | | | | | | | | | | | | | |
| | | | Self-Contained | 2.2 | G | | | | | | | | | | | | | |
| | | | Temperature-Regulator Valves | | | | | | | | | | | | | | | |
| | | | Rate-of-Flow Controller | 2.3 | G | | | | | | | | | | | | | |
| | | | Nonmodulating Float Valve | 2.4 | G | | | | | | | | | | | | | |
| | | | Water Pressure Regulating Valve | 2.5 | G | | | | | | | | | | | | | |
| | | | Water Pressure Relief Valve | 2.6 | G | | | | | | | | | | | | | |
| | | | Relief Valves for Electric Water | 2.7 | G | | | | | | | | | | | | | |
| | | | Heaters | | | | | | | | | | | | | | | |
| | | | Sample Warranty | 1.4 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | List of Product Installations | 1.2 | G | | | | | | | | | | | | | |
| | | | Certificates of Conformance | 1.4 | G | | | | | | | | | | | | | |
| | | | Manufacturer's Warranty | 3.3 | G | | | | | | | | | | | | | |
| | | 23 30 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Detail Drawings | 1.4.4 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Metallic Flexible Duct | 2.10.1.1 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

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| | | 23 30 00 | Insulated Nonmetallic Flexible | 2.10.1.2 | | | | | | | | | | | | | | |
| | | | Duct Runouts | | | | | | | | | | | | | | | |
| | | | Duct Connectors | 2.10.1.2 | | | | | | | | | | | | | | |
| | | | Duct Access Doors | 2.10.2 | G | | | | | | | | | | | | | |
| | | | Fire Dampers | 2.10.3 | | | | | | | | | | | | | | |
| | | | Manual Balancing Dampers | 2.10.4 | G | | | | | | | | | | | | | |
| | | | Manual Balancing Dampers | 2.10.5 | G | | | | | | | | | | | | | |
| | | | Automatic Smoke-Fire Dampers | 2.10.7 | | | | | | | | | | | | | | |
| | | | Automatic Smoke Dampers | 2.10.8 | | | | | | | | | | | | | | |
| | | | Sound Attenuation Equipment | 2.10.12 | | | | | | | | | | | | | | |
| | | | Acoustical Duct Liner | 2.10.12.3 | | | | | | | | | | | | | | |
| | | | Diffusers | 2.10.13.1 | | | | | | | | | | | | | | |
| | | | Registers and Grilles | 2.10.13.5 | | | | | | | | | | | | | | |
| | | | Louvers | 2.10.14 | | | | | | | | | | | | | | |
| | | | Air Vents, Penthouses, and | 2.10.15 | | | | | | | | | | | | | | |
| | | | Goosenecks | | | | | | | | | | | | | | | |
| | | | Centrifugal Fans | 2.11.1.1 | | | | | | | | | | | | | | |
| | | | In-Line Centrifugal Fans | 2.11.1.2 | | | | | | | | | | | | | | |
| | | | Axial Flow Fans | 2.11.1.3 | | | | | | | | | | | | | | |
| | | | Centrifugal Type Power Roof | 2.11.1.5 | | | | | | | | | | | | | | |
| | | | Ventilators | | | | | | | | | | | | | | | |
| | | | Air-Curtain Fans | 2.11.1.6 | | | | | | | | | | | | | | |
| | | | Ceiling Exhaust Fans | 2.11.1.7 | | | | | | | | | | | | | | |
| | | | PL-109-58 label for ceiling | 2.11.1.7 | S | | | | | | | | | | | | | |
| | | | exhaust fan product | | | | | | | | | | | | | | | |
| | | | Air Handling Units | 2.12 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 23 30 00 | Room Fan-Coil Units | 2.13.1 | G | | | | | | | | | | | | | |
| | | | Variable Volume, Single Duct, | 2.13.2.3 | G | | | | | | | | | | | | | |
| | | | Fan-Powered Terminal Units | | | | | | | | | | | | | | | |
| | | | Unit Ventilators | 2.13.3 | | | | | | | | | | | | | | |
| | | | Energy Recovery Devices | 2.14 | G | | | | | | | | | | | | | |
| | | | Test Procedures | 1.4.5 | | | | | | | | | | | | | | |
| | | | Diagrams | 1.2.1.2 | G | | | | | | | | | | | | | |
| | | | Indoor Air Quality for Duct | 2.10.1 | | | | | | | | | | | | | | |
| | | | Sealants | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Performance Tests | 3.13 | G | | | | | | | | | | | | | |
| | | | Damper Acceptance Test | 3.11 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Bolts | 1.4.1 | | | | | | | | | | | | | | |
| | | | Ozone Depleting Substances | 1.4.3 | | | | | | | | | | | | | | |
| | | | Technician Certification | | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Manufacturer's Installation | 3.2 | | | | | | | | | | | | | | |
| | | | Instructions | | | | | | | | | | | | | | | |
| | | | Operation and Maintenance | 3.15.2 | | | | | | | | | | | | | | |
| | | | Training | | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Operation and Maintenance | 3.15.1 | G | | | | | | | | | | | | | |
| | | | Manuals | | | | | | | | | | | | | | | |
| | | | Fire Dampers | 2.10.3 | G | | | | | | | | | | | | | |

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| | | 23 30 00 | Automatic Smoke-Fire Dampers | 2.10.7 | G | | | | | | | | | | | | | |
| | | | Centrifugal Fans | 2.11.1.1 | G | | | | | | | | | | | | | |
| | | | In-Line Centrifugal Fans | 2.11.1.2 | G | | | | | | | | | | | | | |
| | | | Axial Flow Fans | 2.11.1.3 | G | | | | | | | | | | | | | |
| | | | Panel Type Power Wall | 2.11.1.4 | G | | | | | | | | | | | | | |
| | | | Ventilators | | | | | | | | | | | | | | | |
| | | | Centrifugal Type Power Roof | 2.11.1.5 | G | | | | | | | | | | | | | |
| | | | Ventilators | | | | | | | | | | | | | | | |
| | | | Air-Curtain Fans | 2.11.1.6 | G | | | | | | | | | | | | | |
| | | | Ceiling Exhaust Fans | 2.11.1.7 | G | | | | | | | | | | | | | |
| | | | Air Handling Units | 2.12 | G | | | | | | | | | | | | | |
| | | | Room Fan-Coil Units | 2.13.1 | G | | | | | | | | | | | | | |
| | | | Variable Volume, Single Duct, | 2.13.2.3 | G | | | | | | | | | | | | | |
| | | | Fan-Powered Terminal Units | | | | | | | | | | | | | | | |
| | | | Energy Recovery Devices | 2.14 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Indoor Air Quality During | 3.14 | | | | | | | | | | | | | | |
| | | | Construction | | | | | | | | | | | | | | | |
| | | 23 64 26 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Calibrated Balancing Valves | 2.5.8 | G | | | | | | | | | | | | | |
| | | | Water Temperature Mixing Valve | 2.5.9 | G | | | | | | | | | | | | | |
| | | | Water Temperature Regulating | 2.5.10 | G | | | | | | | | | | | | | |
| | | | Valves | | | | | | | | | | | | | | | |
| | | | Water Pressure Reducing Valve | 2.5.11 | | | | | | | | | | | | | | |
| | | | Pressure Relief Valve | 2.5.12 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 23 64 26 | Combination Pressure and | 2.5.13 | | | | | | | | | | | | | | |
| | | | Temperature Relief Valves | | | | | | | | | | | | | | | |
| | | | Expansion Joints | 2.6.9 | G | | | | | | | | | | | | | |
| | | | Pumps | 2.7 | G | | | | | | | | | | | | | |
| | | | Combination Strainer and Pump | 2.6.3 | | | | | | | | | | | | | | |
| | | | Suction Diffuser | | | | | | | | | | | | | | | |
| | | | Expansion Tanks | 2.8 | | | | | | | | | | | | | | |
| | | | Air Separator Tanks | 2.9 | | | | | | | | | | | | | | |
| | | | Water Treatment Systems | 2.10 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Piping Welds NDE Report | 3.1.1.3 | | | | | | | | | | | | | | |
| | | | Pressure Tests Reports | 3.5.2 | G | | | | | | | | | | | | | |
| | | | Condenser Water Quality Test | 3.5.3 | G | | | | | | | | | | | | | |
| | | | Reports | | | | | | | | | | | | | | | |
| | | | Condenser Water Quality Test | 3.5.3 | G | | | | | | | | | | | | | |
| | | | Reports | | | | | | | | | | | | | | | |
| | | | One-Year Inspection Report For | 3.7 | G | | | | | | | | | | | | | |
| | | | Cooling Water | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Employer's Record Documents | 3.1.1.1 | | | | | | | | | | | | | | |
| | | | (For Welding) | | | | | | | | | | | | | | | |
| | | | Welding Procedures and | 3.1.1.2 | | | | | | | | | | | | | | |
| | | | Qualifications | | | | | | | | | | | | | | | |
| | | | Fittings | 2.2.2 | | | | | | | | | | | | | | |
| | | | Fittings | 2.2.2 | | | | | | | | | | | | | | |
| | | | Fittings | 2.3.2 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 23 64 26 | Unions | 3.1.4.6 | | | | | | | | | | | | | | |
| | | | Flanges | 2.2.2.5 | | | | | | | | | | | | | | |
| | | | Flanges | 3.1.4.6 | | | | | | | | | | | | | | |
| | | | Gaskets | 2.2.2.2 | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Lesson plan for the Instruction | 3.6 | G | | | | | | | | | | | | | |
| | | | Course | | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Water Treatment Systems | 2.10 | G | | | | | | | | | | | | | |
| | | | Calibrated Balancing Valves | 2.5.8 | G | | | | | | | | | | | | | |
| | | | Water Temperature Mixing Valve | 2.5.9 | G | | | | | | | | | | | | | |
| | | | Water Temperature Regulating | 2.5.10 | G | | | | | | | | | | | | | |
| | | | Valves | | | | | | | | | | | | | | | |
| | | | Water Pressure Reducing Valve | 2.5.11 | G | | | | | | | | | | | | | |
| | | | Pressure Relief Valve | 2.5.12 | G | | | | | | | | | | | | | |
| | | | Combination Pressure and | 2.5.13 | G | | | | | | | | | | | | | |
| | | | Temperature Relief Valves | | | | | | | | | | | | | | | |
| | | | Expansion Joints | 2.6.9 | G | | | | | | | | | | | | | |
| | | | Pumps | 2.7 | G | | | | | | | | | | | | | |
| | | | Combination Strainer and Pump | 2.6.3 | G | | | | | | | | | | | | | |
| | | | Suction Diffuser | | | | | | | | | | | | | | | |
| | | | Expansion Tanks | 2.8 | G | | | | | | | | | | | | | |
| | | | Air Separator Tanks | 2.9 | G | | | | | | | | | | | | | |
| | | 23 82 00.00 20 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Unit Heaters | 2.1 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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TITLE AND LOCATION
Lackland DCF4

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| | | 23 82 00.00 20 | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Unit Heaters | 2.1 | | | | | | | | | | | | | | |
| | | 25 05 11.01 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Wireless and Wired Broadcast | 3.2.2.3 | G | | | | | | | | | | | | | |
| | | | Communication Request | | | | | | | | | | | | | | | |
| | | | Device Account Lock Exception | 3.3.2 | G | | | | | | | | | | | | | |
| | | | Request | | | | | | | | | | | | | | | |
| | | | Multiple Ethernet Connection | 3.2.4.2 | G | | | | | | | | | | | | | |
| | | | Device Request | | | | | | | | | | | | | | | |
| | | | Contractor Computer | 1.10.1.6 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Compliance | | | | | | | | | | | | | | | |
| | | | Statements | | | | | | | | | | | | | | | |
| | | | Contractor Temporary Network | 1.10.6 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Compliance | | | | | | | | | | | | | | | |
| | | | Statements | | | | | | | | | | | | | | | |
| | | | Cybersecurity Interconnection | 1.8.2 | G | | | | | | | | | | | | | |
| | | | Schedule | | | | | | | | | | | | | | | |
| | | | Protection of Information At Rest | 3.7.4 | G | | | | | | | | | | | | | |
| | | | Proposal | | | | | | | | | | | | | | | |
| | | | Proposed STIG and SRG | 1.8.1 | G | | | | | | | | | | | | | |
| | | | Applicability Report | | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Network Communication Report | 1.8.3 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Riser Diagram | 1.8.6 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 25 05 11.01 | Control System Cybersecurity | 1.8.8 | G | | | | | | | | | | | | | |
| | | | Documentation | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Wireless Communication Test | 3.2.2.4 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | Control System Cybersecurity | 3.14.1 | G | | | | | | | | | | | | | |
| | | | Testing Procedures | | | | | | | | | | | | | | | |
| | | | Control System Cybersecurity | 3.14.3 | G | | | | | | | | | | | | | |
| | | | Testing Report | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Software Licenses | 1.9 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Confidential Password Report | 3.4.5.5 | G | | | | | | | | | | | | | |
| | | | Password Change Summary | 3.4.5.5 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | Enclosure Keys | 3.3.7 | G | | | | | | | | | | | | | |
| | | | Software and Configuration | 1.8.5 | G | | | | | | | | | | | | | |
| | | | Backups | | | | | | | | | | | | | | | |
| | | | Auditing Front End Software | 3.5.3 | G | | | | | | | | | | | | | |
| | | | Device Audit Record Upload | 3.5.4.2 | G | | | | | | | | | | | | | |
| | | | Software | | | | | | | | | | | | | | | |
| | | | System Maintenance Tool | 3.9 | G | | | | | | | | | | | | | |
| | | | Software | | | | | | | | | | | | | | | |
| | | | Control System Scanning Tools | 3.11.2 | G | | | | | | | | | | | | | |
| | | | STIG, SRG and Vendor Guide | 1.8.7 | G | | | | | | | | | | | | | |
| | | | Compliance Result Report | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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TITLE AND LOCATION
Lackland DCF4

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| | | 25 05 11.01 | Control System Inventory Report | 1.8.4 | G | | | | | | | | | | | | | |
| | | | Integrity Verification Software | 3.13.2 | G | | | | | | | | | | | | | |
| | | 25 05 11.02 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Wireless and Wired Broadcast | 3.2.2.3 | G | | | | | | | | | | | | | |
| | | | Communication Request | | | | | | | | | | | | | | | |
| | | | Device Account Lock Exception | 3.3.2 | G | | | | | | | | | | | | | |
| | | | Request | | | | | | | | | | | | | | | |
| | | | Multiple Ethernet Connection | 3.2.4.2 | G | | | | | | | | | | | | | |
| | | | Device Request | | | | | | | | | | | | | | | |
| | | | Contractor Computer | 1.10.1.6 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Compliance | | | | | | | | | | | | | | | |
| | | | Statements | | | | | | | | | | | | | | | |
| | | | Contractor Temporary Network | 1.10.6 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Compliance | | | | | | | | | | | | | | | |
| | | | Statements | | | | | | | | | | | | | | | |
| | | | Cybersecurity Interconnection | 1.8.2 | G | | | | | | | | | | | | | |
| | | | Schedule | | | | | | | | | | | | | | | |
| | | | Protection of Information At Rest | 3.7.4 | G | | | | | | | | | | | | | |
| | | | Proposal | | | | | | | | | | | | | | | |
| | | | Proposed STIG and SRG | 1.8.1 | G | | | | | | | | | | | | | |
| | | | Applicability Report | | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Network Communication Report | 1.8.3 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Riser Diagram | 1.8.6 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

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Lackland DCF4

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| | | 25 05 11.02 | Control System Cybersecurity | 1.8.8 | G | | | | | | | | | | | | | |
| | | | Documentation | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Wireless Communication Test | 3.2.2.4 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | Control System Cybersecurity | 3.14.1 | G | | | | | | | | | | | | | |
| | | | Testing Procedures | | | | | | | | | | | | | | | |
| | | | Control System Cybersecurity | 3.14.3 | G | | | | | | | | | | | | | |
| | | | Testing Report | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Software Licenses | 1.9 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
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| | | | Password Change Summary | 3.4.5.5 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | Enclosure Keys | 3.3.7 | G | | | | | | | | | | | | | |
| | | | Software and Configuration | 1.8.5 | G | | | | | | | | | | | | | |
| | | | Backups | | | | | | | | | | | | | | | |
| | | | Auditing Front End Software | 3.5.3 | G | | | | | | | | | | | | | |
| | | | Device Audit Record Upload | 3.5.4.2 | G | | | | | | | | | | | | | |
| | | | Software | | | | | | | | | | | | | | | |
| | | | System Maintenance Tool | 3.9 | G | | | | | | | | | | | | | |
| | | | Software | | | | | | | | | | | | | | | |
| | | | Control System Scanning Tools | 3.11.2 | G | | | | | | | | | | | | | |
| | | | STIG, SRG and Vendor Guide | 1.8.7 | G | | | | | | | | | | | | | |
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Lackland DCF4

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| | | 25 05 11.02 | Control System Inventory Report | 1.8.4 | G | | | | | | | | | | | | | |
| | | | Integrity Verification Software | 3.13.2 | G | | | | | | | | | | | | | |
| | | 25 05 11.03 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Wireless and Wired Broadcast | 3.2.3.3 | G | | | | | | | | | | | | | |
| | | | Communication Request | | | | | | | | | | | | | | | |
| | | | Device Account Lock Exception | 3.3.2 | G | | | | | | | | | | | | | |
| | | | Request | | | | | | | | | | | | | | | |
| | | | Multiple Ethernet Connection | 3.2.5.2 | G | | | | | | | | | | | | | |
| | | | Device Request | | | | | | | | | | | | | | | |
| | | | Contractor Computer | 1.10.1.6 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Compliance | | | | | | | | | | | | | | | |
| | | | Statements | | | | | | | | | | | | | | | |
| | | | Contractor Temporary Network | 1.10.6 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Compliance | | | | | | | | | | | | | | | |
| | | | Statements | | | | | | | | | | | | | | | |
| | | | Cybersecurity Interconnection | 1.8.2 | G | | | | | | | | | | | | | |
| | | | Schedule | | | | | | | | | | | | | | | |
| | | | Protection of Information At Rest | 3.7.4 | G | | | | | | | | | | | | | |
| | | | Proposal | | | | | | | | | | | | | | | |
| | | | Proposed STIG and SRG | 1.8.1 | G | | | | | | | | | | | | | |
| | | | Applicability Report | | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Network Communication Report | 1.8.3 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Riser Diagram | 1.8.6 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 25 05 11.03 | Control System Cybersecurity | 1.8.8 | G | | | | | | | | | | | | | |
| | | | Documentation | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Wireless Communication Test | 3.2.3.4 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | Control System Cybersecurity | 3.14.1 | G | | | | | | | | | | | | | |
| | | | Testing Procedures | | | | | | | | | | | | | | | |
| | | | Control System Cybersecurity | 3.14.3 | G | | | | | | | | | | | | | |
| | | | Testing Report | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Software Licenses | 1.9 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Confidential Password Report | 3.4.5.5 | G | | | | | | | | | | | | | |
| | | | Password Change Summary | 3.4.5.5 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | Enclosure Keys | 3.3.7 | G | | | | | | | | | | | | | |
| | | | Software and Configuration | 1.8.5 | G | | | | | | | | | | | | | |
| | | | Backups | | | | | | | | | | | | | | | |
| | | | Auditing Front End Software | 3.5.3 | G | | | | | | | | | | | | | |
| | | | Device Audit Record Upload | 3.5.4.2 | G | | | | | | | | | | | | | |
| | | | Software | | | | | | | | | | | | | | | |
| | | | System Maintenance Tool | 3.9 | G | | | | | | | | | | | | | |
| | | | Software | | | | | | | | | | | | | | | |
| | | | Control System Scanning Tools | 3.11.2 | G | | | | | | | | | | | | | |
| | | | STIG, SRG and Vendor Guide | 1.8.7 | G | | | | | | | | | | | | | |
| | | | Compliance Result Report | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 25 05 11.03 | Control System Inventory Report | 1.8.4 | G | | | | | | | | | | | | | |
| | | | Integrity Verification Software | 3.13.2 | G | | | | | | | | | | | | | |
| | | 25 05 11.04 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Wireless and Wired Broadcast | 1.5.2 | G | | | | | | | | | | | | | |
| | | | Communication Request | | | | | | | | | | | | | | | |
| | | | Device Account Lock Exception | 3.3.2 | G | | | | | | | | | | | | | |
| | | | Request | | | | | | | | | | | | | | | |
| | | | Multiple Ethernet Connection | 3.2.3.2 | G | | | | | | | | | | | | | |
| | | | Device Request | | | | | | | | | | | | | | | |
| | | | Contractor Computer | 1.10.1.6 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Compliance | | | | | | | | | | | | | | | |
| | | | Statements | | | | | | | | | | | | | | | |
| | | | Contractor Temporary Network | 1.10.6 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Compliance | | | | | | | | | | | | | | | |
| | | | Statements | | | | | | | | | | | | | | | |
| | | | Cybersecurity Interconnection | 1.8.2 | G | | | | | | | | | | | | | |
| | | | Schedule | | | | | | | | | | | | | | | |
| | | | Proposed STIG and SRG | 1.8.1 | G | | | | | | | | | | | | | |
| | | | Applicability Report | | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Network Communication Report | 1.8.3 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Riser Diagram | 1.8.6 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Control System Cybersecurity | 1.8.8 | G | | | | | | | | | | | | | |
| | | | Documentation | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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| | | 25 05 11.04 | Wireless Communication Test | 1.5.2 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | Control System Cybersecurity | 3.14.1 | G | | | | | | | | | | | | | |
| | | | Testing Procedures | | | | | | | | | | | | | | | |
| | | | Control System Cybersecurity | 3.14.3 | G | | | | | | | | | | | | | |
| | | | Testing Report | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Software Licenses | 1.9 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Confidential Password Report | 3.4.5.5 | G | | | | | | | | | | | | | |
| | | | Password Change Summary | 3.4.5.5 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | Enclosure Keys | 3.3.6 | G | | | | | | | | | | | | | |
| | | | Software and Configuration | 1.8.5 | G | | | | | | | | | | | | | |
| | | | Backups | | | | | | | | | | | | | | | |
| | | | Device Audit Record Upload | 1.5.2 | G | | | | | | | | | | | | | |
| | | | Software | | | | | | | | | | | | | | | |
| | | | System Maintenance Tool | 3.9 | G | | | | | | | | | | | | | |
| | | | Software | | | | | | | | | | | | | | | |
| | | | Control System Scanning Tools | 3.11.2 | G | | | | | | | | | | | | | |
| | | | STIG, SRG and Vendor Guide | 1.8.7 | G | | | | | | | | | | | | | |
| | | | Compliance Result Report | | | | | | | | | | | | | | | |
| | | | Control System Inventory Report | 1.8.4 | G | | | | | | | | | | | | | |
| | | 25 05 11.06 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Wireless and Wired Broadcast | 3.2.1.3 | G | | | | | | | | | | | | | |
| | | | Communication Request | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 25 05 11.06 | Device Account Lock Exception | 3.3.2 | G | | | | | | | | | | | | | |
| | | | Request | | | | | | | | | | | | | | | |
| | | | Contractor Computer | 1.10.1.6 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Compliance | | | | | | | | | | | | | | | |
| | | | Statements | | | | | | | | | | | | | | | |
| | | | Contractor Temporary Network | 1.10.6 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Compliance | | | | | | | | | | | | | | | |
| | | | Statements | | | | | | | | | | | | | | | |
| | | | Cybersecurity Interconnection | 1.5.2 | G | | | | | | | | | | | | | |
| | | | Schedule | | | | | | | | | | | | | | | |
| | | | Proposed STIG and SRG | 1.8.1 | G | | | | | | | | | | | | | |
| | | | Applicability Report | | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Network Communication Report | 3.6 | G | | | | | | | | | | | | | |
| | | | Cybersecurity Riser Diagram | 1.8.4 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Control System Cybersecurity | 1.8.6 | G | | | | | | | | | | | | | |
| | | | Documentation | | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Wireless Communication Test | 1.5.2 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
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| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
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| | | 25 05 11.06 | Password Change Summary | 3.4.5.5 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | | Enclosure Keys | 3.3.5 | G | | | | | | | | | | | | | |
| | | | Software and Configuration | 1.8.3 | G | | | | | | | | | | | | | |
| | | | Backups | | | | | | | | | | | | | | | |
| | | | Device Audit Record Upload | 1.5.2 | G | | | | | | | | | | | | | |
| | | | Software | | | | | | | | | | | | | | | |
| | | | System Maintenance Tool | 3.9 | G | | | | | | | | | | | | | |
| | | | Software | | | | | | | | | | | | | | | |
| | | | Control System Scanning Tools | 3.11.2 | G | | | | | | | | | | | | | |
| | | | STIG, SRG and Vendor Guide | 1.8.5 | G | | | | | | | | | | | | | |
| | | | Compliance Result Report | | | | | | | | | | | | | | | |
| | | | Control System Inventory Report | 1.8.2 | G | | | | | | | | | | | | | |
| | | 25 08 10 | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | PVT Plan | 3.1.1 | G | | | | | | | | | | | | | |
| | | | PVT Phase I Report | 3.1.2.1 | G | | | | | | | | | | | | | |
| | | | PVT Phase II Report | 3.1.2.2 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Test Instrumentation Calibration | 1.4 | G | | | | | | | | | | | | | |
| | | | Certificates | | | | | | | | | | | | | | | |
| | | 26 08 00 | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Acceptance Tests and | 3.1 | G | | | | | | | | | | | | | |
| | | | Inspections | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Qualifications | 1.4.1 | G | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

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| | | 26 08 00 | Acceptance Test and Inspections | 1.4.3 | G | | | | | | | | | | | | | |
| | | | Procedure | | | | | | | | | | | | | | | |
| | | 26 20 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Panelboards | 2.13 | G | | | | | | | | | | | | | |
| | | | Transformers | 2.16 | G | | | | | | | | | | | | | |
| | | | Cable Trays | 2.4 | G | | | | | | | | | | | | | |
| | | | Motor Control Centers | 2.20 | G | | | | | | | | | | | | | |
| | | | Wireways | 2.29 | G | | | | | | | | | | | | | |
| | | | Marking Strips | 3.1.9.1 | G | | | | | | | | | | | | | |
| | | | Cable Bus System | 2.3 | G | | | | | | | | | | | | | |
| | | | Cable Bus System | 3.1.5 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Receptacles | 2.12 | G | | | | | | | | | | | | | |
| | | | Circuit Breakers | 2.13.3 | G | | | | | | | | | | | | | |
| | | | Switches | 2.10 | G | | | | | | | | | | | | | |
| | | | Transformers | 2.16 | G | | | | | | | | | | | | | |
| | | | Enclosed Circuit Breakers | 2.14 | G | | | | | | | | | | | | | |
| | | | Motor Controllers | 2.18 | G | | | | | | | | | | | | | |
| | | | Combination Motor Controllers | 2.20.1 | G | | | | | | | | | | | | | |
| | | | Manual Motor Starters | 2.19 | G | | | | | | | | | | | | | |
| | | | Metering | 2.30 | G | | | | | | | | | | | | | |
| | | | CATV Outlets | 2.23.1 | G | | | | | | | | | | | | | |
| | | | Secondary Bonding Busbar | 2.24.3 | G | | | | | | | | | | | | | |
| | | | Surge Protective Devices | 2.31 | G | | | | | | | | | | | | | |
| | | | Cable Trays | 2.4 | G | | | | | | | | | | | | | |
| | | | Cable Bus System | 2.3 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 26 20 00 | Cable Bus System | 3.1.5 | G | | | | | | | | | | | | | |
| | | | Cable Tray Design | 2.4 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | 600-volt Wiring Test | 3.5.2 | G | | | | | | | | | | | | | |
| | | | Grounding System Test | 3.5.6 | G | | | | | | | | | | | | | |
| | | | Transformer Tests | 3.5.3 | G | | | | | | | | | | | | | |
| | | | Ground-fault Receptacle Test | 3.5.4 | G | | | | | | | | | | | | | |
| | | | Arc-fault Receptacle Test | 3.5.5 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Fuses | 2.11 | G | | | | | | | | | | | | | |
| | | | SD-09 Manufacturer's Field | | | | | | | | | | | | | | | |
| | | | Reports | | | | | | | | | | | | | | | |
| | | | Transformer Factory Tests | 2.33.1 | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Electrical Systems | 1.5.1 | G | | | | | | | | | | | | | |
| | | | Metering | 2.30 | G | | | | | | | | | | | | | |
| | | 26 24 13 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Switchboard Drawings | 1.5.2 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Switchboard | 2.2 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Switchboard Design Tests | 2.5.2 | G | | | | | | | | | | | | | |
| | | | Switchboard Production Tests | 2.5.3 | G | | | | | | | | | | | | | |
| | | | Acceptance Checks and Tests | 3.5.1 | G | | | | | | | | | | | | | |
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| | | 26 24 13 | Cybersecurity Installation | 3.5.1.7 | G | | | | | | | | | | | | | |
| | | | Certification | | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Switchboard Operation and | 1.6.1 | G | | | | | | | | | | | | | |
| | | | Maintenance | | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Assembled Operation and | 1.6.2 | G | | | | | | | | | | | | | |
| | | | Maintenance Manuals | | | | | | | | | | | | | | | |
| | | | Equipment Test Schedule | 2.5.1 | G | | | | | | | | | | | | | |
| | | | Request for Settings | 3.5 | G | | | | | | | | | | | | | |
| | | | Service Entrance Available Fault | 2.8 | G | | | | | | | | | | | | | |
| | | | Current Label | | | | | | | | | | | | | | | |
| | | 26 27 13.10 30 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Power Meters | 2.1 | G | | | | | | | | | | | | | |
| | | | Current | 2.1.3 | G | | | | | | | | | | | | | |
| | | | Potential Transformer | 2.1.2 | G | | | | | | | | | | | | | |
| | | | Communications Module | 2.2.2 | G | | | | | | | | | | | | | |
| | | | Protocol Modules | 1.6.1 | G | | | | | | | | | | | | | |
| | | | Data Recorder | 1.6.2 | G | | | | | | | | | | | | | |
| | | | Modem | 1.6.2 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Acceptance Checks and Tests | 3.3.1 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Power Meters | 2.1 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

| ACTIVITY NO | TRANSMITTAL NO | SPEC SECT | DESCRIPTION ITEM SUBMITTED | PARAGRAPH # | CLASSIFICATION | GOVT OR A/E REVWR | CONTRACTOR: SCHEDULE DATES | | | CONTRACTOR ACTION | | | APPROVING AUTHORITY | | | | | |
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| | | 26 27 13.10 30 | Communications Module | 2.2.2 | G | | | | | | | | | | | | | |
| | | | Protocol Modules | 1.6.1 | G | | | | | | | | | | | | | |
| | | | Data Recorder | 1.6.2 | G | | | | | | | | | | | | | |
| | | | Modem | 1.6.2 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | System Function Verification | 3.3.2 | G | | | | | | | | | | | | | |
| | | 26 28 01.00 10 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Fault Current Analysis | 2.1 | | | | | | | | | | | | | | |
| | | | Protective Device Coordination | 2.1 | G | | | | | | | | | | | | | |
| | | | Study | | | | | | | | | | | | | | | |
| | | | System Coordinator | 1.4.1 | | | | | | | | | | | | | | |
| | | 26 36 23 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Automatic Transfer Switch | 1.5.2 | G | | | | | | | | | | | | | |
| | | | Drawings | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Automatic Transfer Switches | 2.1 | G | | | | | | | | | | | | | |
| | | | By-Pass/Isolation Switch (BP/IS) | 2.2 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Acceptance Checks and Tests | 3.3.1 | G | | | | | | | | | | | | | |
| | | | Functional Acceptance Tests | 3.3.2 | G | | | | | | | | | | | | | |
| | | | Factory Testing | 2.4 | G | | | | | | | | | | | | | |
| | | | Factory Test Reports | 2.4.2 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Proof of Listing | 1.5.1 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 26 36 23 | Operation and Maintenance | 1.4 | G | | | | | | | | | | | | | | |
| | | | Manual | | | | | | | | | | | | | | | | |
| | | 26 41 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | | |
| | | | Overall lightning protection | 1.4.1.1 | G | | | | | | | | | | | | | | |
| | | | system | | | | | | | | | | | | | | | | |
| | | | Each major component | 1.4.1.2 | G | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | | |
| | | | Lightning Protection and | 1.4.3 | G | | | | | | | | | | | | | | |
| | | | Grounding System Test Plan | | | | | | | | | | | | | | | | |
| | | | Lightning Protection and | 3.5.1 | G | | | | | | | | | | | | | | |
| | | | Grounding System Test | | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | | |
| | | | Lightning Protection System | 1.2.3 | G | | | | | | | | | | | | | | |
| | | | Installers Documentation | | | | | | | | | | | | | | | | |
| | | | Component UL Listed and | 1.4.2 | G | | | | | | | | | | | | | | |
| | | | Labeled | | | | | | | | | | | | | | | | |
| | | | Lightning protection system | 1.4.4 | G | | | | | | | | | | | | | | |
| | | | inspection certificate | | | | | | | | | | | | | | | | |
| | | | Roof manufacturer's warranty | 3.1.1 | G | | | | | | | | | | | | | | |
| | | 26 51 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | | |
| | | | Luminaire Drawings | 1.5.1 | G | | | | | | | | | | | | | | |
| | | | Occupancy/Vacancy Sensor | 1.5.9 | G | | | | | | | | | | | | | | |
| | | | Coverage Layout | | | | | | | | | | | | | | | | |
| | | | Lighting Control System | 1.7.2 | G | | | | | | | | | | | | | | |
| | | | One-Line Diagram | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 26 51 00 | Sequence of Operation for | 2.5.1 | G | | | | | | | | | | | | | |
| | | | Lighting Control System | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Luminaires | 2.2 | G | | | | | | | | | | | | | |
| | | | Light Sources | 2.3 | G | | | | | | | | | | | | | |
| | | | LED Drivers | 2.4 | G | | | | | | | | | | | | | |
| | | | Luminaire Warranty | 1.6.1 | G | | | | | | | | | | | | | |
| | | | Lighting Controls Warranty | 1.6.2 | G | | | | | | | | | | | | | |
| | | | Local Area Controller | 2.5.1.1.1 | G | | | | | | | | | | | | | |
| | | | Lighting Control Panel | 2.5.1.2.1 | G | | | | | | | | | | | | | |
| | | | Gateway | 2.5.1.2.2 | G | | | | | | | | | | | | | |
| | | | Switches | 2.5.2.1 | G | | | | | | | | | | | | | |
| | | | Digital Switch Timers | 2.5.2.2 | G | | | | | | | | | | | | | |
| | | | Wall Box Dimmers | 2.5.2.3 | G | | | | | | | | | | | | | |
| | | | Scene Wallstations | 2.5.2.4 | G | | | | | | | | | | | | | |
| | | | Occupancy/Vacancy Sensors | 2.5.2.5 | G | | | | | | | | | | | | | |
| | | | Photosensors | 2.5.2.6 | G | | | | | | | | | | | | | |
| | | | Time Clocks | 2.5.2.7 | G | | | | | | | | | | | | | |
| | | | Power Packs | 2.5.2.5.2 | G | | | | | | | | | | | | | |
| | | | Power Hook Luminaire Hangers | 2.7.4 | G | | | | | | | | | | | | | |
| | | | Mini Inverters | 2.6.4 | G | | | | | | | | | | | | | |
| | | | Exit Signs | 2.6.1 | G | | | | | | | | | | | | | |
| | | | Emergency Drivers | 2.6.2 | G | | | | | | | | | | | | | |
| | | | Linear LED Lamps | 2.3.1.1 | G | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Luminaire Design Data | 1.5.2 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 26 51 00 | Photometric Plan | 1.5.8 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | ANSI/IES LM-79 Test Report | 1.5.3 | G | | | | | | | | | | | | | |
| | | | ANSI/IES LM-80 Test Report | 1.5.4 | G | | | | | | | | | | | | | |
| | | | ANSI/IES TM-21 Test Report | 1.5.5 | G | | | | | | | | | | | | | |
| | | | ANSI/IES TM-30 Test Report | 1.5.6 | G | | | | | | | | | | | | | |
| | | | Occupancy/Vacancy Sensor | 3.2.1.1 | G | | | | | | | | | | | | | |
| | | | Verification Test | | | | | | | | | | | | | | | |
| | | | Photosensor Verification Test | 3.2.1.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | LED Driver and Dimming Switch | 1.5.7 | G | | | | | | | | | | | | | |
| | | | Compatibility Certificate | | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Lighting System | 1.7.1 | G | | | | | | | | | | | | | |
| | | | Lighting Control System | 1.7.2 | G | | | | | | | | | | | | | |
| | | | Maintenance Staff Training Plan | 3.3.2.1 | G | | | | | | | | | | | | | |
| | | | End-User Training Plan | 3.3.2.2 | G | | | | | | | | | | | | | |
| | | 26 56 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Luminaire Drawings | 1.5.1.1 | G | | | | | | | | | | | | | |
| | | | Control System One-Line | 1.8.2 | G | | | | | | | | | | | | | |
| | | | Diagram | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Luminaires | 2.2 | G | | | | | | | | | | | | | |
| | | | Light Sources | 2.3 | G | | | | | | | | | | | | | |
| | | | LED Drivers | 2.4 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 26 56 00 | Luminaire Warranty | 1.7.1 | G | | | | | | | | | | | | | |
| | | | Lighting Controls Warranty | 1.7.2 | G | | | | | | | | | | | | | |
| | | | Time Clock | 3.3.1.2 | G | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Luminaire Design Data | 1.5.2 | G | | | | | | | | | | | | | |
| | | | Photometric Plan | 1.5.6 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | ANSI/IES LM-79 Test Report | 1.5.3 | G | | | | | | | | | | | | | |
| | | | ANSI/IES LM-80 Test Report | 1.5.4 | G | | | | | | | | | | | | | |
| | | | ANSI/IES TM-21 Test Report | 1.5.5 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Poles | 1.5.2 | | | | | | | | | | | | | | |
| | | | Poles | 1.6 | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Lighting System | 1.8.1 | G | | | | | | | | | | | | | |
| | | | Exterior Lighting Control System | 1.8.2 | G | | | | | | | | | | | | | |
| | | | Maintenance Staff Training Plan | 3.3.1.1 | G | | | | | | | | | | | | | |
| | | | End-User Training Plan | 3.3.1.2 | G | | | | | | | | | | | | | |
| | | 27 10 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Telecommunications Drawings | 1.6.1.1 | G | | | | | | | | | | | | | |
| | | | Telecommunications Space | 1.6.1.2 | G | | | | | | | | | | | | | |
| | | | Drawings | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Telecommunications Cabling | 2.3 | G | | | | | | | | | | | | | |
| | | | Patch Panels | 2.4.4 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 27 10 00 | Telecommunications | 2.5 | G | | | | | | | | | | | | | |
| | | | Outlet/Connector Assemblies | | | | | | | | | | | | | | | |
| | | | Equipment Support Frame | 2.4.2 | G | | | | | | | | | | | | | |
| | | | Spare Parts | 1.10.3 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Telecommunications Cabling | 3.5.1 | G | | | | | | | | | | | | | |
| | | | Testing | | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Telecommunications Contractor | 1.6.2.1 | G | | | | | | | | | | | | | |
| | | | Key Personnel | 1.6.2.2 | G | | | | | | | | | | | | | |
| | | | Manufacturer Qualifications | 1.6.2.3 | G | | | | | | | | | | | | | |
| | | | Test Plan | 1.6.3 | G | | | | | | | | | | | | | |
| | | | SD-09 Manufacturer’s Field | | | | | | | | | | | | | | | |
| | | | Reports | | | | | | | | | | | | | | | |
| | | | Factory Reel Tests | 2.10.1 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Telecommunications Cabling and | 1.10.1 | G | | | | | | | | | | | | | |
| | | | Pathway System | | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Record Documentation | 1.10.2 | G | | | | | | | | | | | | | |
| | | 28 08 10 | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Test Plan | 3.1 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Draft Test Report | 3.2.2 | | | | | | | | | | | | | | |
| | | | Final Test Report | 3.4 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 28 08 10 | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Qualifications | 1.4.1 | | | | | | | | | | | | | | |
| | | 28 10 05 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | ACS Components | 1.3.3.1 | G | | | | | | | | | | | | | |
| | | | Overall System Schematic | 1.3.3.2 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Access Control Unit | 2.3.4 | G | | | | | | | | | | | | | |
| | | | Access Control Devices | 2.3.5 | G | | | | | | | | | | | | | |
| | | | Printers | 2.4.4 | G | | | | | | | | | | | | | |
| | | | Communications Interface | 2.5 | G | | | | | | | | | | | | | |
| | | | Devices | | | | | | | | | | | | | | | |
| | | | Network Switch | 2.5.3 | G | | | | | | | | | | | | | |
| | | | Video and ACS Transmission | 2.5.4 | G | | | | | | | | | | | | | |
| | | | Batteries | 2.6.1 | G | | | | | | | | | | | | | |
| | | | Component Enclosure | 2.8 | G | | | | | | | | | | | | | |
| | | | Equipment Rack | 2.9 | G | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Backup Battery Capacity | 1.5.1 | G | | | | | | | | | | | | | |
| | | | Calculations | | | | | | | | | | | | | | | |
| | | | Throughput Rates | 2.3.2 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Contractor Qualifications | 1.3.4.1 | G | | | | | | | | | | | | | |
| | | | Instructor Qualifications | 1.3.4.2 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Training Plan | 3.6.1 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

| ACTIVITY NO | TRANSMITTAL NO | SPEC SECT | DESCRIPTION ITEM SUBMITTED | PARAGRAPH # | CLASSIFICATION | GOVT OR A/E REVWR | CONTRACTOR: SCHEDULE DATES | | | CONTRACTOR ACTION | | | APPROVING AUTHORITY | | | | | |
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| | | 28 10 05 | Training Content | 3.6 | G | | | | | | | | | | | | | |
| | | | ACS Components | 1.3.3.1 | G | | | | | | | | | | | | | |
| | | | ACS Software | 1.6 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | As-Built Drawings | 1.8 | G | | | | | | | | | | | | | |
| | | 28 31 76 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Qualified Fire Protection | 1.3.2 | G | | | | | | | | | | | | | |
| | | | Engineer (QFPE) | | | | | | | | | | | | | | | |
| | | | Fire alarm system designer | 1.8.2.1 | G | | | | | | | | | | | | | |
| | | | Supervisor | 1.8.2.2 | G | | | | | | | | | | | | | |
| | | | Technician | 1.8.2.3 | G | | | | | | | | | | | | | |
| | | | Installer | 1.8.2.4 | G | | | | | | | | | | | | | |
| | | | Test Technician | 1.8.2.5 | G | | | | | | | | | | | | | |
| | | | Fire Alarm System Site-Specific | 1.7 | G | | | | | | | | | | | | | |
| | | | Software Acknowledgement | | | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Nameplates | 1.8.1.3 | G | | | | | | | | | | | | | |
| | | | Instructions | 2.2.4 | G | | | | | | | | | | | | | |
| | | | Wiring Diagrams | 1.8.1.4 | G | | | | | | | | | | | | | |
| | | | System Layout | 1.8.1.5 | G | | | | | | | | | | | | | |
| | | | Notification Appliances | 1.8.1.6 | G | | | | | | | | | | | | | |
| | | | Initiating devices | 1.8.1.7 | G | | | | | | | | | | | | | |
| | | | Amplifiers | 1.8.1.8 | G | | | | | | | | | | | | | |
| | | | Battery Power | 1.8.1.9 | G | | | | | | | | | | | | | |
| | | | Voltage Drop Calculations | 1.8.1.10 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 28 31 76 | Fire Alarm and Mass Notification | 2.3 | G | | | | | | | | | | | | | |
| | | | Control Unit (FMCU) | | | | | | | | | | | | | | | |
| | | | Local Operating Console (LOC) | 1.4.4 | G | | | | | | | | | | | | | |
| | | | Amplifiers | 1.8.1.8 | G | | | | | | | | | | | | | |
| | | | Tone Generators | 2.5 | G | | | | | | | | | | | | | |
| | | | Digitalized voice generators | 2.5 | G | | | | | | | | | | | | | |
| | | | LCD Annunciator | 2.6.1 | G | | | | | | | | | | | | | |
| | | | Manual Stations | 2.7 | G | | | | | | | | | | | | | |
| | | | Smoke Detectors | 2.8 | G | | | | | | | | | | | | | |
| | | | Duct Smoke Detectors | 2.8.2 | G | | | | | | | | | | | | | |
| | | | Carbon monoxide detector | 2.9 | G | | | | | | | | | | | | | |
| | | | Addressable Interface Devices | 2.10 | G | | | | | | | | | | | | | |
| | | | Addressable Control Modules | 2.11 | G | | | | | | | | | | | | | |
| | | | Isolation Modules | 2.12 | G | | | | | | | | | | | | | |
| | | | Notification Appliances | 1.8.1.6 | G | | | | | | | | | | | | | |
| | | | Textual Display Sign Control | 2.13.3 | G | | | | | | | | | | | | | |
| | | | Panel | | | | | | | | | | | | | | | |
| | | | Textual Display Signs | 2.13.3 | G | | | | | | | | | | | | | |
| | | | Batteries | 2.15.1 | G | | | | | | | | | | | | | |
| | | | Battery Chargers | 2.15.2 | G | | | | | | | | | | | | | |
| | | | Supplemental Notification | 2.15.1.1 | G | | | | | | | | | | | | | |
| | | | Appliance Circuit Panels | | | | | | | | | | | | | | | |
| | | | Auxiliary Power Supply Panels | 2.15.1.1 | G | | | | | | | | | | | | | |
| | | | Surge Protective Devices | 2.16 | G | | | | | | | | | | | | | |
| | | | Alarm Wiring | 2.16 | G | | | | | | | | | | | | | |
| | | | Back Boxes and Conduit | 3.3.4 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

| ACTIVITY NO | TRANSMITTAL NO | SPEC SECT | DESCRIPTION ITEM SUBMITTED | PARAGRAPH # | CLASSIFICATION | GOVT OR A/E REVWR | CONTRACTOR: SCHEDULE DATES | | | CONTRACTOR ACTION | | | APPROVING AUTHORITY | | | | MAILED TO CONTR/ | REMARKS |
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| | | 28 31 76 | Ceiling Bridges | 3.2.9 | G | | | | | | | | | | | | | |
| | | | Terminal Cabinets | 3.3.2 | G | | | | | | | | | | | | | |
| | | | Automatic Fire Alarm | 2.19 | G | | | | | | | | | | | | | |
| | | | Transmitters | | | | | | | | | | | | | | | |
| | | | Radio Transmitter and Interface | 2.19.1 | G | | | | | | | | | | | | | |
| | | | Panels | | | | | | | | | | | | | | | |
| | | | Mass Notification Transceiver | 2.18.1 | G | | | | | | | | | | | | | |
| | | | Environmental Enclosures or | 2.21 | G | | | | | | | | | | | | | |
| | | | Guards | | | | | | | | | | | | | | | |
| | | | Document Storage Cabinet | 3.10.3 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Test Procedures | 3.6.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Verification of Compliant | 3.6.2.1 | G | | | | | | | | | | | | | |
| | | | Installation | | | | | | | | | | | | | | | |
| | | | Request for Government Final | 3.6.2.2 | G | | | | | | | | | | | | | |
| | | | Test | | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Operation and Maintenance | 3.8 | G | | | | | | | | | | | | | |
| | | | (O&M) Instructions | | | | | | | | | | | | | | | |
| | | | Instruction of Government | 3.9 | G | | | | | | | | | | | | | |
| | | | Employees | | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | As-Built Drawings | 1.8.1.13 | | | | | | | | | | | | | | |
| | | | Spare Parts | 1.10.1 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 31 00 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Shoring | 3.5 | G | | | | | | | | | | | | | |
| | | | Dewatering Work Plan | 1.3.3 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Utilization of Excavated Materials | 3.9 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Testing | 3.18 | | | | | | | | | | | | | | |
| | | | Borrow Site Testing | 2.1 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Testing | 3.18 | | | | | | | | | | | | | | |
| | | 31 63 26 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Caissons | 3.1 | G | | | | | | | | | | | | | |
| | | | Survey of Caisson Locations | 1.4.1 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Caissons | 3.1 | | | | | | | | | | | | | | |
| | | | Qualifications | 1.4.2 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Records | 3.5 | | | | | | | | | | | | | | |
| | | 32 01 19.61 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Sealants | 2.1 | | | | | | | | | | | | | | |
| | | | Manufacturer's | 3.5.2 | | | | | | | | | | | | | | |
| | | | Recommendations | | | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Sealants | 2.1 | | | | | | | | | | | | | | |
| | | | Blocking Media/Backup Materials | 2.3.1 | | | | | | | | | | | | | | |
| | | | Backer Rod | 3.3.4.1 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

CONTRACTOR

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| | | 32 01 19.61 | Bond Breaking Tapes | 2.3.2 | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Sealants | 2.1 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Equipment List | 3.1 | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer's Instructions | | | | | | | | | | | | | | | |
| | | | Sealants | 2.1 | | | | | | | | | | | | | | |
| | | 32 05 33 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Integrated Pest Management | 2.4 | G | | | | | | | | | | | | | |
| | | | Plan | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Fertilizer | 2.1 | G | | | | | | | | | | | | | |
| | | | Mulches Topdressing | 2.3 | | | | | | | | | | | | | | |
| | | | Organic Mulch Materials | 2.3.1 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Maintenance Inspection Report | 3.5.1 | | | | | | | | | | | | | | |
| | | | Plant Quantities | 3.5.2 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Maintenance | 1.6 | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Tree Staking and Guying | 3.5.3 | | | | | | | | | | | | | | |
| | | | Removal | | | | | | | | | | | | | | | |
| | | 32 11 13.13 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Plant, Equipment, Machines, and | 2.1 | G | | | | | | | | | | | | | |
| | | | Tools | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 32 11 13.13 | Mix Design | 2.2.4 | G | | | | | | | | | | | | | |
| | | | Contractor's Plans | 1.5.1 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Lime | 2.2.1 | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Job-Mix Formula | 1.7.1 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Sampling and Testing | 3.4 | | | | | | | | | | | | | | |
| | | | Field Density | 3.5.3 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Bituminous Material | 2.2.2 | | | | | | | | | | | | | | |
| | | | Lime | 2.2.1 | | | | | | | | | | | | | | |
| | | | Laboratory | 2.2.4 | | | | | | | | | | | | | | |
| | | 32 11 23 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Plant, Equipment, and Tools | 2.4 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Initial Tests | 2.3.1 | G | | | | | | | | | | | | | |
| | | | In-Place Tests | 3.12.1 | G | | | | | | | | | | | | | |
| | | 32 12 13 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Local/Regional Materials | 2.2.3 | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Sampling and Testing | 3.7 | | | | | | | | | | | | | | |
| | | 32 12 16.16 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Placement Plan | 2.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Diamond Grinding Plan | 2.1.5 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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TITLE AND LOCATION
Lackland DCF4

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| | | 32 12 16.16 | Mix Design | 2.4 | G | | | | | | | | | | | | | |
| | | | Contractor Quality Control | 3.1 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Aggregates | 2.2 | | | | | | | | | | | | | | |
| | | | Asphalt Cement Binder | 2.3 | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Aggregates | 2.2 | G | | | | | | | | | | | | | |
| | | | QC Monitoring | 3.1.3.9 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Asphalt Cement Binder | 2.3 | G | | | | | | | | | | | | | |
| | | | Laboratory Accreditation and | 1.3.11 | | | | | | | | | | | | | | |
| | | | Validation | | | | | | | | | | | | | | | |
| | | 32 13 14.13 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Proposed Techniques | 3.1.2 | G | | | | | | | | | | | | | |
| | | | Preliminary Proposed | 2.13.2 | G | DO | | | | | | | | | | | | |
| | | | Proportioning | | | | | | | | | | | | | | | |
| | | | Pavement Quality Control Plan | 1.3.3.3 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Diamond Grinding Plan | 2.1.7 | G | | | | | | | | | | | | | |
| | | | Dowels | 2.9.1 | G | | | | | | | | | | | | | |
| | | | Dowel Bar Assemblies | 2.9.2 | G | | | | | | | | | | | | | |
| | | | Equipment | 2.11 | G | | | | | | | | | | | | | |
| | | | Concrete Patching Mixture | 2.1.5 | G | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | Proportioning Studies | 2.13.2 | G | DO | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 32 13 14.13 | Batch Plant Manufacturer's | 1.3.1 | G | | | | | | | | | | | | | |
| | | | Inspection Report | | | | | | | | | | | | | | | |
| | | | Slipform Paver Manufacturer's | 1.3.1 | G | | | | | | | | | | | | | |
| | | | Inspection Report | | | | | | | | | | | | | | | |
| | | | Sampling and Testing | 2.1.4.1 | G | | | | | | | | | | | | | |
| | | | Diamond Grinding of PCC | 2.1.7 | G | | | | | | | | | | | | | |
| | | | Surfaces | | | | | | | | | | | | | | | |
| | | | Mixer Performance (Uniformity) | 2.11.2.1 | G | | | | | | | | | | | | | |
| | | | Testing | | | | | | | | | | | | | | | |
| | | | Repair Recommendations Plan | 3.9.1 | G | | | | | | | | | | | | | |
| | | | Paving Lot Report | 3.12.5 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Contractor Quality Control (CQC) | 1.3.1 | G | | | | | | | | | | | | | |
| | | | Staff | | | | | | | | | | | | | | | |
| | | | Laboratory Accreditation and | 1.3.3 | G | | | | | | | | | | | | | |
| | | | Validation | | | | | | | | | | | | | | | |
| | | | Commercial Laboratory | 1.3.3 | G | | | | | | | | | | | | | |
| | | | NRMCA Certificate of | 2.11 | | | | | | | | | | | | | | |
| | | | Conformance | | | | | | | | | | | | | | | |
| | | | Petrographer Resume | 1.3.2 | G | | | | | | | | | | | | | |
| | | | Licensed Surveyor | 1.3.2 | G | | | | | | | | | | | | | |
| | | | Concrete Batch Plant Operator | 1.3.2 | G | | | | | | | | | | | | | |
| | | 32 16 19 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Concrete | 2.1 | | | | | | | | | | | | | | |
| | | | Biodegradable Form Release | 3.2 | | | | | | | | | | | | | | |
| | | | Agent | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 32 16 19 | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Field Quality Control | 3.8 | | | | | | | | | | | | | | |
| | | 32 84 24 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Irrigation sprinkler system | 1.3 | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Piping materials | 2.1 | | | | | | | | | | | | | | |
| | | | Valves | 2.3 | | | | | | | | | | | | | | |
| | | | heads | 2.2 | | | | | | | | | | | | | | |
| | | | Automatic controller | 2.5 | | | | | | | | | | | | | | |
| | | | Solvent cement | 2.1.4 | | | | | | | | | | | | | | |
| | | | Control wiring | 2.6.1 | | | | | | | | | | | | | | |
| | | | Rain shut-off device | 2.4.1.1 | | | | | | | | | | | | | | |
| | | | Freeze shut-off device | 2.4.1.2 | | | | | | | | | | | | | | |
| | | | Valve boxes and lids | 3.1.6.1 | | | | | | | | | | | | | | |
| | | | SD-05 Design Data | | | | | | | | | | | | | | | |
| | | | System pressure calculations | 1.3 | | | | | | | | | | | | | | |
| | | | Irrigation requirements | 1.3 | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | tests | 1.7.1 | | | | | | | | | | | | | | |
| | | | Pressure test | 3.2.1 | | | | | | | | | | | | | | |
| | | | Operation test | 3.2.2 | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Automatic controller | 2.5 | | | | | | | | | | | | | | |
| | | | heads | 2.2 | | | | | | | | | | | | | | |
| | | | Piping materials | 2.1 | | | | | | | | | | | | | | |
| | | | Valves | 2.3 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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TITLE AND LOCATION
Lackland DCF4

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| | | 32 84 24 | Solvent cement | 2.1.4 | | | | | | | | | | | | | | |
| | | | Control wiring | 2.6.1 | | | | | | | | | | | | | | |
| | | | Rain shut-off device | 2.4.1.1 | | | | | | | | | | | | | | |
| | | | Freeze shut-off device | 2.4.1.2 | | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Piping materials | 2.1 | G | | | | | | | | | | | | | |
| | | | heads | 2.2 | G | | | | | | | | | | | | | |
| | | | Valves | 2.3 | G | | | | | | | | | | | | | |
| | | | Automatic controller | 2.5 | G | | | | | | | | | | | | | |
| | | | Rain shut-off device | 2.4.1.1 | G | | | | | | | | | | | | | |
| | | | Freeze shut-off device | 2.4.1.2 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Controller Charts | 3.2.3 | | | | | | | | | | | | | | |
| | | 32 92 23 | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Fertilizer | 2.4 | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Topsoil composition tests | 2.2.3 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | sods | 2.1 | | | | | | | | | | | | | | |
| | | 32 93 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | State Landscape Contractor's | 1.4.3 | | | | | | | | | | | | | | |
| | | | License | | | | | | | | | | | | | | | |
| | | | Time Restrictions and Planting | 1.6 | | | | | | | | | | | | | | |
| | | | Conditions | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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Lackland DCF4

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| | | 32 93 00 | Composted Derivatives | 2.3.4 | | | | | | | | | | | | | | |
| | | | Rotted Manure | 2.3.5 | | | | | | | | | | | | | | |
| | | | Organic Mulch Materials | 2.6.1 | | | | | | | | | | | | | | |
| | | | Mulch | 2.6 | G | | | | | | | | | | | | | |
| | | | Ground Stakes | 2.7.1.1 | | | | | | | | | | | | | | |
| | | | Ground Stakes | 2.7.1.1 | | | | | | | | | | | | | | |
| | | | Hose | 2.9.1 | | | | | | | | | | | | | | |
| | | | Fertilizer | 2.5 | | | | | | | | | | | | | | |
| | | | Staking Material | 2.7.1 | | | | | | | | | | | | | | |
| | | | Antidesiccants | 2.8 | | | | | | | | | | | | | | |
| | | | Photographs | 1.4.4 | G | | | | | | | | | | | | | |
| | | | SD-04 Samples | | | | | | | | | | | | | | | |
| | | | Mulch | 2.6 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Topsoil composition tests | 1.4.1 | | | | | | | | | | | | | | |
| | | | Topsoil composition tests | 2.2.4 | | | | | | | | | | | | | | |
| | | | Percolation Test | 1.4.5 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Nursery certifications | 1.4.2 | | | | | | | | | | | | | | |
| | | | Nursery certifications | 2.1.1 | | | | | | | | | | | | | | |
| | | 33 11 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Connections | 3.1.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Pipe, Fittings, Joints and | 2.1.1 | G | | | | | | | | | | | | | |
| | | | Couplings | | | | | | | | | | | | | | | |
| | | | Valves | 2.1.2 | G | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 33 11 00 | Valve Boxes | 2.1.2.4 | G | | | | | | | | | | | | | |
| | | | Fire Hydrants | 2.1.4.1 | G | | | | | | | | | | | | | |
| | | | Pipe Restraint | 2.2.1 | G | | | | | | | | | | | | | |
| | | | Tapping Sleeves | 2.2.3 | G | | | | | | | | | | | | | |
| | | | Backflow Preventer | 1.4.2.1.1 | G | | | | | | | | | | | | | |
| | | | Precast Concrete Thrust Blocks | 2.2.1.2 | G | | | | | | | | | | | | | |
| | | | Disinfection Procedures | 3.2.4 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Backflow Preventer Tests | 3.3.1.5 | G | | | | | | | | | | | | | |
| | | | Hydrostatic Sewer Test | 3.2.1.1.6 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Pipe, Fittings, Joints and | 2.1.1 | | | | | | | | | | | | | | |
| | | | Couplings | | | | | | | | | | | | | | | |
| | | | Lining | 2.1.1.1.1 | | | | | | | | | | | | | | |
| | | | Lining for Fittings | 2.1.1.2.1.2 | | | | | | | | | | | | | | |
| | | | Valves | 2.1.2 | | | | | | | | | | | | | | |
| | | | Fire Hydrants | 2.1.4.1 | | | | | | | | | | | | | | |
| | | | Backflow Prevention Training | 1.4.2.1.1.2 | | | | | | | | | | | | | | |
| | | | Certificate | | | | | | | | | | | | | | | |
| | | | Backflow Tester | 1.4.2.1.1.1 | | | | | | | | | | | | | | |
| | | | Backflow Certificate | 2.1.6 | | | | | | | | | | | | | | |
| | | | Compound Type Meters | 2.1.5.1 | | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Ductile-Iron Piping | 2.1.1.1 | | | | | | | | | | | | | | |
| | | | PVC Piping | 2.1.1.2.1.1 | | | | | | | | | | | | | | |
| | | | PVC Piping For Service Lines | 2.1.1.2.2 | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Lackland DCF4

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| | | 33 11 00 | Copper Pipe For Service Lines | 2.1.1.3 | | | | | | | | | | | | | | |
| | | 33 30 00 | SD-01 Preconstruction Submittals | | | | | | | | | | | | | | | |
| | | | Contractor's License | 1.3.1 | G | | | | | | | | | | | | | |
| | | | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Installation Drawings | 3.1.1 | G | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Frames, Covers, and Gratings | 2.2.8 | | | | | | | | | | | | | | |
| | | | Gravity Pipe | 2.2.1 | | | | | | | | | | | | | | |
| | | | Pressure Pipe | 2.2.2 | | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Negative Air Pressure Test | 3.3.1.2.1 | G | | | | | | | | | | | | | |
| | | | Tests For Pressure Lines | 3.3.1.3 | G | | | | | | | | | | | | | |
| | | | Deflection Testing | 3.3.1.4 | | | | | | | | | | | | | | |
| | | | Leakage Testing | 3.3.1.1 | | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Portland Cement | 2.2.4 | | | | | | | | | | | | | | |
| | | | Pre-Installation Inspection | 3.3.3.1 | G | | | | | | | | | | | | | |
| | | | Request | | | | | | | | | | | | | | | |
| | | | Post-Installation Inspection | 3.3.3.2 | G | | | | | | | | | | | | | |
| | | 33 40 00 | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Hydrostatic Test on Watertight | 2.5.1 | G | | | | | | | | | | | | | |
| | | | Joints | | | | | | | | | | | | | | | |
| | | | Frame and Cover or Gratings | 2.4.5 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |
| | | | Placing Pipe and Box Culvert | 3.3 | G | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |

# SUBMITTAL REGISTER

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| | | 33 40 00 | Post-Installation Inspection | 3.8.2.1.3 | G | | | | | | | | | | | | | |
| | | | Report | | | | | | | | | | | | | | | |
| | | 33 82 00 | SD-02 Shop Drawings | | | | | | | | | | | | | | | |
| | | | Telecommunications Outside | 1.6.1.1 | G | | | | | | | | | | | | | |
| | | | Plant | | | | | | | | | | | | | | | |
| | | | Telecommunications Entrance | 1.6.1.2 | G | | | | | | | | | | | | | |
| | | | Facility Drawings | | | | | | | | | | | | | | | |
| | | | Telecommunications Outside | 1.6.1.1 | G | | | | | | | | | | | | | |
| | | | Plant Butterfly Drawings Depicting | | | | | | | | | | | | | | | |
| | | | Manhole Duct Usage | | | | | | | | | | | | | | | |
| | | | SD-03 Product Data | | | | | | | | | | | | | | | |
| | | | Wire and Cable | 2.8 | G | | | | | | | | | | | | | |
| | | | Cable Splices, and Connectors | 2.5 | G | | | | | | | | | | | | | |
| | | | Closures | 2.4 | G | | | | | | | | | | | | | |
| | | | Building Protector Assemblies | 2.2.1 | G | | | | | | | | | | | | | |
| | | | Protector Modules | 2.2.2 | G | | | | | | | | | | | | | |
| | | | Spare Parts | 1.8.2 | G | | | | | | | | | | | | | |
| | | | SD-06 Test Reports | | | | | | | | | | | | | | | |
| | | | Pre-installation Tests | 3.5.1 | G | | | | | | | | | | | | | |
| | | | Acceptance Tests | 3.5.2 | G | | | | | | | | | | | | | |
| | | | Outside Plant Test Plan | 1.6.3 | G | | | | | | | | | | | | | |
| | | | SD-07 Certificates | | | | | | | | | | | | | | | |
| | | | Telecommunications Contractor | 1.6.2.1 | G | | | | | | | | | | | | | |
| | | | Key Personnel | 1.6.2.2 | G | | | | | | | | | | | | | |
| | | | Manufacturer's Qualifications | 1.6.2.3 | G | | | | | | | | | | | | | |
| | | | SD-08 Manufacturer’s Instructions | | | | | | | | | | | | | | | |

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| | | 33 82 00 | Building Protector Assembly | 2.2.1 | G | | | | | | | | | | | | | |
| | | | Installation | | | | | | | | | | | | | | | |
| | | | Cable Tensions | 3.1.6.1 | G | | | | | | | | | | | | | |
| | | | Fiber Optic Splices | 3.1.7.2 | G | | | | | | | | | | | | | |
| | | | SD-09 Manufacturer's Field | | | | | | | | | | | | | | | |
| | | | Reports | | | | | | | | | | | | | | | |
| | | | Factory Reel Test Data | 2.14.1 | G | | | | | | | | | | | | | |
| | | | SD-10 Operation and Maintenance | | | | | | | | | | | | | | | |
| | | | Data | | | | | | | | | | | | | | | |
| | | | Telecommunications Outside | 1.6.1.1 | G | | | | | | | | | | | | | |
| | | | Plant (OSP) | | | | | | | | | | | | | | | |
| | | | SD-11 Closeout Submittals | | | | | | | | | | | | | | | |
| | | | Record Documentation | 1.8.1 | G | | | | | | | | | | | | | |

SECTION 01 35 17.00 44

SPECIAL PROJECT PROCEDURES FOR LACKLAND AIR FORCE BASE
<AMENDMENT 0003>

PART 1 GENERAL

1.1 SECURITY REQUIREMENTS (AUG 08)

1.1.1 Base Entry and Vehicle Control Requirements

Contractor shall comply with AFFARS Clause 5352.242-9000, "Contractor access to Air Force installations" which is hereby incorporated by reference if not otherwise included. Contractor personnel shall comply with all on-base traffic laws. Background investigations will be conducted by the government at no additional cost to the contractor on all contractor personnel prior to issuance of any base pass.

1.1.2 Not Used

1.1.3 List of Employees

The contractor shall provide the Contracting Officer a current list of employees within 3 working days after receiving award or Notice of Award. The list shall include employee's name, date of birth, state driver's license/state ID number and state of issue, and social security number. Notifications of contractor employee additions and deletions shall be provided with the same information listed above and within 3 working days.

1.1.4 Government Data

The Contractor shall manage all data created for Government use or legally controlled by the Government, in support of the functional activity or required by AF publication, IAW with the records management procedures in Air Force Instruction (AFI) 33 - 322, Records Management Program, Air Force Manual (AFMAN) 33-363, Management of Records, AFI 33-364, Records Disposition-Procedures and Responsibilities, and the Air Force Records Disposition Schedule (AF RDS) located at https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm

1.1.5 Reporting Requirements

The contractor shall comply with AFI 71-101, Volume 1, Criminal Investigations (Chapter 2, paragraph 2.7) and Volume-2, Protective Service Matters, (Paragraph 1.2). Contractor shall report to Security Forces any information or circumstances which may pose a threat to DOD or contractor personnel, resources, or DOD information.

1.1.6 Freedom of Information

The contractor shall not respond to any Freedom of Information Act request or release any information in response to a Freedom of Information request. Any request for information received by the contractor under the Freedom of Information Act will be referred to the Contracting Officer.

1.1.7 Physical Security

The contractor shall comply with Force Protection Condition (FPCON) procedures, Random Antiterrorism Measures (RAMS) and local search/identification requirements.

1.1.8 Key Control

The contractor shall safeguard all keys issued by the government and ensure they are used only by authorized contractor personnel. The contractor shall not duplicate issued keys and shall report lost keys to the contracting officer immediately. The contractor will be charged for lost keys, re-keying, and lock replacement as applicable.

1.1.9 National Agency Check (NAC)

If the period of performance of the contract is more than 180 days, personnel must have a favorably adjudicated NAC investigation. This requirement also applies to any subcontractors that will be performing in a period in an excess of 180 days. The contractor shall ensure that its subcontractors comply with this requirement. The government will conduct the NAC at no additional cost to the contractor. All contractor employees affected by this requirement must have completed an acceptable submission that complies with all directions for completion, of the investigation request through the government security office within 30 calendar days of Contract Award or Notice of Award. To begin this process, all affected contractor employees must complete within 15 calendar days after Contract Award or Notice of Award Standard Form 85P worksheet that can be downloaded from http://www.opm.gov/forms/pdf_fill/SF85P.pdf . **The employee will have to arrange to be fingerprinted**. The contractor shall notify the Quality Assurance Evaluator or Government Inspector when the worksheet is complete. The affected employee will then be scheduled by the government for two or more appointments to complete the security package. If at any point after submission of the security worksheet, disqualifying information is discovered or developed, the government reserves the right to deny entry to the installation. In this instance the Contracting Officer will notify the contractor of the denial. That individual will no longer be allowed entry to the installation. After submission of the complete security package through the security office, contractor employees may obtain their "Installation Access" ID for the duration of their contract, unless disqualifying information is subsequently discovered. In this instance access will be revoked. The NAC adjudication process normally takes 2 to 5 months after submission of the package.

1.1.10 Credentials Turn-In

Upon completion of performance, termination of the contract or termination of performance on this contract by any individual for any reason, the Contractor shall turn in all CAC Cards, Base Identification Passes, Restricted Area Badges, and any other documents issued by the Government to the Issuing office or Contracting Officer.

1.2 BASE ACCESS PROCEDURES

1.2.1 Short Term Contract or Subcontract (Less Than 6 Months)

A. Within three days of award the contractor must provide a list of employees (to include sub-contractors) to the Contracting Officer (CO). The list must contain the full names/ dates of birth, drivers license/state

id numbers and states of issue along with the social security numbers. The CO will forward the list via digitally encrypted email or in person to 37 SFS/Police Services.

B. A criminal history check will be conducted on these employees. Any derogatory info may subject the employee to denial of entry. This process takes roughly 3-5 days. If no disqualifying info is present the employee will report to the Visitors Center after the 5th day and receive a pass for the duration of the contract not to exceed 6 months.

1.2.2 Long Term Contract (More Than 6 Months)

A. Within three days of award the contractor must provide a list of employees (to include sub-contractors) to the Contracting Officer (CO). The list must contain the full names/ dates of birth, drivers license/state id numbers and states of issue along with the social security numbers. The CO will forward the list via digitally encrypted email or in person to 37 SFS/Police Services.

B. A criminal history check will be conducted on these employees. Any derogatory info may subject the employee to denial of entry. This process takes roughly 3-5 days. If no disqualifying info is present the employee will receive a 30 day pass from the Lackland Visitors Center after the 5th day to permit time to process the National Agency Check (NAC) information. The Contractor employees must complete a form 85P and be arrange for and pay to be fingerprinted at the local police station. This information will be submitted to base security. Once the information has been submitted a pass will be issued for 5 months. The NAC takes approximately 2-5 months to adjudicate. Once the NAC is adjudicated the employee will be issued a pass for the duration of the contract not to exceed the year mark from the beginning of the process. If the contract extends past that year mark the contractor must submit a list of the names, dates of birth, drivers license/state id numbers and states of issue along with the social security numbers to the Contracting Officer who will submit the list again to base security. A local criminal history check will be conducted and once it comes back favorable a pass will be issued for the duration of the contract not to exceed one year. If for some reason it takes longer than 5 months to adjudicate a 30 day pass will be issued until it adjudicates.

C. The National Agency Check is valid for 10 years in most cases. So any further contracts with the federal Government will be easier when it comes to receiving access passes.

1.2.3 Base Security Points of Contact

PHONE NUMBERS
Valley-Hi Visitors Center 671-6174
Military Drive Visitors Center 671-6173
Pass & ID 671-3678
Growden Gate 925-0300

1.3 OCCUPATIONAL SAFETY

The Contractor will be subject to no-notice inspections under Occupational Safety and Health Act (OSHA) Program by inspectors of the Department of Labor.

1.4 LEGAL HOLIDAYS

The following legal holidays are observed by this base:

New Year's Day January 1
Martin Luther King, Jr.'s Birthday 3d Monday in January
Washington's Birthday 3d Monday in February
Memorial Day Last Monday in May
Juneteenth June 19
Independence Day July 4
Labor Day 1st Monday in September
Columbus Day 2d Monday in October
Veterans Day November 11
Thanksgiving Day 4th Thursday in November
Christmas Day December 25

NOTE: Any of the above holidays falling on a Saturday will be observed on the preceding Friday; holidays falling on a Sunday will be observed on the following Monday.

1.5 CONTRACTOR'S MANAGEMENT AND USE OF ELECTROMAGNETIC EMISSION DEVICES 0N BASE:

Electromagnetic emission devices include Radio/Radar Transmitters; Navigational Aids/Instrumentations; Signaling, Intrusion Detecting, and Identification Devices; Mobile and Fixed Business Radio Communications Equipment; and MARS, CBs, and Amateur Radio Stations. The Contractor shall comply with the AFMTC Regulation 700-14, Jul 89. The regulation is available for inspection at the Communications Squadron, Building 1050, Lackland AFB, Texas.

1.6 FIRE REGULATIONS AND PREVENTION PRACTICES

The Contractor shall comply with fire prevention practices as set forth by the National Fire Protection Association, other recognized fire prevention agencies, and base regulations.

1.7 EXPLOSIVE OPERATED HANDTOOLS

The Contractor shall comply with OSHA Standard 1910.215(c) when utilizing explosive operated hand tools. Storage of explosive cartridges on the installation shall be in metal containers and limited to one days' supply. The Contractor shall provide adequate controls to prevent loss/theft of cartridges used and stored on the installation.

1.8 GENERATED REFUSE

The Contractor shall take positive action to prevent work-generated refuse from entering the sewer system. All contractor generated refuse and waste shall be hauled from the construction site daily to a disposal area located outside the physical boundaries of the installation. This refuse and waste material shall be hauled in trucks with tight-fitting beds and covers to prevent spillage on roadways. The construction site shall be kept neat, orderly, and safe for workmen at all times.

1.9 WELDING

Welding shall not be performed without first obtaining a welding permit issued by the Base Fire Department.

1.10 UTILITY OUTAGES:

a. Utility outages shall be defined as a stoppage in electric, gas, potable water, sewer, chilled or hot water, steam, telephone, Energy Monitoring and Control System (EMCS), or any other similar utility whether serving all or a part of a single facility or of several facilities.

b. All utility outages shall be coordinated with the Using Agency through the Contracting Officer or the Contracting Officer's representative. Notice of the necessity for an outage shall be provided by the Contractor to the Contracting Officer, <AM#0003>Base Civil Engineering, JBSA Privatized Utility Provider (PUP) and other local utility provider (where applicable) in writing 30 days prior to date of requested outage and 45 days prior for outages that impact critical facilities (i.e., Hospital) and written approval for the outage will be issued by the Contracting Officer~~in writing, not less than 21 calendar days prior to the time of the required outage and written approval for the outage will be issued by the Contracting Officer~~</AM#0003>. All work shall be coordinated and arranged to ensure that the outage will be of minimum duration.

c. Once a utility outage is arranged and work begun, work shall continue until all utilities are restored to the affected facility or facilities.

d. In the event a scheduled utility outage is cancelled by the Government, notification will be given to the Contractor at least 24 hours in advance of the time for the outage to start. Rescheduling of a cancelled outage must be coordinated with written notification as described above.

1.11 SEVERE WEATHER

a. In the event of a severe weather warning with anticipated winds of 35 knots or higher, the following sequence of actions shall be carried out.

b. The Contractor to secure all materials and equipment.

c. The Contractor shall take immediate action to tie down, remove, protect, and/or secure construction materials and equipment to the satisfaction of the Contracting Officer in order to reasonably assure that Government property will not be damaged. If the Contractor fails or refuses to secure materials and equipment to the satisfaction of the Contracting Officer, the work will be accomplished by others and the cost thereof charged to the Contractor.

1.12 EXISTING UTILITIES

<AM#0003>Historical Record drawings showing existing underground utilities prior to 2020 are located in Building 5460, Lackland AFB. The most up-to-date drawings are maintained by the Privatized Utility Provider (PUP) and should be requested through them. All utilities on JBSA Lackland are operated by a PUP. Base communication infrastructure is maintained by the 502nd Communication Squadron and commercial communication lines should be coordinated with that service provider. The Contractor shall review these drawings with the Utility Provider prior to commencement of any work. The Contractor shall avail himself of the drawings. Any utility line shown on the record drawings (or made known to the Contractor) and damaged during

construction work shall be repaired immediately by the Contractor at no cost to the Government.</AM#0003>

1.13 PRIVATIZED UTILITIES

The following utilities on Lackland Air Force Base are owned and operated by the following Government Contractors, identified as the System Owner; CPS Energy for natural gas, electrical, and site lighting features, and American Water (AW) for water and sanitary sewer. The contractor shall plan for and be prepared to share the construction site with system owners and/or their contractors. <AM#0003>~~As the Prime Contractor you shall enter into an agreement with the System Owner, including "tap in" the new utility infrastructure from the new facility point of demarcation to the System Owner utility.~~</AM#0003> The Prime Contractor shall be responsible for negotiating and finalizing a schedule with the System Owner(s) and include in activities for utility work (by others) in their project schedule. Work completed by the Systems Owner will not be included in project cost. Prime contractor will coordinate with the COR to ensure proper coordination with the privatized utilities.

COR may be contacted at:

CPS Energy

Will Schram
Phone: (210) 671-3394
Email: timmy.au@us.af.mil

American Water

Suzanne Timmons
Phone: (210) 671-4305
Email: suzanne.timmons@us.af.mil

The System Owners may be contracted at:

CPS Energy

Keith Balcar
Phone: (210)291-3659
Email: KJBalcar@cpsenergy.com

Name: Marco Garcia
Address: 145 Navarro
San Antonio, TX 78205
Office: 210-353-3355
Cell: 210-912-1627
Email: MAGarcia@cpsenergy.com

American Water

Name: Julio Colunga
Office: 830-832-9589
Email: julio.colunga@amwater.com

1.14 Road Closure Requests

a. Street closings will not be permitted without approval. At least one lane of traffic will be maintained at all times. Traffic control signs and barricades will be provided for all street widening and extensions. The Contractor shall include in the traffic control plan for each section of road that will be worked on or impacted as a result of this contract. The traffic control plan shall be in accordance with "Traffic Controls for Street and Highway Construction and Maintenance Operations" of the latest edition of the "Texas Manual on Uniform Traffic Control Devices."

b. A traffic control plan will be submitted to CES Construction Manager for approval 50 days prior to the proposed construction start, to allow for proper notification of all parties concerned. There is no specific form.

c. Provide USACE Quality Assurance Representative with all information required above with request for Road Closure.

1.15 WORK CLEARANCE REQUEST

A properly approved and coordinated Base Civil Engineering Work Clearance Request (AF Form 103) shall be obtained by the Contractor from the assigned inspector for processing prior to any excavation activities. The Clearance Request shall be executed 10 working days prior to planned excavation. Contact <AM#0003>~~37 CES/CECC~~502nd CES/CECC</AM#0003> for workday requirements.

1.16 BARRICADES AND WARNING SIGNS

Adequate barricades, warning signs and flares shall be furnished, installed, and maintained by the Contractor. Barricades and signs shall meet the requirements established in the National Electrical Code, NFPA 70-1990; the National Electrical Safety Code, ANSI C2-1990; and in the National Manual on Uniform Traffic Control Devices for Streets and Highways, pertaining to safety and barricades. Barricades shall have warning lights with low-intensity electric flashers for night application.

1.17 PRE-CONSTRUCTION SITE VISIT

The Contractor shall visit the job site to verify location, conditions, and dimensions prior to starting work. See Section 00 21 30 Site Visit.

1.18 RADIOACTIVE EQUIPMENT

Use of radioisotopes or radiation producing equipment (density gauging, NDE weld testing, etc.) requires a Nuclear Regulatory Commission (NRC) Radioactive Material License, with all documentation submitted and approved prior to bringing the material on base. To obtain authorization, contact the Base Radiation Protection Officer (RPO), at WHHC/ISOE, Bioenvironmental Engineering Office, Building 5075, phone 671-3351/3352.

a. The Contractor shall also comply with all requirements of AFI 40-201.

b. Contractor shall forward application to the Contracting Officer 30 days prior to commencing operations using radioactive materials.

c. Contractors possessing Agreement State Licenses must also submit an NRC Form 241 to NRC in compliance with 10 CFR 150.20.

d. Request shall include the following:

(1) Description of proposed activities on NRC form 241

(2) Procedures established to ensure radiological health and safety of all personnel.

(3) Name of responsible Contractor representative.

(4) Current copy of application for NRC or Agreement State License. The license must specifically state the installation by name or approval for temporary job sites anywhere in the United States where the NRC or Agreement State maintains jurisdiction.

(5) The part of the contract describing work to be done at the base and the inclusive dates of such work.

(6) An acknowledgement that the base RPO can make periodic checks to ensure the Contractor is following applicable radiological health and safety practices Contractors requiring more than 180 calendar days per calendar year of operation must possess an NRC license.

1.19 INSPECTION OF CORROSION PROTECTION INSTALLATION BY BASE CORROSION ENGINEER

a. All metallic, above or underground, water or fuel tanks and all metallic underground water, gas, fuel, or electric piping require corrosion protection. The installation shall be coordinated with the Base Corrosion Engineer through the Contracting Officer or the Contracting Officer's representative.

b. All work shall be coordinated and arranged by the Contractor to ensure the corrosion protection installation is inspected by the Base Corrosion Engineer in accordance with the following sequence:

(1) Initial Inspection: All work on the corrosion protection installation is in the process of being completed and is properly uncovered for inspection by the Base Corrosion Engineer or the Base Corrosion Technician.

(2) Final Inspection: All work on the corrosion protection installation has been satisfactorily completed, all deficiencies, if any, corrected and is properly uncovered for final inspection by the Base Corrosion Engineer.

(3) Corrosion protection installation shall be completed in accordance with the plans and specifications and shall certified by the Base Corrosion Engineer prior to approval/acceptance by the Contracting Officer.

1.20 PREVENTION OF FUEL SPILLS

Contractor may use temporary fuel tanks upon approval by the Contracting Officer. Tanks shall be surrounded by an earthen berm which provides 110% of the tank capacity. The berm shall be lined with a 40 mil polyethylene sheet held in place with weights located on the outside of the berm. All

berms shall be inspected by 37 CES/CEV prior to filling fuel tanks.

1.21 TOILET FACILITIES:

Toilet facilities are not available for use by Contractor personnel. The Contractor shall provide portable toilet facilities.

1.22 AS-BUILT DRAWINGS

The Contractor shall provide complete detailed as-built drawings representing the entire project as constructed under the contract; see Section 01 78 00 CLOSEOUT SUBMITTALS. Drawings shall be developed on 28" x 40" sheets of the best quality transparent polyester film,.003 - .004 inch thick, for diazo process. Material shall be sepia line, standard speed, double matte and for photographic process either wash or fixed line. Material must be able to accept pencil or ink additions or corrections and withstand multiple erasures without affecting draftability. Minimum drawing scale on each floor plan shall be 1/8" = 1'-0" and on each partial floor plan or detail shall be 1/4" = 1'-0" unless otherwise directed by the designated contracting officer. Preliminary as-built drawings shall be submitted with an AF Form 3000 in blue line format for Government Approval. The preliminary as-builts shall be submitted concurrently with the request for pre-pre-final inspection.

Upon Government approval of the preliminary as-builts, the contractor shall submit the entire final set of drawings on mylars for final review and approval. As-builts shall be included as a separate item in the progress schedule AF Form 3064.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

# Attachment A

## (Air Force Radiation Permit Instructions)

# REQUEST TO USE RADIOACTIVE MATERIAL ON JBSA LACKLAND AFB, TEXAS CHECKLIST

**Reference:** Air Force Instruction 40-201, *RADIOACTIVE MATERIALS (RAM) MANAGEMENT, 17 September 2014*

Para 3.4.5 Non-Air Force Organizations Using Radioactive Materials on Air Force Installations: When a civilian organization or other Federal agency desires to transfer, transport, or store RAM on or conduct operations using radioactive materials on an Air Force installation, written approval must be obtained from the Installation Radiation Safety Officer.

Para 3.4.5.1. The non-USAF organization must send a request to the IRSO at least 30 calendar days before bringing the RAM onto the installation. (T-2) For contractors, these requirements must be included in the statement of work. (T-2)

**JBSA Lackland Installation Radiation Safety Officer (IRSO):**

559 AMDS/SGPB
c/o Major Crystal Brown
2320 Carswell Ave, Bldg 7065, Room 217G
Lackland AFB, TX 78236
(210) 671-7061/7235
crystal.c.brown10.mil@mail.mil

**Information Needed IAW AFI40-201, para 3.4.5.2.1-5:**

_____ Primary Contractor Name and Address

_____ Subcontractor Name and Address

_____ Brief Description of Proposed Activities, (i.e. Copy of Contract Clause of the USAF Contract Describing Work to be Performed and Inclusive Dates).

_____ Local Point of Contact:
Name:
Address:
Phone:

_____ Contractor Radiation Safety Officer (on NRC/State License):
Name:
Address:
Phone:

_____ Copy of current NRC License **OR** Agreement State License **and** NRC Form 241

_____ Device(s) to be used, details on radioactive isotope, activity

_____ Leak Test Certificates

_____ Names of technicians using the device(s)

_____ Training Certificate(s) for technicians using the devices

_____ Copy of Contractual Clause of the Air Force Contract describing work to be performed and inclusive dates (from the contract)

_____ Written confirmation that the IRSO can conduct periodic assessments and has authority to suspend contractor operations believed to be unsafe

Example Statement:

> "_____ recognizes that the JBSA Lackland Installation Radiation Safety Officer is authorized to periodically conduct assessments to ensure compliance with radiation safety practices to prevent exposures to Air Force personnel and to prevent contamination of Government property. Additionally, _____ recognizes the authority of the IRSO to suspend contractor operations believed to be unsafe."

# Attachment B

## U.S. Air Force Form 103

W9126G26RA028-0003

# BASE CIVIL ENGINEERING WORK CLEARANCE REQUEST

*(See Instructions on Reverse)*

DATE PREPARED

1. Clearance is requested to proceed with work at _____

on Work Order No. _____, Contract No. _____, involving excavation or utility disturbance per

attached sketch. This area ☐ has ☐ has not been staked or clearly marked.

2. TYPE OF FACILITY/WORK INVOLVED

| | | | |
|---|---|---|---|
| ☐ A. PAVEMENTS | ☐ D. FIRE DETECTION & PROTECTION SYSTEMS | | ☐ G. AIRCRAFT OR VEHICULAR TRAFFIC FLOW |
| ☐ B. DRAINAGE SYSTEMS | ☐ E. UTILITY | ☐ OVERHEAD ☐ UNDERGROUND | ☐ H. SECURITY |
| ☐ C. RAILROAD TRACKS | ☐ F. COMM | ☐ OVERHEAD ☐ UNDERGROUND | ☐ I. OTHER |

| 3. DATE CLEARANCE REQUIRED | 4. DATE OF CLEARANCE |
|---|---|
| | |

| 5. SIGNATURE OF REQUESTING OFFICIAL | 6. TELEPHONE NO. | 7. ORGANIZATION |
|---|---|---|
| Click to sign | | |

| | ORGANIZATION | REMARKS *(Use Reverse for additional comments)* | REVIEWER'S NAME AND INITIALS |
|---|---|---|---|
| 8. BASE CIVIL ENGINEERING | A. ELECTRICAL DISTRIBUTION | Perry Fulks, 671-3093, Cell 269-6676 | Click to sign |
| | B. STEAM DISTRIBUTION | Ricky Peth, call 210-739-3367 | Click to sign |
| | C. WATER DISTRIBUTION | Ricky Peth, call 210-739-3367 | Click to sign |
| | D. POL DISTRIBUTION | Joe Tiseth, call 925-8545, Cell 416-6074 | Click to sign |
| | E. SEWER DISTRIBUTION | Ricky Peth, call 210-739-3367 | Click to sign |
| | F. ENVIRONMENTAL | Sarah Otto 210-671-0396 or David Decamp 671-4691 & Alvin Brown 671-5499 & Elias Abdulahad 671-4704 | Click to sign |
| | G. PAVEMENTS/ GROUNDS | Contact before digging, 671-2447 , Cell 416-7374 | Click to sign |
| | H. FIRE PROTECTION | Darrin Tannert, Call 671-2921<br>Also HOT WORK (Weld) permit | Click to sign |
| | I. ZONE Irrigation Systems | Ricky Peth, call 210-739-3367 | Click to sign |
| | J. OTHER *(Specify)* | | Click to sign |
| 9. SECURITY POLICE | | Only if work involves road closure or effects traffic.<br>Call 671-7261 located at building 5725 | Click to sign |
| 10. SAFETY | | | Click to sign |
| 11. COMMUNICATIONS | | Utilities in area, call 671-6401, 48 hours before digging. | Click to sign |
| 12. BASE OPERATIONS | | For Flightline area only, 925-5880 or<br>210-925-6802 (Flight Line area ONLY) | Click to sign |
| 13. CABLE TV | | | Click to sign |
| 14. COMMERCIAL UTILITY COMPANY<br>☐ TELEPHONE<br>☐ GAS<br>☐ ELECTRIC | | For SAWS email "Locates@SAWS.ORG"<br>TEXAS811 1-800-344-8377 | Click to sign |

15. OTHER *(Specify)* _____

16. REQUESTED CLEARANCE ☐ APPROVED ☐ DISAPPROVED

| 17. TYPED NAME AND SIGNATURE OF APPROVING OFFICER *(Chief of Operations Flight or Chief of Engineering Flight)* | 17a. DATE SIGNED |
|---|---|
| Click to sign | |

**INSTRUCTIONS**

*The BCE work clearance request is used for any work (contract or in-house) that may disrupt aircraft or vehicular traffic flow, base utility services, protection provided by fire and intrusion alarm system, or routine activities of the installation. This form is used to coordinate the required work with key base activities and keep customer inconvenience to a minimum. It is also used to identify potentially hazardous work conditions in an attempt to prevent accidents. The work clearance request is processed just prior to the start of work. If delays are encountered and the conditions at the job site change (or may have changed) this work clearance request must be reprocessed.*

18. REMARKS. *(This section must describe specific precautionary measure to be taken before and during work accomplishment. Specific comments concerning the approved method of excavation, hand or powered equipment, should be included.)*

# Attachment C

## Request for Utility Outage

W9126G26RA028-0003

# 502d Civil Engineer Squadron (JBSA-Lackland)

## UTILITY OUTAGE REQUEST

(Modified and Approved 7 Sep 2017)

**Date**: **……..**

**J/O, W/O, Project #**:

**Type of Utility Outage**:……..……**Proposed Date:……**……..**Alternate Date**:…….…….

**Building**:…….**Duration of Outage**:……**Start Time**:……. **End Time**:……
**Requester**:…….……**Phone**: ……
**Work Description**:

**Area/Room/Floor/Other Facilities Affected**:

---

**COORDINATION:** (Please sign to authorize/acknowledge outage if your area of responsibility is affected)

**Facility Managers**: _____

**502 CES/CEO/CEOIU:** Mr. Perry Morales/ 671-4772- Interior: _____

**502 CES/ CEO/CEOIU:** Mr. Williams, 977-4733 - Backflow / Fire Systems/ Exterior Plumbing _____

**502 CES/ CEO/CEOFA**: Mr. Nino, 671-3093- Fire Alarms: _____

**502 CES/ CEO/CEOFA**: Mr. Emami-Marand; 671-7215, EMCS: _____

**502 CES/ CEO/CEOFE:** Mr. Correa, 671-3093 - Exterior Electric: _____

**502 CES/ CEO/CEOFP**: Mr. Collins, 671-5516 - Power Production: _____

**502 CES/ CEO/CEOI:** Mr. Emami-Marand, 671-7215-Utility Systems: _____

**502 CES/ CEO/CEOS:** Mr. Hughes, 671-0042 - Port-O-Johns/Wash Stations: _____

**502 CES/ CEO/CEOF:** Mr. Gonzales, 671-3533-Facility Systems: _____

**502 CES/ CEO/CEF:** Mr. Darren Tannert Fire Desk, 671-2921:_____

**502 CES/ CEO/CEN**: Mr. Luhrman, 671-2110-Chief, Programs Flight: _____

**502 CES/ CEO/CEO:** Mr. Kane / Mr. Gauna, 671-3015-Chief, Operations _____

_____
**ANTONY J. PERSON**
**Deputy Base Civil Engineer**

# Attachment D

## Gate Access Information

## Frequently Asked Questions

***How do military members register?***

• DBIDS 4.0 makes it as easy as entering a gate. If you haven't registered, just enter through any access point. The Security Forces member will scan your ID. The system will automatically register the ID at that time. All approved identification cards must be registered.

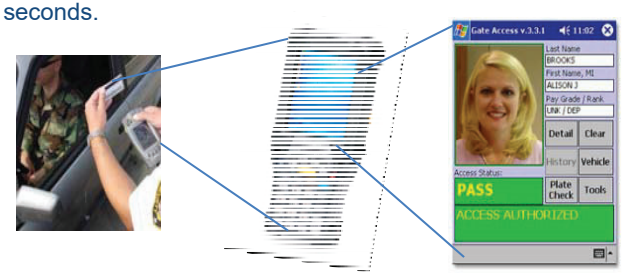
***How will retirees / dependants register?***

• Registration occurs the same way as military members above. Show your ID to the Security Forces member at the entry control point.

***How will DBIDS affect the traffic at the Gates?***

• DBIDS is quick and efficient and should not slow down installation entry.

• Handheld scanners provide security feedback in seconds.




***What documents do I have to have with me in order to prove who I am?***

• Please provide one of the following:

- United States Passport
- Permanent Resident Card/Alien Registration Receipt Card (Form I-551)
- Foreign Passport with a temporary (I-551) stamp or temporary (I-551) printed notation on a machine readable immigrant visa
- An employment authorization document that contains a photograph (Form I-766)
- Current/Valid Driver's License.
- Identification card issued by Federal, State or local Government Agencies
- U.S. Coast Guard Merchant Mariner Legacy Cards
- U.S. Coast Guard New Merchant Mariner Credential
- Approved Department of Defense (DoD) Privilege Card Holders
- Veterans Identification Card (VIC)

W9126G26RA028-0003

## Visitor Centers

**Walters Street** ***(FSH Main Entrance)***
***Building 4179***
***24/7***

**SAMMC/I35** ***(BAMC Main Entrance)***
***24/7 (under construction)***

**Scott Road** ***(Harry Wurzbach-East)***
***Building 2843***
***0600-2200***

**502d Security Forces Squadron**
***2404 N. New Braunfels Ave, Suite A***
***Fort Sam Houston, Texas 78234***
***Phone: (210) 221-2222, DSN-421-2222***

**502d Security Forces Squadron**
***ATTN: Visitor Center***
***2150 Winfield Scott Road***
***Fort Sam Houston, Texas 78234***
***Phone: (210) 221-2650/2651, DSN-421***
usaf.jbsa.502-abw.mbx.502-sfs-fsh-visitor-control-center@mail.mil

## DBIDS 4.1

Joint Base San Antonio

Fort Sam Houston

## Access Procedures

# DBIDS

***What is the Defense Biometric Identification System (DBIDS)?***

• DBIDS is a DoD-owned and operated system developed by Defense Manpower Data Center as a force protection program to manage personnel identity, and access at DoD installations.

DBIDS is a networked database system designed to easily verify access authorization of personnel entering military installations by using barcode and fingerprint biometric identification.

**References:**

**HSPD-12**
**DoDD 1000.25**
**DoDD 8521**
**DoD 5200.8-R**
**AFI 31-113**
**AFI 31-502**

***Where can I find more information on DBIDS?***

You may obtain more information by:

1. Calling (210) 221-2650/2651

2. Email usaf.jbsa.502-abw.mbx.502-sfs-fsh-visitor-control-center@mail.mil

Or

3. Stop by Walters VC building 4179 or Scott VC building 2843

# What are the Benefits

W9126G26RA028-0003

• DBIDS uses a reliable database that verifies a person's ID Card information against a registered DoD data base.

• DBIDS makes it very difficult to fake an identity or use someone else's ID Card to gain installation access.

• Security personnel receive visual and audible crosscheck (color photo, and standard personal info) to verify your identity.

• System is scalable; personnel access can be limited to meet mission needs (duty hours only or a specific date/time for visitors).

• Installation visitor information can be entered into the database prior to arrival and archived for future visits.

• DBIDS produces a bar-coded, paper pass for short term visits, and JBSA Access Pass (DBIDS ID Card) for long term visits.

• *Regionalized Registration*.
• Once your CAC or Teslan cards are registered, you may enter any installation utilizing DBIDS.

• *Permanent Registration*.
• Retirees can be registered indefinitely.
• Allows sponsor information to be archived for future use.

• *No need for a new card*.
• DBIDS scanners read all bar coded DoD ID cards for access.
• Consolidates vendor/visitor access credentials, reducing the number of cards a guard must recognize.

•*Increases installation security and communications*
Database receives frequent updates on changes to:
- Personnel / credential status
- Law enforcement warrants,
- Lost / stolen cards
- Force Protection Conditions

# Definitions

***Contractor***. A person contracted to work for DoD, but is not a DoD ID-card holder.

***Delivery Personnel.*** Individuals who need recurring access to USAF installations to make deliveries or perform a similar service related to their employment (i.e., pizza delivery, taxi driver) in a service authorized to conduct business on the installation.

***Escorted Individuals.*** Personnel who require access, without determination of fitness, who must be accompanied by a sponsor with authorization to escort the individual. The escort requirement is mandated for the duration of the individual's visitation period.

***Personal-Service Employee.*** A personal-service employee is an individual hired by an individual residing on base to perform a service (e.g., nanny, dog-sitter, housecleaner).

***Sponsor.*** The person affiliated to a DoD or other Federal agency who takes responsibility for verifying and authorizing the applicant's need for an identification card.

***Sponsorship.*** Sponsorship allows approved individuals affiliated with the DoD to take responsibility for verifying and authorizing an applicant's need for a locally produced identification credential to facilitate unescorted access to an installation.

***Unescorted Individuals.*** Personnel who have been identity proofed and favorably vetted are eligible for unescorted access within the installation; but are, however, still subject to any controlled or restricted area limitations, as appropriate.

***Vendor or Commercial Solicitor.*** Individuals authorized to sell merchandise or provide services on USAF installations.

W9126G26RA028-0003

# Unescorted Access Request

*"FOUO, This document contains information exempt from mandatory disclosure under the FOIA. Title 5 U.S.C. 552 (b) (6) applies. This document also contains personal information that is protected by the Privacy Act of 1974 and must be safeguarded from unauthorized disclosure."*

*SPECIAL SECURITY REQUIREMENTS: IAW AFMAN 31-113, paragraph 3.7.1.3.3, "It is the sponsoring organization's responsibility to ensure the visit is properly recorded and documented...and the local AFOSI unit is notified when foreign visitors arrive and depart the installation.*

*On the day of visit and when the foreign visitors have departed the installation, email AFOSI, at AFOSI.FIS11.Clmbx@us.af.mil indicating time of arrival and departure from the installation.*

## I: Sponsor Information

| 1. Title | 2. Last Name, First Name MI | 3. Duty Phone | 4. Cell/Home Phone | 5. DoD ID Number |
|---|---|---|---|---|
| | | | | |

| 6. Organization/Home Address | 7. Email Address |
|---|---|
| | |

## II: Access Details

**8. Category of Access**

- ☐ Contractor/Vendor
- ☐ Personal Services
- ☐ Delivery/Pick-Up
  *(Ex: Pizza Delivery/Non Driver Status)*
- ☐ Visitor/Volunteer
- ☐ Special Event
- ☐ Foreign National

**9. Location**

- ☐ JBSA-FSH
- ☐ JBSA-SAMMC
- ☐ JBSA-CB
- ☐ JBSA-LAK
- ☐ JBSA-RND

**10. Time Frame**

*(Allow 30 minute lead time for entry)*

From Date
From Time
To Date
To Time

Days of the Week

- Sunday ☐
- Monday ☐
- Tuesday ☐
- Wednesday ☐
- Thursday ☐
- Friday ☐
- Saturday ☐

11. Reason for Access (*Specify*)

12. Contracted Company Sponsored or Special Event Name

## III: Visitor Center Use Only

13. Tracking Number

☐ NCIC III ☐ ALERTS

Vetted Date

Posted Date (For EAL Use)

Received Date

☐ SFMIS ☐ TSDB

ECP Posted Location (For EAL Use)

Digital/Wet Signature of Verifier

## IV: Foreign Disclosure Office Use Only

14. Received Date

Vetted Date

Approved ☐

Case Name

Posted Date

Denied ☐

Digital Signature of FDO

W9126G26RA028-0003

# Unescorted Access Request

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## V: Guest Information

15. *Enter information for all persons 18 years of age or older (in alphabetical order).*

| Last Name, First Name, MI | DOB (*DD/MMM/YY*) | ID Type | ID Number | State or Country | VCC Use Only |
|---|---|---|---|---|---|
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To submit requests click on one of the location identifiers below.

Tracking Number

Sponsor

JBSA-LKD *Long Term/EAL*

JBSA-LKD *Short Term*

JBSA-RND

FDO

15. Sponsor's Digital or Wet Signature

W9126G26RA028-0003

# Unescorted Access Request

*"FOUO, This document contains information exempt from mandatory disclosure under the FOIA. Title 5 U.S.C. 552 (b) (6) applies. This document also contains personal information that is protected by the Privacy Act of 1974 and must be safeguarded from unauthorized disclosure."*

## VI: Explanations

The following information has been provided to aid in the completion of the Unescorted Access Request.

### **Section I:** *Sponsor Information.*

Block 1. **Title** The sponsors title (ie; Mr., Ms., Mrs., or associated rank of Military/GS employee).

Block 2. **Last Name, First Name MI** (Full name of sponsor, use format assigned).

Block 3. **Duty Phone** (Office number you can be reached at during business hours).

Block 4. **Cell/Home Phone** (Phone number you may be reached at during requested access times for your guests).

Block 5. **DoD ID Number** (Assigned number on your DoD ID Card-This is required to fully identify you in DBIDS).

Block 6. **Organization/Home Address** (If you are sponsoring for a government purpose use your organization. If it is for personal reasons use your home address).

Block 7. **Email Address** (email submissions will be sent encrypted utilizing a .mil email address).

### **Section II**: *Access Details*.

Block 8. **Category for Access** (Check the category of your guest).

Block 9 **Location** (Check which location(s) in the JBSA area you are requesting your guests to have access to – Must be a valid need for entry to these locations. Contractor/Vendors must provide contract stating access locations are required).

Block 10. **Time Frame**

**From Date** (Start date of visit/contract, etc…)
**To Date** (End date of visit/contract, etc…)
**From Time** (Start time of visit or if continual access, start time each day)
**To Time** (End time of visit or if continual access, end time each day)
**Days of Week** (Days of week entry is required - If visiting select day(s) visit will take place, if continual access is required – actual days of work required to be present)

Block 11. **Reason for Access**. Specify reason for access (ie; Meeting, Tow Truck, Pop-A-Lock, Taxi, Wedding, Family visit, etc…).

Block 12. Identify the Visiting Organization, Name of Event or if Contractor: Company Name, Contract Number and Contract Period.

### **Section III:** *Visitor Center Use Only.*

### **Section IV:** *Foreign Disclosure Office Use Only.*

### **Section V:** *Guest Information*.

**Foreign visitors must be processed through the Foreign Disclosure Office**. Email completed form to *usaf.jbsa.502-abw.mbx.502-abw-foreign-visitors-request-workflow@mail.mil*

For more than 20 visitors [Special Event] use continuation sheets).

Block 14. Fill in the blocks [alphabetical order] for all visitors 18 years of age or older.

**Last Name, First Name MI** (Full name of visitor, use format assigned).
**DOB**: Date of Birth (Use format assigned).
**Country** (Country of birth for foreign visitors).
**ID Type** (Must be valid form of photo ID, DL – Drivers License, SID – State ID, VIC – Veteran Identification Card, PP –Passport).
**ID Number** (The associated number assigned to the ID Type) **State of Issue** (State where identification was issued)

If a tracking number is assigned, the sponsor will relay the number to their guest(s) for announcement at a visitor center. This will allow the Visitor Center Personnel to track completed paperwork for issuance of an access credential.

Block 15. **Digital or Wet Signature** (If capable a digital signature if preferred. If not possible, print, sign, and submit).

W9126G26RA028-0003

# Unescorted Access Request

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## V: Guest Information cont...

14. *Enter information for all persons 18 years of age or older (in alphabetical order).*

| Last Name, First Name, MI | DOB (*DD/MMM/YY*) | ID Type | ID Number | State or Country | VCC Use Only |
|---|---|---|---|---|---|
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Tracking Number

Sponsor

15. Requestor's Digital or Wet Signature

# Attachment E

## CPS Energy Electrical and Gas Application & Rebate Information

# APPLICATION FORM

**CPS Energy Program Name:** _____
(select one)

**Customer/Business Name:** _____
**Contact Name:** _____
**Contact Phone:** _____
**Contact Email:** _____

**Contractor Name:** _____
**Contractor Name:** _____
**Contractor Phone:** _____
**Contractor Email:** _____

**Incentive To Be Paid To:** _____
(select one)

**Submit To:** CPSEnergyCommercial@clearesult.com
or Fax: (210) 904-8365

| | | | | | | Estimated | | | | | Program Staff Only | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Building Name | Street Address | CPS Account # | Retrofit or New Construction (select one) | Measure Type (select one) | Project Start Date | Project Complete Date | Demand Reduction (kW) | Energy Savings (kWh/yr) | Incentive ($) | Initial (IA) vs. Final (FA) | Date of FA Approval | Project ID |
| 1 | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| | | | | | | | | - | - | $ - | N/A | | |

Approval of Project Application Forms and resulting incentive fund reservations are solely within the discretion of the Program. This application form is considered an Initial Project Application (IA) when submitted. Incentive funds estimated on this form are not officially reserved until program has approved them and notified customer of final project application amounts (FA). Also, please note that all savings/incentive estimates are preliminary only and are based on best available information at the time of this application.

**CUSTOMER ACKNOWLEDGEMENT**: All information included here is true and correct to the best of my knowledge. I am authorized to commit my organization to reserving incentive funds for these projects in this Program.

Customer Signature

Date

Program Terms & Conditions:

1. Programs may be modified or terminated at any time and without notice by CPS Energy.
2. Program requirements and incentive levels are subject to change without notice.
3. The program does not endorse, guarantee or warrant any particular contractor, manufacturer or installation.
4. The customer is responsible for the project application process, from initiation through completion. The customer may designate an agent/primary contact; however, the customer is responsible for ensuring that all equipment requirements, terms and conditions, and program processes are strictly followed. Customer is responsible for, and must sign, the application and agrees to all program requirements including these terms and conditions upon doing so. Customer is responsible for informing program if the assigned contractor changes.
5. The program and CPS Energy assume no responsibility for the performance of the equipment or equipment warranty, the quality of the work, labor and/or materials supplied, and/or the acts or omissions of the participating contractor.
6. Incentives calculated in this application form are based on the scope of work provided by the customer or the active contractor. Any change to the scope of work will result in a change in the incentive amount. The final incentive amount is calculated upon final verification of the work by the program and may vary from estimates. A final review of all of the documentation and calculations will be conducted prior to the program issuing an incentive check.
7. The incentive funds offered under the Program are limited to a Program budget. If the Program's budget is fully reserved, Project Application Forms will be placed on a waitlist. When/if additional budget becomes available, waitlisted projects will be reviewed based on the date of Final Application approval by the program.
8. The program is not under any obligation to provide more incentives than the amount reserved by the Project Application Form for any project, even if project achieves greater energy savings by the project than what were estimated. If budget is still available at the time of project completion, the program may elect to increase the incentive payment up to the incentive calculated by the achieved energy savings.
9. Installations must be completed in accordance with all laws, codes, permits and other applicable requirements under federal, state and local authority. Customer agrees to use only qualified materials approved by the Program. All lighting equipment must be approved by Design Lights Consortium, Energy Star, or Consortium of Energy Efficiency to qualify for incentives. Incentives calculated on this form assume all material will be qualified. Failure to install qualified material will result in a reduced incentive amount upon project completion.
10. Prior to issuing incentive check, the program may conduct a site visit/audit to verify that the installed equipment is eligible and completed. The post-installation inspection, and all aspects related to the site visit/audit, is conducted solely for determining eligibility of the project(s) for participating in the program. The site visit/audit is not a safety review and is not intended for any other purposes than verifying project eligibility. By submitting a Project Application Form to the program, a customer agrees to provide site access to program personnel or its designated agents to the rebated equipment for verifying eligibility.
11. Incentives are paid based on verified demand (kW) and energy savings (kWh). Project invoice and/or final equipment submittals must be provided in order to show proof of purchase of specific makes/models of equipment that will be installed.
12. The program is not responsible for any errors that occur while utilizing forms, tools, or calculators made available to the customer for project application purposes.
13. The customer hereby agrees to indemnify, defend and hold harmless, CPS Energy, its parents, subsidiaries, affiliates, officers, employees, contractors and agents from any and all liability arising from customer’s installation, acts or omissions taken by customer’s contractor, and/or for the actions taken by customer or CPS Energy pursuant to offering these programs.
14. The customer is urged to seek appropriate consultation concerning any tax liabilities that may be associated with the receipt of the incentive. CPS Energy, its parents, subsidiaries, affiliates, officers, employees, contractors and agents are not responsible for any tax liabilities that a customer may incur.
15. No energy savings are guaranteed as a result of the purchase and installation of eligible equipment.

# Attachment F

## Back Flow Prevention Assembly Test and Maintenance Report

**Texas Commission on Environmental Quality**

**Customer Service Inspection Certificate**

**Form TCEQ-20699 - Instructions**

**General Instructions:**

The purpose of form TCEQ-20699 is to certify the identification and prevention of cross connections, potential contaminant hazards, and illegal lead materials as per ***Title 30 of the Texas Administrative Code(30 TAC) 290.46(j)(4)***. The form can be completed one of two ways:

1. The form can be printed and completed manually, or;
2. The form can be completed electronically through an electronic medium (tablet, laptop computer, etc.). The yellow areas on the form can be completed electronically.

***NOTE**: **The form is intended to be completed on-site while the inspection is occurring**. If the form is completed electronically, the electronic device must also be on-site for proper use of this form.*

The form must be printed and signed by the Inspector that performed the work. The hardcopy original or a copy must be provided to the Public Water System (PWS) for record keeping purposes as specified in ***30 TAC 290.46(f)(3)(E)(iv).***

---

**Specific Instructions:**

Please follow these instructions when completing Form TCEQ-20699:

1. Check boxes: If completing the form electronically, all check boxes are highlighted in yellow and can be selected to make the desired indication. Selecting a box will insert an "X" in the box.
2. Remarks: The "Remarks" section of the form is expandable, which means your final report can be more than one page. Make sure to include all pages when submitting to the local water purveyor.

W0126C026RA028-0003

**Customer Service Inspection Certificate**

| | |
|---|---|
| Name of PWS: | |
| PWS ID #: | |
| Location of Service: | |

Reason for Inspection: New construction ..... ☐
Existing service where contaminant hazards are suspected ..... ☐
Major renovation or expansion of distribution facilities ..... ☐

I _____, upon inspection of the private water distribution facilities connected to the aforementioned public water supply do hereby certify that, to the best of my knowledge:

| Compliance | Non-Compliance | | |
|---|---|---|---|
| ☐ | ☐ | (1) | No direct connection between the public drinking water supply and a potential source of contamination exists. Potential sources of contamination are isolated from the public water system by an air gap or an appropriate backflow prevention assembly in accordance with Commission regulations. |
| ☐ | ☐ | (2) | No cross-connection between the public drinking water supply and a private water system exists. Where an actual air gap is not maintained between the public water supply and a private water supply, an approved reduced pressure principle backflow prevention assembly is properly installed and a service agreement exists for annual inspection and testing by a certified backflow prevention assembly tester. |
| ☐ | ☐ | (3) | No connection exists which would allow the return of water used for condensing, cooling or industrial processes back to the public water supply. |
| ☐ | ☐ | (4) | No pipe or pipe fitting which contains more than 8.0% lead exists in private water distribution facilities installed on or after July 1, 1988 and prior to January 4, 2014. |
| ☐ | ☐ | (5) | Plumbing installed after January 4, 2014 bears the expected labeling indicating ≤0.25% lead content. If not properly labeled, please provide written comment. |
| ☐ | ☐ | (6) | No solder or flux which contains more than 0.2% lead exists in private water distribution facilities installed on or after July 1, 1988. |

I further certify that the following materials were used in the installation of the private water distribution facilities:

Service lines; Lead ☐ Copper ☐ PVC ☐ Other ☐
Solder; Lead ☐ Lead Free ☐ Solvent Weld ☐ Other ☐

I recognize that this document shall become a permanent record of the aforementioned Public Water System and that I am legally responsible for the validity of the information I have provided.

| | |
|---|---|
| Remarks: | |
| | |
| | |

| | | | |
|---|---|---|---|
| Signature of Inspector: | | Registration Number: | |
| Title: | | Type of Registration: | |
| Date: | | | |

Dear SAWS Customer:

The San Antonio Water System is required by the Texas Commission on Environmental Quality ("TCEQ") to obtain a completed Customer Service Inspection Certificate before providing continuous water service. Customer Service Certification requires an on-site inspection. The purpose of the inspection is to protect the potable water system from potential contamination. The inspection is not a plumbing inspection of the private water distribution system and does not negate the responsibility of a customer to install and maintain all plumbing in accordance with approved local, state and national plumbing codes.

You may utilize a licensed plumber with a water supply protection specialist (WSPS) endorsement or a certified water operator with a customer service inspection (CSI) license to conduct the inspection and complete the form. A list of approved inspectors is available at www.saws.org/inspectors .

At the time of application for a SAWS potable water tap for the service address, the applicant signed a service agreement acknowledging the responsibility to conduct an on-site inspection. The original applicant may have been a developer, builder, plumber or homeowner. Regardless of who may have signed the original service agreement, the on-site inspection requirement is mandatory. Continuous water service is contingent upon SAWS receipt of a completed Customer Service Inspection Certification.

Upon completion of the Customer Service Inspection Certification please forward the certificate to cs-tceq_csi@saws.org or Fax (210) 233-4749 if additional information is needed call (210) 233-2421.

**Additional Information:**

Swimming Pool Installed: Yes / No Alternate Water Supply: Yes / No

Aerobic System Installed: Yes / No Sprinkler/Irrigation System Installed: Yes / No

Type of Backflow Preventer(s):

_____

Other Information as appropriate:

_____

# Attchment G

## Customer Service Inspection Certification

# Texas Commission on Environmental Quality

## Customer Service Inspection Certificate

## Form TCEQ-20699 - Instructions

**General Instructions:**

The purpose of form TCEQ-20699 is to certify the identification and prevention of cross connections, potential contaminant hazards, and illegal lead materials as per ***Title 30 of the Texas Administrative Code(30 TAC) 290.46(j)(4)***. The form can be completed one of two ways:

1. The form can be printed and completed manually, or;
2. The form can be completed electronically through an electronic medium (tablet, laptop computer, etc.). The yellow areas on the form can be completed electronically.

***NOTE**: **The form is intended to be completed on-site while the inspection is occurring**. If the form is completed electronically, the electronic device must also be on-site for proper use of this form.*

The form must be printed and signed by the Inspector that performed the work. The hardcopy original or a copy must be provided to the Public Water System (PWS) for record keeping purposes as specified in ***30 TAC §290.46(f)(3)(E)(iv).***

---

**Specific Instructions:**

Please follow these instructions when completing Form TCEQ-20699:

1. Check boxes: If completing the form electronically, all check boxes are highlighted in yellow and can be selected to make the desired indication. Selecting a box will insert an "X" in the box.

2. Remarks: The "Remarks" section of the form is expandable, which means your final report can be more than one page. Make sure to include all pages when submitting to the local water purveyor.

3. Due to there being three (3) different licensed individuals that can fill out this form: TCEQ Licensed Customer Service Inspector, Licensed Plumbing Inspector or Licensed plumber with Water Supply Protection Specialist endorsement. Please provide your title.

Texas Commission on Environmental Quality
W9126G26RA028-0003

**Customer Service Inspection Certificate**

| | |
|---|---|
| Name of PWS: | |
| PWS ID #: | |
| Location of Service: | |

| Reason for Inspection: | |
|---|---|
| New construction | ☐ |
| Existing service where contaminant hazards are suspected | ☐ |
| Material improvement, correction or expansion of distribution facilities | ☐ |

I _____, upon inspection of the private water distribution facilities connected to the aforementioned public water supply do hereby certify that, to the best of my knowledge

| Compliance | Non-Compliance | | |
|---|---|---|---|
| ☐ | ☐ | (1) | No direct or indirect connection between the public drinking water supply and a potential source of contamination exists. Potential sources of contamination are isolated from the public water system by an air gap or an appropriate backflow prevention assembly in accordance with Commission regulations. |
| ☐ | ☐ | (2) | No cross-connection between the public drinking water supply and a private water system exists. Where an actual air gap is not maintained between the public water supply and a private water supply, an approved reduced pressure principle backflow prevention assembly is properly installed. |
| ☐ | ☐ | (3) | No connection exists which would allow the return of water used for condensing, cooling or industrial processes back to the public water supply. |
| ☐ | ☐ | (4) | No pipe or pipe fitting which contains more than 8.0% lead exists in private water distribution facilities installed on or after July 1, 1988 and prior to January 4, 2014. |
| ☐ | ☐ | (5) | Plumbing installed on or after January 4, 2014 bears the expected labeling indicating ≤0.25% lead content. If not properly labeled, please provide written comment. |
| ☐ | ☐ | (6) | No solder or flux which contains more than 0.2% lead exists in private water distribution facilities installed on or after July 1, 1988. |

I further certify that the following materials were used in the installation of the private water distribution facilities:

| | | | | |
|---|---|---|---|---|
| Service lines: | Lead ☐ | Copper ☐ | PVC ☐ | Other ☐ |
| Solder: | Lead ☐ | Lead Free ☐ | Solvent Weld ☐ | Other ☐ |

| | |
|---|---|
| Remarks: | |
| | |
| | |

I recognize that this document shall be retained by the aforementioned Public Water System for a minimum of ten years and that I am legally responsible for the validity of the information I have provided.

| | | | |
|---|---|---|---|
| Signature of Inspector: | | License Type: | |
| Inspector Name(Print/Type): | | License Number: | |
| Title of Inspector: | | Date / Time of Insp.: | / |

A Customer Service Inspection Certificate should be on file for each connection in a public water system to document compliance with 30 TAC § 290.44(h)/290.46(j).

SECTION 01 50 00.17 44

TEMPORARY CONSTRUCTION FACILITIES FOR LACKLAND AFB
<AMENDMENT 0003>

# PART 1 GENERAL

## 1.1 GENERAL REQUIREMENTS

### 1.1.1 Site Plan

The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

### 1.1.2 Employee Parking

Contractor employees shall park privately owned vehicles within the construction site limits or laydown/staging area. The Contractor is encouraged to evaluate alternative methods to facilitate transportation of employees to the facility. The contractors will not be allowed to walk or drive across existing facilities under construction or upon completion. Contractor employee parking shall not interfere with existing and established parking requirements of the military installation.

### 1.1.3 Job Site Tools and Equipment

All hand tools and equipment shall be maintained in good working condition and properly stored when not in use.

### 1.1.4 Project Signage

Contractor shall furnish and erect a project construction sign as specified in Section 01 58 00 PROJECT IDENTIFICATION.

### 1.1.5 Temporary Signage

#### 1.1.5.1 Bulletin Board

Immediately upon beginning of work, provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Contracting Officer. Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer.

#### 1.1.5.2 Safety Signs

Provide a safety sign in accordance with Section 01 58 00 Project Identification within 15 days after receipt of the notice to proceed.

1.2 SANITATION

The Contractor shall provide and maintain within the construction area minimum field-type sanitary facilities. Government toilet facilities will not be available to Contractor's personnel.

1.3 AVAILABILITY AND USE OF UTILITY SERVICES

1.3.1 Temporary Utilities

<AM#0003>JBSA Lackland has privatized utilities which are the system owners. All utilities must be coordinated with system owners.</AM#0003> Provide temporary utilities required for construction. Materials may be new or used, must be adequate for the required usage, not create unsafe conditions, and not violate applicable codes and standards.

1.3.2 Payment for Utility Services

Water, gas, sewer, and electricity are not available from Government-owned and operated systems. The Contractor shall make arrangements for use and payment of utilities with the system owner. An advance deposit for utility connection may be required. <AM#0003>The Contractor shall coordinate with utility companies on the construction of gas, water, electricity, and sewer systems, including the meter. Contractor is responsible for construction from within the building up to the meter. All fees and costs for the work by the utility companies will be paid by the Contractor.</AM#0003>

The Contractor shall coordinate with utility companies on the construction of gas, water, electricity, and sewer systems, including the meter. Contractor is responsible for construction from within the building up to the meter. All fees and costs for the work by the utility companies will be paid by the Contractor.

1.4 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

1.4.1 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads designated by the Contracting Officer shall be removed and the area restored to its original condition.

1.4.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas as required by OSHA and TXDOT. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. The minimum required number of barricades shall be securely placed in a neat and orderly fashion, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night. Barricades shall be maintained in an orderly fashion during the duration of their placement. Utilize temporary barricades for a temporary period of time (2 weeks).

1.5 CONTRACTOR'S TEMPORARY FACILITIES

1.5.1 Administrative Field Offices

The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

1.5.2 Storage Area

The Contractor shall construct and maintain a 6-foot high chain link fence around project site perimeter, trailers and stored materials. The fence shall include woven privacy fabric, 90%-density, bound edging with brass 1"-grommets fastening locations; factory cut wind-holes; color: dark brown, so that visibility through the fence is obstructed. Fence fabric shall be installed on the "public" side of the site's construction fence and maintained in a neat and tight fashion onto the fence. Fence fabric damaged during the construction phase shall be replaced at the direction of the Contracting Officer. Fence posts shall be set in concrete bases. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site. Trailers, equipment, or materials shall not be open to public view with the exception of those items which are in support of ongoing work on any given day. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, shall be parked within the fenced area at the end of each work day.

1.5.3 Supplemental Storage Area

Upon Contractor's request, the Contracting Officer will designate another or supplemental area for the Contractor's use and storage of trailers, equipment, and materials. This area may not be in close proximity of the construction site. Fencing of materials or equipment will also be required at this site; and the Contractor shall be responsible for cleanliness and orderliness of the area used and for the security of any material or equipment stored in this area. Utilities will not be provided to this area by the Government.

1.5.4 Appearance of Trailers

Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on the military property.

1.5.5 Maintenance of Storage Area

Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas which are not established roadways, such areas shall be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways; gravel gradation shall be at the Contractor's discretion. Grass located within the boundaries of the construction site shall be mowed for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers shall be edged or trimmed neatly.

1.5.6 Not Used

1.5.7 Security Provisions

Provide adequate outside security lighting at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own equipment.

1.6 NOT USED

1.7 Not Used.

1.8 TEMPORARY PROJECT SAFETY AND HAZARD SAFETY FENCING

As soon as practicable, but not later than 15 days after the issuance of the Notice To Proceed, the Contractor shall furnish and erect temporary project safety fencing around the construction site. Project safety fencing shall be 9 ga. chain link fencing, a minimum of 72 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers set in concrete, at the approved location(s). Visibility through the fence shall be obstructed by use of brown-colored windscreen fabric with prefabricated air vents.

The Contractor shall also furnish and install hazard safety fencing at temporary hazards and work site areas considered to be hazardous to the public. Caution tape shall not be used as a temporary means of fencing.

In lieu of caution tape sawhorse traffic barricades (Type I or II) with tightly strung yellow rope may be used on a limited basis. The safety fencing shall be a high visibility OSHA orange colored, high density polyethylene 1.5" x 3" oval grid or approved equal, a minimum of 48 inches high, supported and tightly secured to steel posts located on maximum 6-foot centers, constructed at the approved location.

Temporary safety fencing shall be maintained by the Contractor during the life of the contract except for the periods listed below. Upon completion and acceptance of the work, the fencing shall become the property of the Contractor and shall be removed from the work site.

1.8.1 Duration Of Temporary Safety Fencing

The following durations for the use of specific safety barriers shall be used as a guideline. The Contracting Officer may dictate longer or shorter periods as required for project specific work:

a) Sawhorse traffic barricades with tightly strung yellow rope not to exceed a 24-hour period.

b) Traffic cones not to exceed 3 days (excluding road construction.

c) Traffic barricades and safety fencing not to exceed 14-days (excluding road construction).

1.9 CLEANUP

At the end of each working day the Contractor shall clean up the work site by the removal of all construction debris, waste materials, packaging material and the like. If the before mentioned items could become airborne they shall be placed in refuse containers immediately. Clean up of the work site shall include cleaning up the construction area(s), construction office area(s), material storage area(s), parking and eating area(s), and any other area(s) affected by the construction process. Any dirt or mud which is tracked onto any Base street, parking area, sidewalk, patio, or driveway shall be cleaned away daily. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

1.10 RESTORATION OF STORAGE AREA

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

1.11 MOWING

The Contractor shall keep all grass/landscaped areas clean within the construction limits and shrubs and other elements in the landscape shall be maintained. Grass and weedy vegetation within the areas utilized by the Contractor, including work areas, administrative areas, and storage areas, shall be kept mowed to control vegetative growth.

1.11.1 Mowing

Vegetation shall be mowed when it reaches a height of 6 inches. Mowing shall be to a height of 3 inches. Mowing shall be accomplished with a rotary mower that leaves the clippings evenly distributed on the soil surface. Mowing shall be accomplished during periods and in such manner that the soil and grass will not be damaged. Towed or self-propelled riding mowers shall not be operated within 3 feet of trees or shrubs. Areas adjacent to trees and shrubs shall be mowed with hand-propelled mowers.

1.11.2 Areas Not Mowed

Government may immediately after notice to the Contractor and at the discretion of the Contracting Officer mow the Contractor's areas at any time the vegetation height exceeds 6 inches.

1.11.3 Payment

No separate payment will be made for mowing as required under this section and all costs incurred by the Government for performing such work shall be deducted from the contract.

1.12 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Site Plan; G

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

SECTION 01 52 00.00 44

GOVERNMENT FIELD OFFICE
<AMENDMENT 0003>

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROICEDURES:

SD-03 Product Data

Government Field Office; G.

<AM#0003>~~Provide manufacturer catalog data, specifications, and shop drawings for approval, verifying all dimensions, fixtures and equipment. Note all deviations on drawings.~~Provide manufacturer catalog data, specifications, and shop drawings for approval, verifying all dimensions, fixtures, furniture, and equipment. Indicate all light fixtures, power, and data locations throughout the building. Provide furniture layout for each space. Note all deviations on drawings

Network Diagram; G.

Exterior Identification Banner Layout; G. Provide shop drawings and digital layouts for the exterior identification banner, showing full graphic layout, dimensions, colors, castle mark, wordmark, font sizes, and mounting details, verifying compliance with EP 310-1-6 and EP 310-1-6a.

SD-06 Test Reports

Fiber Optic Test Reports; G.</AM#0003>

1.2 ANCILLARY RESPONSIBILITY

All work in this Section is considered as an ancillary responsibility of the Contractor and no separate payment will be made for it. <AM#0003>All costs associated with this work shall be included as indicated in the CLIN schedule.</AM#0003>

PART 2 PRODUCTS

<AM#0003>2.1 CAPACITY SIZING AND SCALABILITY MATRIX

The Contracting Officer shall select the required Field Office Capacity Tier in the contract CLIN schedule. The contractor shall design, construct, equip, and maintain the facility based on the selected Tier in the table

below:

| Capacity Parameter | Tier 1 (Small) | Tier 2 (Medium) | Tier 3 (Large) | Tier 4 (Mega) |
|---|---|---|---|---|
| | | | | |
| Target Personnel | 2 - 4 | 6 - 10 | 11 - 25 (Baseline) | 40 - 80 |
| Min Floor Area | 600 SF | 1,500 SF | 4,300 SF | 8,000 SF |
| Max Floor Area | 1,000 SF | 2,500 SF | 5,000 SF | 15,000 SF |
| Private Offices | 2 | 4 - 6 | 6 | 12 - 17 |
| Cubicles (6'x8') | 0 | 2 - 4 | 12 | 15 - 63 |
| Multipurpose seats | 6 | 12 | 20 | 80 |
| RESTROOMS (lav/wc) | 1 Unisex (ADA) | 1 Men, 1 Women | 1 Men, 1 Women | Multi-stall Men/Women |
| Copiers/Printer | 1 Desktop MFP | 1 Med Workgroup | 1 Lexmark MX911dte equivalent | 4 Large MFPs, 1 Color Plotter |
| Tablets (10") | 2 | 3 | 5 | 10 |
| Display Monitors | 1 ea 55" | 1 ea 75", 1 ea 55" | 2 ea 75", 1 ea 55" | 4 ea 75", 2 ea 55", 1 ea |
| Parking Spaces | 5 | 12 | 25 | 125 |
| ATV QA Vehicles | 1 (4-seater) | 2 (4-seater) | 4 (4-seater) | 6 (6-seater) |

</AM#0003>

## 2.2 GOVERNMENT FIELD OFFICE

~~(~~The Contractor shall provide the Government Resident Engineer with an office, approximately 200 square feet in floor area, located where directed and providing space heat, electric light and power, and toilet facilities consisting of one lavatory and one water closet complete with connections to water and sewer mains. A mail slot in the door or a lockable mail box mounted on the surface of the door shall be provided. At completion of the project, the office shall remain the property of the Contractor and shall be removed from the site. Utilities shall be connected and disconnected in accordance with local codes and to the satisfaction of the Contracting Officer.

The Contractor may, at the Contractor's option, furnish and maintain a trailer-type mobile office acceptable to the Contracting Officer and providing as a minimum the facilities specified above. The trailer shall be securely anchored to the ground at all four corners to guard against movement during high winds.~~)~~<AM#0003>The Contractor shall design, furnish, and set up complete, including tie-downs on connections to utilities, ready to use at the ATC West Campus laydown area at the north end of the site.

The Contractor shall provide the Government Resident Engineer with an office matching the Capacity Tier designated in Paragraph 2.1, not greater than 15,000 square feet in floor area, in accordance with the area limitations of UFC 3-600-01 for temporary relocatable structures. The trailer shall be located on the project site were indicated on the Civil drawings and provide space heat, air conditioning, electric light and power, and separate men and women ADA/ABA-compliant restrooms (with appropriate door signage, lockable doors and separate controls for lights and exhaust fan) complete with connections to domestic water and sewer mains. The building shall be constructed of wood, metal, or other acceptable construction materials and shall be designed in accordance with UFC 1-200-01, the ICC International Building Code, and all other applicable building codes and requirements; the building and all access ways shall be fully ADA/ABA compliant.</AM#0003>

<AM#0003>~~The Contractor shall furnish and set up complete, including tie-downs and connection to existing utilities, ready to use at the project site and in a location designated by the Contracting Officer, an office for use by the Government during the life of the Contract. The project office shall be a relocatable modular building or trailer, be weatherproof, have a minimum floor size of 14 feet by 40 feet, have two offices, common area, conference room, and toilet facilities. Provide a connecting door between the two rooms and exterior doors for each room, sufficient number of adjustable windows for each room for adequate light and ventilation, and a battery-operated smoke detector alarm for each room. Conference room shall be large enough for the conference table and 10 chairs and the equipment specified below. The offices and conference room shall have interior doors to the common area. Space shall include heat, electric power, telephone, lighting, plumbing, air conditioning, and high speed broad band internet service from a local cable provider. Equip with hot water heater, overhead lighting in accordance with IESNA RP-1 standards, and have adequate air conditioning, heating, and potable water supply. The walls and ceiling of the project office shall be insulated and the interior and exterior walls shall be of a prefinished material. The building shall be constructed of wood, metal or other acceptable construction materials and shall be designed in accordance with the ICC Building Code. The windows and doors shall be screened and the doors provided with dead bolt type locksets. Exterior door hinge pins shall be non-removable. The windows shall be operable and be securely fastened from the inside. Glass panels in windows shall be protected by bars or heavy mesh screens to prevent easy access to the building through these panels. In warm weather, air conditioning capable of maintaining the office at 50 percent relative humidity and a room temperature 20 degrees F below the outside temperature when the outside temperature is 95 degrees F, shall be furnished. If window-style air conditioner(s) is used, the refrigerant shall be one of the fluorocarbon gases that is in accordance with ARI 700 and has an Ozone Depletion Potential (ODP) of less than or equal to 0.05. Provide a mail slot in the door or a lockable mail box mounted on the surface of the door.~~

~~The Contractor will not furnish computers. The computers must be furnished and connected by ACE-IT.~~

~~Equip the trailer with the following:~~

~~- The trailer shall be complete with:~~

~~2 each - Two-line telephone with speaker phone, memory buttons, voice mail, and conference call ability;~~

~~2 each telephone lines with dual line jacks in each of the two offices and one in the conference room, wired so that one line can be used for a computer as well as voice);~~

~~- Operable window mini blinds;~~

~~- Water cooler/bottled water dispenser with chiller and heated water with a paper cup holder and a continuous supply of paper cups.~~

~~Conference Room:~~

~~- conference table with minimum 10 chairs~~
~~- lockable supply locker for office supplies~~
~~- bookcase (minimum 60 inches tall, 32 inches wide and 15 inches deep)~~
~~- microwave (1 cu. foot) and microwave stand~~
~~- refrigerator (10 cu. ft.)~~
~~- marker board (3 feet by 6 feet)~~
~~- plans table (48 inch by 30 inch work area - minimum)~~

~~Each Office:~~

~~- desk with three drawers and middle drawer (48 inch by 30 inch work area - minimum)~~
~~- height adjustable swivel chair~~
~~- stool for plans table~~
~~- plans rack for full size plans~~
~~- 3-drawer lockable file cabinet~~
~~- small bookcase (approximately 40 inches tall, 30 inches wide and 305 mm12 inches deep)~~
~~- bulletin board or marker board (approximately 3 feet by 2.5 feet)~~

~~Common Area:~~

~~- Combination copier, printer, and scanner to be connected to office computers (unit shall have features similar to those of HP PSC 1610 or 2355 3 in 1 printer package or Epson Stylus All In One CX4600 Printer Package. Furnish cables and continuous supply of ink and paper)~~
~~- four guest chairs~~
~~- water fountain with cooler~~
~~- main entrance door should have a covered entrance (minimum 6 feet by 4 feet)~~
~~Seperate Internet Connection for Common Area~~

~~Facsimile machines and copier machines shall also be new and covered by manufacturer's standard warranty plus a service/repair contract for the duration of this contract.~~

~~2.1.1 Manufacturer~~

~~Manufacturer shall be regularly engaged in the construction and on site erection of relocatable modular buildings or trailers.~~

~~2.1.2 Utilities~~

~~Exterior utilities shall be permanently installed to the modular unit and connected with existing utilities. Exposed utilities shall be insulated to prevent freezing. Utilities shall be connected and disconnected in accordance with local codes and to the satisfaction of the Contracting Officer. Contractor shall be responsible for the cost of all utility usage except telephone. The Contractor is responsible for payment of all utility usage, to include electric, water, sewer, and internet service. The Government will provide the telephone equipment and service to the Government Field Office.~~

~~2.1.3 Vehicular Access and Parking~~

~~The Contractor shall provide graveled access road and parking area for 20 vehicles adjacent to the Government Field Office.~~

## 2.3 EXTERIOR IDENTIFICATION BANNER

The Contractor shall provide one (1) exterior identification banner for the Government field office.

A. Design & Graphics: Banner graphics shall comply with USACE Graphic Standards Manual EP 310-1-6, Sign Standards Manual EP 310-1-6a, and all applicable USACE branding requirements. The banner shall display the official USACE Communication (castle) Mark and the wording 'U.S. Army Corps of Engineers,' 'Fort Worth District,' 'South Texas Area Office,' and 'ATC Resident Office,' with these titles stacked in consistent, equal-size fonts in a clear, legible layout consistent with USACE graphic standards.

B. Dimensions: The banner shall be exactly 4 feet high by 8 feet wide.

C. Materials & Durability: The banner shall be constructed of heavy-duty, weather-resistant outdoor vinyl (minimum 13 oz) with reinforced heat-welded hems and brass grommets at 24-inch intervals. Use only Government-furnished or USACE-approved digital artwork for the castle mark and wordmark; the Contractor shall not alter logo proportions, colors, or required clear space.

D. Mounting & Maintenance: The banner shall be mounted securely to the side of the field office trailer at a location designated by the Contracting Officer's Representative (COR). If the banner is damaged, or if its colors fade or deteriorate such that it no longer appropriately represents the USACE office, the Contractor shall replace the banner promptly at no additional cost to the Government.

## 2.4 UTILITIES

Utilities shall be connected and disconnected in accordance with local codes and to the satisfaction of the Contracting Officer. The Contractor shall be responsible for the cost of all utility usage to include contractor-provided commercial fiber internet connection for government use. Two wireless access points (WAP) are to be installed as prescribed in para 2.7.C.8 for this network only. The Contractor shall provide all necessary equipment to support the network connections and telephone service to the government Field Office. Exposed utilities shall be insulated to prevent freezing.

## 2.5 MANUFACTURER

Manufacturers shall be regularly engaged in the construction and on-site erection of relocatable modular buildings or trailers.

## 2.6 FIELD OFFICE SITE WORK, PARKING, AND DRAINAGE

A. Site Drainage and Standing Water:

The Contractor shall design and grade the field office site and parking areas to maintain positive drainage away from all structures, walkways, and vehicular areas. The site shall not have standing water around the trailer or parking lots for more than 24 hours after a rain event. The Contractor shall make every effort and execute all necessary work to ensure water adequately drains away from the field office and the parking areas. This includes constructing drainage swales, ditches, or installing sump pits and automatic pumps to actively drain and pump water away from the field office and parking spaces.

B. Gravel Parking Lot Construction:

If paved parking is not available, the Contractor shall construct a gravel parking lot and haul/access road to accommodate the number of vehicles designated by the Capacity Tier in Paragraph 2.1 (25 spaces for Tier 3 Baseline).

1. The parking area and access road shall be constructed of a minimum of 4 inches of compacted crushed stone or gravel over a prepared and compacted subgrade.

2. The gravel parking area shall be continuously always maintained, to include grading, tamping, and adding gravel as needed to maintain a safe, stable walking and driving surface, and to prevent tracking of mud.

3. No potholes greater than 3 inches in depth or width shall be permitted in the parking or driving areas. Any potholes or depressions shall be filled with aggregate and compacted within 24 hours of occurrence.

4. Provide signs designating "USACE/GOV Parking Only" areas.

C. Vegetation and Growth Control:

The Contractor shall apply base-approved, non-selective herbicides as necessary, complying with JBSA environmental guidelines (802 CES), to maintain these areas 100 percent free of vegetation. The use of chemical soil sterilant is strictly prohibited.

## 2.7 FIELD OFFICE REQUIREMENTS

The office shall be securely anchored to the ground per manufacturer's recommendations to guard against movement during high winds.

A. Site Drainage and Standing Water:

1. The parking area and access road shall be constructed of a minimum of 4 inches of compacted crushed stone or gravel over a prepared and compacted subgrade.

2. Equip with hot water heaters, overhead lighting in accordance with UFC 3-530-01 / IESNA RP-1 standards, and have adequate air conditioning, heating, and potable water supply. One electrical outlet shall be in each restroom.

3. All above-ground water lines shall be insulated and protected from inclement weather. Pipe insulation shall be always maintained in good condition.

4. The walls and ceiling of the project office shall be insulated, and the interior and exterior walls shall be of prefinished material.

5. The interior walls of the conference/meeting rooms, breakroom, restrooms and Resident Engineer's office shall be insulated for noise control.

6. The government trailer shall be skirted with material to match the exterior of the trailer. The skirting is to be always maintained in good condition, free of damage, and secured to prevent animals from accessing under the trailers. There shall be a 2' gravel mow strip around the perimeter of the trailer.

B. Room Configuration (Tier 3 Baseline):

The Government project office shall have a minimum of:

1. 6 private offices

2. 1 telecommunication (communication) room (located on an exterior wall to facilitate dedicated mini-split installation)

3. 1 break room

4. 1 large conference room

5. 1 storage room (separate from IT room)

6. 1 man's and 1 women's restroom (each equipped with toilet paper holder, paper towel dispenser/holder, wall-mounted soap dispenser, and free-standing 5-shelf storage system)

7. Multipurpose workspace/common area to seat 8 personnel

8. Space for a minimum of 6 cubicles

C. Doors, Windows, and Entryways:

1. The windows and doors shall be screened, and the doors provided with deadbolt-type locksets. The windows shall be operable and securely fastened from the inside. Windows shall be provided with operable mini blinds. Glass panels in windows shall be protected by bars or heavy mesh screens to prevent easy access to the building through these panels.

2. Exterior door hinge pins shall be non-removable. All exterior

doors shall have heavy-duty door closures to prevent wind damage and be able to be placed in the locked-open position as needed. The restroom, telecommunication room, and supply room doors shall all be equipped with door closures. All interior doors will include a rubber doorstop/wedge.

3. Main entrance shall be equipped with a double door with a removable astragal. The double door orientation shall match up to newly constructed porch or any existing covered porch already on-site. Any adjustments to the porch/breezeway needed to match up to the new trailer is the responsibility of the contractor.

4. There shall be 2 boot brushes secured near the entrance of the new resident trailer and 1 boot brush mounted on the porch at each exit of the trailer. Slip-resistant material shall be provided on the exterior ramp and all stair landings.

5. All exterior doors shall be covered (minimum size 8' x 8') with steps landing on concrete sidewalks or approved surfaces. Additional 36" sidewalks shall be placed from each door exit to the parking lot for the field office.

6. There shall be heavy-duty entry mats 3' x 6' at each entryway of the new job trailer.

7. There shall be a water spigot installed to the handrail of the covered entryway to include 50' of hose with spray nozzle hung on a hose rack to facilitate washing the covered entryway. There shall be hose spigots on all four corners of the trailer.

8. Telecommunication (Communication) Room: The communication room shall be located on an exterior (outside) wall to facilitate the installation, venting, and maintenance of a dedicated ductless mini-split system. This room houses a dedicated government network rack, uninterruptible power supply (UPS), network switch, and router, and experiences high heat loads. The dedicated mini-split system shall feature an independent thermostat to ensure the space is continuously and reliably conditioned (24 hours/day, 365 days/year). The room shall be secured with a physical lock and key, and shall be keyed differently than any other room, office, or space in the field office facility to restrict unauthorized access. The door shall be equipped with a heavy-duty door closure. The room shall include a backing board of rigidly fixed, 3/4-inch A-C plywood that can support the full weight of the wall-mounted rack/cabinet.

9. Life Safety: There shall be battery-operated smoke detector alarms in each room or as required by code. At a minimum, there shall be at least one illuminated exit sign installed at each exit door, and additional directional exit signs as required by code. There shall be way finding signage to the nearest exit as required by code.

10. Keying: The Resident Engineer's Office shall be keyed separate from all other rooms. The telecommunication (communication) room shall be keyed separate from all other rooms and keyed differently than any other space in the office. All exterior doors will be keyed the same. No other doors will require locking capability. All doors shall have lever style door handles. Contractor is to

provide 20 sets of exterior door keys and 2 sets of key for each interior door that has key lock hardware.

11. Lease Maintenance: The contractor shall maintain the lease for the trailers for the duration of the contract, plus up to 90 days after contract completion.

## 2.8 EQUIPMENT AND FURNISHINGS (Tier 3 Baseline)

All items are to be new, unused, and shall be assembled and mounted by the contractor.

### A. TELECOMMUNICATIONS:

1. Utilities, Telephone, and Internet: The field office is to be supported by a commercial fiber high-speed broadband connection with a typical gigabit connection speed to support an office of 30 personnel and office equipment. The commercial high-speed internet service provider (ISP) handoff and router shall be installed within the Storage Room. The commercial network equipment shall be housed in a separate, lockable, wall-mounted cabinet. All WAP data drops shall terminate at the commercial network switch inside the Storage Room. There will need to be two wireless access points (WAPs) located at the weakest signal strength locations within the field office. COR is to approve the location of the devices. The WAP is to be ceiling mounted and power over ethernet cable. This is separate from the government network services.

2. Government Data Drops & Patch Panels: Provide two data drops on the same wall plate on two opposite walls of each office and at each cubicle. All data drops must be terminated to a 48-port patch panel in the telecommunication room. There will need to be two data drops above the ceiling at locations to be determined by the COR for Government furnished WAPs (GIGF).

3. Support Equipment: Label each cable, wall plate, and patch panel in the IT/office room and provide a final as built of the network system with cable and wall plate naming. Network cables shall be a minimum of CAT6E. Network cable and equipment shall comply with Appendix A - 30540 ACE-IT Enterprise Standard - Cable Plant and Appendix B - Technical Criteria for The Installation Information Infrastructure Architecture. A grounding bus bar shall be installed in the telecommunication room in compliance with Appendix A.

4. Conduits and Fiber Routing: Run a 3" PVC conduit with long sweep 90-degree elbows turned up through the floor of the ATC8 Field Office Telecommunication Room to the DCF4 Telecommunication Room. Stub the conduit up through the floor in one of the corners of the telecommunication room. This shall be run underground and not run on the surface, unless approved by the COR. Route new single-mode fiber cable between DCF4's trailer and ATC8's trailer through this dedicated conduit and terminate the fiber on both ends. The COR is to dictate the type of termination ends that are required. The contractor shall bring the fiber cable currently on-site from the pole to inside the DCF4 communication room. All fiber shall be tested end-to-end, to include the pole-mounted fiber cable.

5. Copier/Printer: Provide 1 new combination copier, printer, and

scanner connected to contractor-furnished office network (printer must connect both wired and wirelessly to the contractor-provided commercial network); verify unit shall have features like those of Lexmark MX911dte printer package. Furnish cables and continuous supply of ink/toner cartridges and paper (assume 1 box of 10 reams of 8-1/2" x 11" 20lbs paper per month and 2 reams of 11" x 17" 20lbs paper per month). Printers and copier machines shall also be new and covered by manufacturer's standard warranty plus a service/repair contract for the duration of this contract. The printer is to be wired to the commercial network router/switch

6. Tablets: Provide 5 tablets (android or iOS) compatible with the contractor's in-house software to monitor and track the progress of the project. The tablets shall be fully set up and ready for use when turned over to the government. Training in the software that will be utilized for contract document management (i.e., Procore and REVIT) will be a minimum of 4 hours to ensure basic competency on day-to-day use. These tablets shall have at least a 10" screen and have the ability to take photos and video. The tablets shall have at least 256GB of memory internal or via MicroSD card. Tablets shall include all necessary software to operate in a field environment (Bluebeam, MS Office, Adobe Reader, Autodesk Viewer or Autodesk Revit viewer with subscriptions are required, and other software that aligns with the contractor's internal software requirements, such as PlanGrid or Procore). All software shall be licensed for the life of the contract plus 365 days from BOD for use during the turnover and warranty period, utilizing standalone licenses or a shared concurrent license for up to 5 users. The contractor shall provide training for USACE personnel assigned to the project (up to 7 people) at the time the tablets are turned over. All standard maintenance and upkeep of the tablets and software shall be the contractor's responsibility. Tablets will not require a separate data plan but must connect via Wi-Fi. Each tablet shall include a protective outer case and screen protector like an OtterBox case, featuring a shoulder/around-the-neck strap and hand strap. The contractor shall replace the tablets for internal damage or issues not related to neglect or drops.

B. CONFERENCE/MULTIPURPOSE AREA:

1. Conference Table: Conference table with 20 height-adjustable swivel chairs equal to U-Line Ergo Mesh Chair Model H-7690, and 20 additional chairs along the conference room wall to match existing conference room chairs (Lorell LLR41848). The conference room tables, and the multipurpose area shall be equipped with single-sided power pop-up at each sitting location There shall be enough power and network port in the popups to support the number of seats at each table. (20 for the conference room and 8 for the multi-purpose room). The table(s) shall have access to power and network from floor boxes. Ensure these cables are properly secured and do not create a tripping hazard.

2. 3 ea. bookcases (minimum 60 inches tall, 32 inches wide, and 15 inches deep). One to be in the conference room and 2 are to be in the multi-purpose room.

3. 1 ea. glass marker board (4 feet by 8 feet) with eraser shelf and dry-erase pen tray secured to the large conference room wall as

directed by the COR.

4. Plan table work area minimum of 4' x 9' constructed of plywood with supporting legs to the floor and roll edge along the bottom and sides of the plan table, with full depth shelf below the work area. The construction of the work area is to be distributed at locations to be determined by the COR.

5. Wall-mounted plan racks with a minimum of 20 plan bars for full-size plans shall be in the multipurpose.

6. Approximately 24 sq ft of pegboard mounted were directed for additional sample storage. There shall be a separate 4' x 3' pegboard mounted in a location directed by the COR for bulletins.

7. Displays: Wi-fi-enabled display monitors (not less than 75") wall-mounted (2 ea) in the large conference room with connection cables. One display shall be located at the end of the table, and the 2nd display should be placed on the Power network, and Audio/Video (HDMI) connection boxes shall be mounted behind the displays and concealed. There shall be an HDMI port in the floor boxes from the displays. Displays in the large conference room shall be wired such that they can display separate or simultaneously.

8. Floor Boxes: Place at least two floor boxes in the large conference room with power, network cable, and A/V connections to support multipurpose meeting requirements. These floor boxes should be located as such that it does not create a tripping hazard based on the table configuration. There shall be two floor boxes under the table of the multipurpose area to provide power and network access.

9. Cord Protection: Provide 50' of rubber cord protector (u-line multiwire 3.25" wide) for use in the large conference room.

10. Cable Management: All power and network cables shall be secured neatly to prevent trip hazards.

11. There shall no less than a total of 3 electrical wall outlets on each of the four walls of the conference room in addition to the floor outlets and the outlets behind the displays.

12. Entrance Display: Provide 1 ea 55" or greater wi-fi enabled display to be wall-mounted near the front entry. Power, network, and AV connection box shall be mounted behind the displays and concealed. The devices shall include at least 2 HDMI ports, network cable port, and USB ports.

C. Storage Room (separate from IT Room): Min 8' x 10':

1. Storage Room (separate from IT Room): Min 8' x 10'

2. 2 ea. lockable supply lockers for office supplies (double doors standard 6' tall with adjustable metal shelves).

D. Breakroom (shall be at opposite end of the trailer from the main

entrance and shall not share a wall with the main conference room):

1. Bottled water cooler dispenser & hot water dispenser. Provide bottled water and paper cups for duration of contract. (Assume that you will provide 2 - 36 counts of water bottles per month). Provide an electrolyte substitute product such as Quencher's and drip drops during peak summer months (Apr - Sept).

2. 2 tables (3' diameter and a 8' rectangular ) and 10 chairs.

3. Microwave x 2 (1.5 cu. foot or larger) with dedicated microwave stand or cabinet mounting without restricting counter space.

4. Refrigerator x 2 (full-size residential refrigerator with water and ice dispenser; contractor is responsible for water filter replacements). Each refrigerator must have a dedicated water line for the water and ice dispenser.

5. Coffee maker (Keurig K-Duo Essentials Coffee Maker, with Single Serve K-Cup Pod and 12 Cup Carafe Brewer).

6. 1 double basin 8" - 9" deep kitchen sink, spray nozzle faucet, and a garbage disposal on one side of sink (if connected to sewer system).

7. Two (2) ea. - 18-gallon trashcans (Rubbermaid FG614500).

8. Display: Provide 1 ea 55" or greater wi-fi enabled display to be wall-mounted at a location dictated by the COR. Power, network, and AV connection box shall be mounted behind the displays and concealed. The devices shall include at least 2 HDMI ports, network cable port, and USB ports.

E. Each Office:

1. Desk: provide a free-standing desk that is sized at least 70-inches by 30-inches with a center drawer and a 3-drawer base, plus a 2-drawer file cabinet to fit under the desk. In addition to the free-standing desk, you shall provide an adjustable height standing desk that is at a minimum 60" X 30". Each desk area will have a cable management system to securely store and conceal computer and network cabling. A network cable outlet must be located on the same wall as the preferred desk location for each office.

2. Height-adjustable swivel chair equal to Knoll Inc. model: 33AA1BKTSX.

3. Two visitor chairs equal to Lorell LLR41845.

4. 3-drawer lockable file cabinet.

5. 1 ea. bookcase (minimum 60 inches tall, 32 inches wide, and 15 inches deep).

6. Marker board (approximately 3 feet by 2.5 feet) mounted on the wall in each office.

7. 3-gal plastic trash can.

8. Double wall hooks: 2 ea. double wall hooks secured to the back of the door to allow storage of a hard hat and a safety vest.

F. Resident Engineer's Office:

1. Sized large enough to accommodate a small meeting table (minimum 4' diameter) and 4 chairs to match desk chairs.

2. Includes all standard office items listed in Paragraph 2.5.E.

3. Sized to include a wall-mounted monitor (minimum 32") at a location to be determined by the COR based on room layout. Power, data, and HDMI cable shall be installed behind the monitor. HDMI cable shall be routed to a data plate near or behind the desk or near the conference table as determined by the COR.

G. Each Cubicle:

1. The minimum size of each cubicle is 7' x 8'.

2. Desk: provide a free-standing desk that is sized at least 70-inches by 30-inches with a center drawer and a 3-drawer base, plus a 2-drawer file cabinet to fit under the desk. In addition to the free-standing desk, you shall provide an adjustable height standing desk that is at a minimum 60" X 30". Each desk area will have a cable management system to securely store and conceal computer and network cabling. A network cable outlet must be located on the same wall as the preferred desk location for each office.

3. There shall be 1 office chair (Height-adjustable swivel chair equal to Knoll Inc. model: 33AA1BKTSX) and 1 visitor chair equal to Lorell LLR41845.

4. The free-standing portion of the desk shall have overhead shelving with doors and support a desk/task led light.

5. Marker board (approximately 3 feet by 2.5 feet) with hardware to be mounted on the cubicle wall.

6. 3-gal plastic trash can.

7. Wardrobe cabinet: 1 ea. wardrobe cabinet equal to MooreCo ST.FO.CBW.STW.2D.FF (either Left or Right swing depending on orientation).

8. Hard Hat and Vest Storage: Each cubicle area shall be equipped with 2 ea. double hooks secured to the wall or cubicle furniture for safety gear storage.

2.9 VEHICLES FOR GOVERNMENT USE

~~As Contractor-furnished property, the Contractor shall furnish and continuously maintain four new vehicles (equivalent to a John Deere Gator Utility Vehicle, standard series, 6X4) for exclusive use of the Government for quality assurance purposes on the job site. The vehicles shall be provided within 21 days of notice to proceed and shall be continually furnished with but not limited to the following items: gas, oil, insurance~~

~~and proper tires. The vehicles shall be limited to not more than 1000 miles per month total for bidding purposes. Twenty one (21) days after final acceptance of the work, the vehicles shall be returned to the Contractor.~~As Contractor-furnished property, the Contractor shall furnish and continuously maintain designated Tier vehicles (4 new four (4)-seater vehicles for Tier 3 Baseline equivalent to a Polaris Rangers 4X4) for exclusive use of the Government for quality assurance purposes on the job site. Each vehicle will include a minimum 32 QT ice chest secured in the bed of the vehicle with quick-release devices that can be locked to prevent theft but allow removal for cleaning/draining. If a vehicle is inoperable for more than 7 days, the contractor shall provide at no cost the government with a temporary vehicle similar in capacity in clean and safe working conditions. The vehicles shall be provided within 21 days of notice to proceed and continually furnished with: proper storage, insurance, proper tires, and fuel for the duration of the contract. Mileage is limited to 1,000 miles per month total for bidding purposes. Each vehicle shall be equipped with a portable fire extinguisher inspected and replaced as needed by contract requirements. Each vehicle must be equipped with safety belts, side doors or webbing at all side entry points, windshield wipers, and working headlights, taillights, blinker and a separate orange safety light that can be controlled in the cab. The beds of the vehicles shall be dumping beds. Twenty-one (21) days after final Contract Completion Date, the vehicles shall be returned to the contractor.</AM#0003>

PART 3 EXECUTION

3.1 ERECTION

<AM#0003>~~Erect the building in accordance with building manufacturer's written recommendations at a location designated by the Contracting Officer. Securely anchor trailer(s) to the ground at all four corners to guard against movement during high winds. Water and weather proof the unit and make ready for use within 45 days after Contract Notice to Proceed.~~ Erect the building in accordance with building manufacturer's written recommendations at a location designated by the Contracting Officer. Securely anchor trailer(s) to the ground at all four corners to guard against movement during high winds.

A. Skirting and Foundation Gravel Bed (Mow Strip):

1. Under-Trailer Gravel Bed & Mow Strip: A 6-inch-thick gravel bed consisting of 3/4-inch to 1-1/4-inch washed aggregate shall be placed under the entire footprint of the trailer prior to setup. This gravel bed shall extend 2 feet beyond the outer perimeter of the trailer skirting on all sides, serving as the permanent mow strip.

2. The trailers shall have skirted around them from the bottom of the trailers to the ground with no more than 2 inches of space between skirt and ground. The skirting matches the exterior of the trailer and is always maintained in good condition, free of damage, and secured to prevent animals from accessing under the trailers.

3. Weed Barrier & Edging: A heavy-duty geotextile weed guard fabric shall be installed beneath the entire 6-inch gravel bed and mow strip. Durable metal or plastic edging strips shall be installed along the outside edge of the mow strip.

4. Schedule: Water and weatherproof the unit, connect all utilities,

and make the entire facility ready for occupancy and use within 45 days after the Contract Notice to Proceed (NTP).

</AM#0003>

3.2 JANITORIAL SERVICES

<AM#0003>~~Provide daily janitorial services, trash collection, and building maintenance during the life of the Contract.~~Provide janitorial services and trash collection three times per week, along with building maintenance during the life of the contract. The Contractor shall be responsible for maintenance and repair of the office during the life of the contract.

A. Supplies: The contractor shall provide toilet paper, paper towels in each restroom and kitchen/common area, and all necessary cleaning supplies for janitorial services and for government staff use (including daily cleaning and sanitation of work areas). This includes hand soap in the restrooms and kitchen sink, along with hand sanitation stations with hand sanitation solutions inside each exterior doorway.

B. Scope: Services shall include sweeping, vacuuming, and mopping of all floors, emptying trash and recycling receptacles, and wiping down all hard surfaces including tables, counters, desks, and chairs.

</AM#0003>

<AM#0003>3.3 PEST AND RODENT CONTROL

The Contractor shall provide professional pest and rodent control services for the entire field office facility on a quarterly basis, and more frequently if field conditions or infestations warrant. Services shall include the placement and maintenance of pet-safe and wildlife-safe outdoor bait stations around the exterior perimeter and under-trailer area, and interior spot treatments as needed to maintain a pest-free work environment.

</AM#0003>

3.4 MAINTENANCE AND REPAIR

<AM#0003>~~The Contractor shall be responsible for maintenance and repair of the office during the life of the Contract.~~The Contractor shall be responsible for maintenance and repair of the Government Field Office to include all contractor-furnished equipment, utilities, HVAC systems, appliances, and furnishings during the life of the Contract. All service calls shall be responded to within 12 hours from notification for routine repairs and within 2 hours for emergency repairs.</AM#0003>

3.5 RELOCATION

The Contractor shall be responsible for relocating the Government Field Office should it be required to accommodate the sequence of construction. The relocation will be at no expense to the Government.

<AM#0003>3.6 SITE RESTORATION AND DISPOSITION

The office, including all furniture, equipment, and vehicles, shall remain the property of the Contractor. The contractor shall demobilize the provided Government field office facility, remove all associated equipment and utilities, and restore the site to it preconstruction condition to

include established vegetation

The unpaved parking area, access roads, the area under and around the trailer, and all associated utility corridors must be restored to their pre-construction condition at the completion of the contract. This includes removal of all constructed gravel beds, mow strips, fabric barriers, drainage features, sidewalks, and utility lines, followed by grading, topsoil replacement, and seeding/sodding as required by the base. The Government reserves the right to delay vacating the office premises for up to 90 days following final acceptance of complete construction.</AM#0003>

<AM#0003>~~3.5 OWNERSHIP AND DISPOSITION~~

~~The office, including all furniture and equipment, shall remain the property of the Contractor at completion of the construction. The Contractor shall remove the unit and all associated equipment and utilities after the Government vacates the office. The Government reserves the right to delay vacating the office premises for up to 21 days following final acceptance of completed construction.~~

</AM#0003> -- End of Section --

SECTION 01 57 20

ENVIRONMENTAL PROTECTION
<AMENDMENT 0003>

## PART 1 GENERAL

### 1.1 REQUIREMENTS

This specification covers the requirements for environmental protection during all construction and maintenance activities. The contractor shall minimize environmental pollution and damage during the course of the contract. The control of environmental pollution and damage requires consideration of land, water, and air resources. The environmental resources within the project boundaries and those affected outside the work area shall be protected during the entire duration of this contract.

This guidance applies to all contractor activities at Joint Base San Antonio (JBSA). These areas include JBSA Lackland (JBSA-LAK), JBSA Chapman Training Annex (JBSA-CTA), JBSA Port Annex (JBSA-PRT), JBSA Kelly Field Annex (JBSA-KFA), JBSA Randolph (JBSA-RND), JBSA Seguin Auxiliary Field (JBSA-SAF) JBSA Canyon Lake (JBSA-CAN), JBSA Sam Houston (JBSA-SAM), JBSA Medical Center Annex (JBSA-MCA), JBSA Grayson Street Annex (JBSA-GSA) and JBSA Bullis (JBSA-BUL).

The following lists are the general environmental phone numbers for JBSA Environmental point of contacts.

JBSA Environmental contact phone numbers
JBSA-RND/CAN/SAF: 210-652-4668
JBSA-SAM/BUL/MCA/GSA: 210-221-1142
JBSA-LAK/CTA/KFA/PRT: 210-671-4844

### 1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced and constitute only major areas of environmental concern. Contractor shall determine which federal, state, and local environmental regulations apply. The publications are referred to within the text by the basic designation only.

STATE OF TEXAS ADMINISTRATIVE CODE (TAC)

| | |
|---|---|
| 25 TAC 296 | Texas Asbestos Health Protection |
| 30 TAC 106 | Permits by Rule |
| 30 TAC 116 | Control of Air Pollution by Permits for New Construction or Modification |
| 30 TAC 213 | Edwards Aquifer |
| 30 TAC 290 | Public Drinking Water |
| 30 TAC 330 | Municipal Solid Waste |
| 30 TAC 334 | Underground and Aboveground Storage Tanks |

| | |
|---|---|
| HSC 382.0518(a) | Preconstruction Permit |

U.S. AIR FORCE (USAF)

| | |
|---|---|
| AFMAN 32-7002 | (2020) Environmental Compliance and Pollution Prevention |
| DAFMAN 32-7003 | (2024) Environmental Conservation |

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

| | |
|---|---|
| 29 CFR 1926.62 | Lead |
| 40 CFR 745 | Lead-Based Paint Poisoning Prevention in Certain Residential Structures |
| 49 CFR SUBCHAPTER C | Hazardous Materials Regulations |

1.2.1 TEXAS ADMINISTRATIVE CODE (TAC)

Texas Pollutant Discharge Elimination System (TPDES)Multi-Sector General Permit (CGP)) (Permit No. TXR150000) - contact 802 CES/CEIE https://www.tceq.texas.gov/permitting/stormwater/construction

Stormwater Pollution Prevention Plan (SWP3) - The CGP requires construction site operators to develop and implement a Stormwater Pollution Prevention Plan (SWP3) prior to commencing construction. https://www.tceq.texas.gov/permitting/stormwater/construction

JBSA Stormwater Management Plan (base specific) TPDES Municipal Separate Storm Sewer (MS4) (Permit No. TXR040000) - Contact 802 CES/CEIE

TPDES Multi-Sector General Permit (MSGP) (Permit No. TXR050000) Contact 802 CES/CEI

1.2.2 INSTRUCTIONS AND DIRECTIVES

All JBSA instructions and directives are available through 802 CES/CEIE Environmental Offices and the Enterprise Environmental Information System (provided upon request). It is the contractor's responsibility and requirement to coordinate all communications with the JBSA Environmental Office through the Contracting Officer's Technical Representative.

" Location-specific Spill Prevention Control and Countermeasure (SPCC) Plans

" JBSA-RND and Lackland Facility Response Plan

" JBSA Hazardous Waste Management Plan

" JBSA Integrated Solid Waste Management Plan

" JBSA Asbestos Management and Operations Plan

" JBSA Lead-Based Paint Management Plan

" JBSA Soil Management Plan

" JBSA Installation Restoration Program (IRP) and IRP Management Action Plan

" JBSA Location Specific, Storm Water Pollution Prevention Plans (SWP3)

" JBSA Location Specific, Storm Water Management Plans (SWMP)

" JBSA Integrated Cultural Resource Management Plan

" JBSA Integrated Natural Resource Management Plan

" 502d Air Base Wing Environmental Management System (EMS) Policy

" JBSA Critical Period Management Plan

1.2.3 USAF INSTRUCTIONS

AFI 32-1001 Chapter 15 Facility Asbestos Management

AFI 32-1001 Chapter 14 Corrosion Control Program

DAFMAN 32-1067 Sect. 4.3 Backflow Prevention Program

AFI 32-7001 Sect. 4.4 Pollution Prevention

1.3 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Refer to Section 01 33 00 SUBMITTAL PROCEDURES for requirements when a classification other than "G" or "S" are used. Submittals not having a classification are for information only. Submit the following, when applicable, in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 PRECONSTRUCTION SUBMITTALS

ENVIRONMENTAL PROTECTION PLAN; G

Z Fish and Wildlife Protection Measures; G

Environmental Permit; G

Asbestos Work Plans; G

Asbestos Certifications; G

Asbestos Transporter License; G

Asbestos Medical clearances; G

Asbestos Training Certificates; G

Asbestos TDSHS License; G

Unsigned copy of State Renovation; G

Unsigned Demolition Notifications (15 days prior); G

Edwards Aquifer Protection Plan (As Applicable); G

Lead Work Plans; G

Lead Occupant Protection Plan; G

Texas Department of State Health Services Lead Licenses; G

Lead Notifications; G

Acknowledgement Of Api Std 650; G

Aboveground Piping Systems; G

Stormwater Pollution Prevention Plan; G

Equipment Inventory List; G

Waste Disposal Plan; G

Construction Tpdes Notice Of Intent And Site Notices; G

Construction Site Notice Or Notice Of Intent; G

Hazardous Waste Management Plan; G

Integrated Solid Waste Management Plan; G

Hazardous Material List; G

Emergency Response Plan And/Or Site Specific Spill Prevention Response Plan; G

Summary Transmittal Letter; G

SD-03 Product Data

Safety Data Sheets (SDS) For All Materials; G

SD-06 Test Reports

Commercial Facility Lead Contaminated Waste Shall Be Characterized, Profiled, And Manifested; G

Return Manifests And Weight Tickets; G

Monthly Diversion And Landfill Reports; G

Any Asbestos Inspection Reports That Were Not Included In The Original Assessment Or As A Result To A Change In The Sow Or Found As Unknown And Unforseen Discoveries During Any Phase Of He Project; G

Asbestos Inspection Reports That Have Not Been Provided By The Area Specific Env Office; G

Lead Based Paint Reports -Not Included In Original Assessment Or Results In Change Of Sow; G

Lead Inspection Reports- Not Provided By JBSA Env Office or by licensed Lead Inspector; G

OSHA Air Monitoring; G

Lead OSHA Negative Exposure Assessment; G

Asbestos Air Monitoring reports; G

(a) Baseline
(b) Aggressive sample reports
(c) All clearances

Lead Air Monitoring reports; G

(a) Air Baseline Survey
(b) Aggressive sample reports
(c) All clearances:
  1. Visual Inspection
  2. Dust Wipe Samples analyzed by a certified Environmental Lead Laboratory

Analytical Results; G

SD-07 Certificates

Certificate Of Training Asbestos; G

Certificate Lead Training; G

EPA Lead Training Or Lead Awareness Training (Min 8Hr); G

Stormwater Notice Of Change (for NPDES coverage under the general permit for construction activities); G

SD-11 Closeout Submittals

Notice Of Termination at end of construction; G

## 1.4 QUALITY ASSURANCE

Contractor shall establish and maintain quality control for environmental protection of all items set forth herein. The Contractor shall record on daily reports problems in complying with laws, regulations, permit requirements, ordinances, and corrective action taken. The Contractor shall immediately inform the Contracting Officer of any environmental problem.

The prime Contractor will have the sole responsibility to ensure all the subcontractors comply with all environmental protection requirements in this specification.

## 1.5 CONTRACTOR COMPLIANCE

### 1.5.1 Permits

The contractor shall ensure that all local, state, and federal environmental permits (to include notifications and authorizations for the remainder of this document) for this contract are obtained prior to start

of construction and/or installing or operating any equipment or disturbing or clearing any land area. The contractor shall immediately notify 802 CES/CEIE of any conditions which may conflict with approved permits.

1.5.1.1 Permit Coordination

The contractor shall coordinate required permits with 802 CES/CEIE.

1.5.1.2 Permit Operations

The contractor shall be responsible for operating within permit limits and abiding by all permit conditions. Failure to comply with permit requirements, to include permits held by JBSA and/or any subsequent fines resulting from such failure are the sole responsibility of the contractor. 802 CES/CEIE shall be notified immediately of instance that exceeds the limits of the permit or a violation of permit conditions.

1.5.1.3 Permit Certifications

Certifications required by permits shall be the responsibility of the contractor. Copies of permits and certifications shall be submitted to the 802 CES/CEIE. The contractor shall maintain and have readily available a copy of required permits. The Contractor shall ensure personnel read, understand, and abide by all conditions and requirements of the environmental permits.

1.5.2 Wastewater

Contractors shall submit a summary transmittal letter to the 802 CES/CEIE Environmental to obtain approval from the Texas Commission on Environmental Quality (TCEQ) Wastewater Design Team, provide a copy to 802 CES/CEIE Environmental for projects that include work or modification of lift stations, treatment plants, and/or collection system lines. It is the contractor's responsibility and requirement to coordinate all communications and submittals of plans and documents with 802 CES/ CEMP Project Managers and Contracting Representative.

No Discharges to JBSA sanitary sewers are allowed unless prior approval by 802 CES/CEIE. Contractors shall not discharge any waste that will violate JBSA specific area wastewater discharge permits. A Request shall be submitted in writing along with documentation of waste to be discharged, i.e., Safety Data Sheets (SDS) or sample analysis results, to include chain-of-custody and QA/QC data.

The JBSA-RND sanitary sewer is owned by the San Antonio River Authority (SARA). It is the responsibility of the PM and contractor to ensure that any work dealing with installation or removal of sanitary sewer lines is done in coordination with and, if necessary, the approval of SARA. http://www.sara-tx.org

1.5.3 Public Water Systems

In accordance with 30 TAC 290 section 39, changes or additions to previously approved plans and specifications, existing systems, or supplies shall have approval from the TCEQ executive director prior to commencing construction or supporting activities. All applicable Pre-Construction Submittal documentation shall be submitted to 802 CES/CEIE for review. Construction shall not commence prior to written approval from the TCEQ executive director for each project, or partial section. TCEQ requires

plans be submitted at least 30 days prior to the time that approval, comments, and recommendations are desired. For phased projects, TCEQ approval can be obtained for each phase by submitting a certification of completion package for each phase as a partial completion of the entire project. All associated documentation (Certification of Completion Form, as-built drawings, bacteriological analysis, pressure test results, etc.) shall be submitted to 802 CES/CEIE and Bioenvironmental for review. The Base Utility Supervisor shall be provided a copy of the TCEQ clearance for each project or partial section before activating or reactivating the public water system to that area.

Disinfection and bacteriological testing of water system components shall be conducted in accordance with TCEQ regulations and American Water Works Association (AWWA)standards. Bioenvironmental and the Base Utility office shall be notified of all disinfection and bacteriological testing activities. New or repaired portions of the public water system shall not be placed into service until coordination with Bioenvironmental and bacteriological testing are complete. Contractors shall not obstruct drinking water sample collection specified points throughout distribution.

Contractors shall coordinate with installation Water Quality Program Manager for permitting requirements associated with any water well projects. Water system projects require review and approval by the 802 CES/CEIE.

### 1.5.4 Storm Water Pollution Prevention

Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP) (Permit No. TXR150000) coverage shall be obtained, by the contractor, at least 7 days prior to commencing construction or construction support activities for projects disturbing one acre or greater of land, including equipment/material storage yards or temporary access roads. The contractor is responsible for submitting documentation (Notice of Intent (NOI), small/large construction site notice (CSN), inspection records, Notice of Termination (NOT), etc.), providing notifications, and paying applicable fees to local (MS4 Operator - 802 CES/CEIE), state, and federal authorities, as applicable.

Contract operators disturbing greater than 1 acre of land shall maintain compliance with applicable CGP conditions for Small or Large Construction Sites (defined in the CGP). Contract operators disturbing less than 1 acre of land shall implement best management practices (BMPs) to prevent the discharge of pollutants into the MS4.
https://www.tceq.texas.gov/permitting/stormwater/construction/index

The contract operators shall ensure Stormwater Pollution Prevention Plan (SWP3) is designed, implemented, and maintained in compliance with the CGP for the duration of the project (final stabilization and submittal of NOT to MS4 Operator - 802 CES/CEIE). The SWP3 and required documentation shall be maintained on site and made available for review upon request by local, state, and federal authorities.

### 1.5.5 Edwards Aquifer Recharge and Contributing Zones

Portions of JBSA-BUL are located in the Edwards Aquifer recharge and contributing zones. The TCEQ has developed specific requirements for construction within these areas in an effort to protect Edwards Aquifer groundwater. The contractor shall comply with all requirements listed in 30 TAC 213 relating to the Edwards Aquifer. Construction in the Edwards

Aquifer Recharge Zone requires approval from the TCEQ and development of an Edwards Aquifer Abatement Plan. Construction which disturbs 5 acres or greater in the Edwards Aquifer Contributing Zone requires TCEQ approval and the development of a Contributing Zone Plan. The contractor shall be responsible for all compliance costs associated with 30 TAC 213. The Contractor shall submit all Recharge and Contributing Zone Plans developed for construction activities at Camp Bullis to 802 CES/CEIE for review.

## 1.6 ENVIRONMENTAL PROTECTION PLAN

The Contractor shall submit an Environmental Protection Plan within 15 days after receipt of the notice to proceed. Approval of the Contractor's plan will not relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures. The contractor shall obtain approval from the Contracting Officer prior to the start of construction, modification, or demolition for all project facilities and/or equipment. The plan shall include, but shall not be limited to, the following:

a. Environmental protection procedures to be implemented to provide the required environmental protection of features to be protected within the work area (e.g., trees, grasses, air and water quality, historical, and cultural resources, etc.). All projects that take place over the Edwards Aquifer Recharge or contributing zones will require a specific Edwards Aquifer Protection Plan.

b. Drawings showing locations of any proposed BMPs, temporary excavations or embankments for haul roads, stream crossings, material and/or waste storage areas, structures, sanitary facilities, and temporary stockpiles of excess or spoil materials shall be included.

c. Solid Waste Management Plan and summary of solid waste generated, in accordance with paragraph INTEGRATED SOLID WASTE MANAGEMENT (NON-HAZARDOUS WASTE AND RECYCLING).

d. Emergency Response and Spill Prevention Plan, IAW paragraph 3.12 EMERGENCY RESPONSE, SPILL PROCEDURES, FUEL TANKS and paragraph 3.16 Explosive Ordnance.

e. Hazardous Material List, IAW paragraph 3.10.3 Coordination.

f. Prior to start of construction, a site-specific certified Storm Water Pollution Prevention Plan shall be developed for projects over 1 acre and shall be made available for review by 802 CES/CEIE Environmental throughout the duration of the project. For construction projects disturbing greater than 1 acre, contractor shall provide a copy of the Notice of Intent (NOI) and/or Construction Site Notice(s), as applicable, to the 802 CES/CEIE, IAW paragraph 3.3 Water Quality and Texas Pollutant Discharge Elimination System Construction General Permit (TPDES CGP). (NOI copy shall be maintained on site at all times).

g. Notice of Termination documents shall be submitted to the TCEQ when the site meets final stabilization and temporary BMPs have been removed, and a copy shall be submitted to the 802 CES/CEIE, IAW the TPDES CGP and JBSA Storm Water Management Plan (SWMP)as a Close Out Requirement.

h. Hazardous Waste Management Plan, that addresses all the applicable items in paragraph 3.8 Hazardous Waste. Contractor should have Department of Transportation (DOT) and HAZWOPER trained personnel.

i. Green Procurement Purchases, IAW paragraph 3.6.1 Executive Order 14057, Catalyzing Clean Energy and Jobs Through Federal Sustainability.

j. Provide and maintain, during the life of the contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire duration of this Contract. Comply with federal, state, and local regulations pertaining to the environment, including water, air, solid waste, hazardous waste and substances, oily substances, and noise pollution.

k. Tests and procedures assessing whether construction operations comply with Applicable Environmental Laws may be required. Analytical work must be performed by qualified laboratories; and where required by law, the laboratories must be certified.

## 1.7 MEETINGS

### 1.7.1 Environmental Brief

Attend an environmental brief to be included in the PRECONSTRUCTION CONFERENCE. Provide the following information: types, quantities, and use of hazardous materials that will be brought onto the installation; and types and quantities of wastes/wastewater that may be generated during the Contract. Discuss the current results of the Preconstruction Survey. Prior to initiating any work on site, meet with the Contracting Officer, the 802 CES/CEPM Project Managers and installation Environmental Office to discuss the proposed Environmental Protection Plan (EPP). Develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural and cultural resources, required reports, required permits, permit requirements (such as mitigation measures), waste management plans and practices, how waste diversion requirements will be met, and other measures to be taken. The requirements of this meeting may be fulfilled during the coordination and mutual Understanding meeting outlined in Section 01 45 00 QUALITY CONTROL.

### 1.7.2 Integrated Solid Waste Management

Discuss integrated solid waste and recycling management at contractor's regular meetings. Request attendance of 802 CES/CEIE personnel as appropriate to address waste management issues and ensure compliance with the approved EPP. It is the contractor's responsibility and requirement to coordinate all communications with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative. The requirements of these discussions may be fulfilled during Pre-construction meetings, regular site or quality control meetings. At a minimum, discuss and document waste management goals (as applicable) at following meetings:

a. Preconstruction meeting
b. Regular Quality Control meetings
c. Work safety meeting (if applicable)

1.8 PRECONSTRUCTION CONFERENCE

After award of this contract but prior to commencement of any work at the site, the contractor shall meet with the contracting officer, 802 CES/CEPM project manager and 802 CES/CEIE environmental office to discuss and develop a mutual understanding relative to the administration of the contract, preparation of the schedule, contractor's general intent on direction of execution, submittals, scheduling, programming, prosecution of the work, and the submittals process review. Principles of any major 1st tier subcontractors who will engage in the work shall also attend.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 NATURAL RESOURCES

3.1.1 Environmental Resources

The environmental resources within the project boundaries and those affected outside the limits of work under this contract shall be protected during the entire period of this contract. The Contractor shall confine activities to areas defined by the drawings and specifications and provide adequate maps depicting the project area. All contractors shall comply with JBSA Integrated Natural Resources Management Plan (INRMP), DAFMAN 32-7003, Environmental Conservation, Endangered Species Act, Clean Water Act, and Migratory Bird Treaty Act. Environmental protection measures shall be as stated in the following subparagraphs.

3.1.1.1 Land Resources

Prior to work, the Contractor shall identify the Natural Resources within the boundaries of the project. The Contractor shall not remove, cut, deface, injure, dredge, fill, disturb soil or destroy land resources including trees, shrubs, vines, grasses, topsoil, floodplains, wetlands, and landforms without prior coordination with Natural Resources Management.

3.1.1.2 Tree Trimming and Removal

Prior to trimming or removal of trees, contractor shall coordinate with Natural Resources Management office. Approved removal or trimming of trees, shrubs, or other vegetation, shall be conducted between 15 SEP - 28 FEB. Oak species trimmed or accidentally damaged during construction, shall be painted with pruning paint immediately, to include damaged roots.

3.1.1.3 Protection of Vegetation

Trees, shrubs, and other vegetation not identified for removal shall be protected against removal, injury, defacing, and scarring. No ropes, cables, or guys shall be fastened to or attached to trees for anchorage unless specifically authorized. Where such emergency use is approved, the Contractor shall provide effective protection for land and vegetation resources at all times.

Trees, shrubs, and other vegetation to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved technique.

3.1.1.4 Best Management Practices (BMPs)

Per requirements of the JBSA Integrated Natural Resource Management Plan (INRMP), the Contractor shall follow the BMPs for tree protection to ensure prevention of oak wilt compliance and to ensure vegetation removal will not affect protected species.

3.1.1.5 Parking

The Contractor shall not park vehicles or equipment within the drip line of trees. The Contractor shall coordinate all communications with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

3.1.1.6 Contractor Facilities

The Contractor's field offices, staging areas, storage, and temporary buildings shall be placed in areas designated on approved project design drawings or as directed by the Contracting Officer. Submittals are required with siting approval from the facility board prior to any action related to staging, fencing, or installation of temporary facilities or equipment, temporary movement or relocation of Contractor facilities shall be made only when approved through coordination with 802 CES/CEIE. Borrow and/or spoil areas shall be managed and controlled to limit spoil intrusion into designated areas, minimize erosion and to prevent soil or sediment from entering nearby waters or storm drains. Temporary excavation and embankments for plant and/or work areas shall be controlled to protect adjacent areas from despoilment.

3.1.1.7 Fish And Wildlife Protection

The Contractor shall minimize interference and disturbance to, and damage of, fish and wildlife. Species that require specific attention along with measures for their protection shall be coordinated with 802 CES/CEIE prior during the planning process and prior to beginning construction operations.

**If contract activities risk destroying or disrupting migratory birds or bird nests, prior coordination with 802 CES/CEIE is required. Immediately halt all activities and contact the Contracting Officer and Project Manager.**

3.2 CULTURAL RESOURCES

3.2.1 Historical, Archaeological and Cultural Resources

Existing historical, archaeological, and cultural resources within the Contractor's work area will be so designated by the Contracting Officer if any have been identified. The Contractor shall take precautions to preserve all such resources as they existed at the time they were first identified. If during construction activities previously unidentified or unanticipated resources are discovered or found, the Contractor shall stop work immediately and notify the Contracting Officer and the 802d Cultural Resources Media team for consultation. The Contractor shall provide and install protection measures for these resources and be responsible for their preservation during the life of the contract. Protection measures will be provided by 802 CES/CEIE after consultation with the State Historic Preservation Officer on a case-by-case basis. All communications with the SHPO shall be conducted by the Federal Agency Official or their appointed representative and shall not be contacted by the Contractor.

### 3.2.2 Artifacts

If during excavation or other construction activities previously unidentified or unanticipated resources are discovered or found, the Contractor shall stop work immediately and notify the Contracting Officer and the 802 CES/CEPM Project Manager as simultaneously as possible, who will in-turn notify the 802d Cultural Resources Media team for consultation. It is the contractor's responsibility and requirement to coordinate all communications with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative. Resources covered by this paragraph include but are not limited to any human skeletal remains or burials; artifacts; shell, bone, charcoal, or other deposits; rocks or coral alignments, paving, walls, or other constructed features, and any indication of agricultural or other human activities. Upon such discovery or find, the Contractor shall immediately stop work and notify the Contracting Officer and the 802 CES/CEPM Project Manager, as simultaneously as possible. The CEPM will in-turn notify the 802 CES Cultural Resources Media Team.

## 3.3 WATER QUALITY

### 3.3.1 Pollution Prevention

The Contractor shall keep construction activities under surveillance, management, and control to prevent pollutants from entering the MS4 (roads, ditches, and similar means of collecting and conveying stormwater), surface and ground waters of the state. Toxic and/or hazardous chemicals shall not be applied to soil or vegetation when such application may cause contamination. All de-watering shall be in accordance with the requirements of local, state, and federal regulations and the TCEQ CGP. Monitoring of land and water impacted by construction and supporting activities shall be the Contractor's responsibility.

### 3.3.2 Potable Water

Contractors shall be certified and licensed within the State of Texas for the installation of all potable water lines and backflow prevention devices. Accessibility to potable water must be requested and coordinated with Bioenvironmental, fire and emergency services and CEO utility offices prior to temporary connections and hookups from any fire hydrants. Fire hydrant temporary connections shall meet state mandated backflow prevention requirements or approved air gaps on lines. Backflow devices shall be tested and certified immediately after installation on fire hydrant. Testing certifications shall be submitted to 502 CES/CEO Plumbing Shop upon installation of devices for incorporation into Backflow Program records. Requests must include usage quantities and be approved prior to proceeding with any connections to fire hydrants. Hose bib use from facilities is authorized if coordinated through the utilities office, and appropriate backflow devices are used when required. The use of hose bibs from housing residents is not authorized for contractor use.

Installation or repair of water mains must be coordinated with Bioenvironmental and utility office prior to start of work. The contractor shall follow TCEQ regulations and American Water Works Association (AWWA) standards for water main disinfection. The water main shall not be placed into service until bacteriological samples are collected and results are negative.

JBSA-LAK/CTA/KFA/PRT, JBSA-SAM/BUL/MCA/GSA Bioenvironmental: 210-671-7061
JBSA-RND/CAN/SAF Bioenvironmental: 210-652-3256

Water Conservation is in effect all year on Joint Base San Antonio and each stage of water conservation is highly emphasized. Use of reclaimed/recycled water for irrigation is encouraged at JBSA and is available at most locations. The contractor shall comply with TCEQ requirements established in 30 TAC 210 when utilizing reclaimed water.

3.3.2.1 Backflow Preventers Certificate

Certificate of Full Approval from FCCCHR List, University of Southern California, Manual of Cross-Connection Control Tenth Edition. A manufacturer's certificate attesting that the design, size and make of each backflow preventer has satisfactorily passed the complete sequence of performance testing and evaluation for the respective level of approval. Certificate of Provisional Approval will not be acceptable.

3.3.2.2 Backflow Assembly Tester License

Prior to testing, submit to the Contracting Officer a copy of the Texas licensed Backflow Assembly Tester's license. Tester must not be affiliated with any company participating in any other phase of this Contract. The local Utility is American Water. The AHJ for the purpose of water and water testing is the CEPM. Typical deliverables are:

SD-06 Test Reports
Backflow Preventer Tests
SD-07 Certificates
Backflow Tester License
Backflow Preventers Certificate of Full Approval

3.3.3 Storm Water

The contractor shall use proper control and management techniques to ensure storm water criteria are met in accordance with federal, state, and local storm water regulations. Runoff from the construction site or from storms shall be controlled, retarded, and diverted as indicated on the drawings to protect drainage courses by means of diversion ditches, benches, berms, sediment basins, inlet protection devices, stabilization, and by any measures required by area-wide plans under the Clean Water Act. Prior to any project that disturbs greater than one acre, the contractor must follow permit coverage requirements as stated in paragraph 1.5.1. Contractors are required to incorporate Low Impact Development design techniques into sites which develop or redevelop areas greater than 5000 square feet IAW the Energy Independence and Security Act (EISA) Section 438. Contractors are encouraged to incorporate Low Impact Development design techniques into all projects as referenced in UFC 3-210-10. Low Impact Development (LID) is a storm water management strategy designed to maintain site hydrology and mitigate the adverse impacts of storm water runoff and nonpoint source pollution. The San Antonio River Authority has published a LID Technical Guidance Manual for the implementation of LID in the San Antonio River Basin. This manual is available for download at:

https://www.sariverauthority.org/resources/san-antonio-river-basin-low-impact-developmen

3.3.3.1 Sediment Control

Temporary sediment and erosion controls shall be adequate to prevent potential pollutants discharging from the site, installed as per manufacturer's specifications, and maintained in effective operating condition. Temporary sediment control devices will remain in place and be properly maintained until the site meets the final stabilization requirements defined in the TPDES Construction General Permit.

3.3.3.2 Severe Erosion

In some cases where severe erosion results in waters becoming turbid despite control measures, regular turbidity monitoring and documentation shall be necessary. Any such documentation shall be forwarded to 802 CES/CEIE for review via the contracting officer and 802 CES/CEPM using AF3000 Material Approval Submittal Form, which can be obtained on the Department of the Air Force E-Publishing site.

3.3.3.3 Stream Crossings

Stream crossings shall allow movement of materials or equipment without violating federal, state, or local government water pollution control standards or impeding waters of the state regulations. **Contractor shall check the AF Project Form 813 report to verify if any environmental impact is foreseen and any mitigation is needed. It is the contractor's responsibility and requirement obtain this form through the 802 CES/CEPM Project Managers and Contracting Representative.**

3.3.3.4 Sewage Holding Tanks

Contractor is not authorized sewage-holding tanks on base and shall procure a portable toilet service contract with the exception of job site trailers and temporary swing space. All temporary swing space includes either plumbing to existing nearby sanitary sewer lines or the use of black water tanks that are professionally pumped out weekly. The portable toilet contract shall include the correct removal of sewage and removal of the portable toilet upon completion of the project by a TCEQ licensed septic waste hauler.

3.3.3.5 Equipment Maintenance

Maintenance of Contractor vehicles and heavy equipment (including oil changing, lubrication, and vehicle washing) is not authorized on JBSA properties.

3.3.3.6 Concrete Washout

Contractor shall provide concrete truck washout facilities to contain wash water and material generated from truck washout. The concrete washout shall be maintained to prevent the discharge of pollutants and materials disposed of in accordance with solid waste rules and regulations. Concrete trucks are not authorized to be washed out onto the ground.

3.3.3.7 Best Management Practices (BMPs)

JBSA Regulatory Guidance (RG-348) on storm water BMPs can be found in the TCEQ guidance manual "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices." This guidance can be found at:

https://www.tceq.texas.gov/downloads/publications/rg/complying-with-the-edwards-aquifer-
Guidance on Low Impact Development BMPs can be found in the SARA technical manual at:

https://www.sariverauthority.org/resources/san-antonio-river-basin-low-impact-developmen

3.3.3.8 Documentation

Contractor shall provide engineering plans, technical/product specifications, and Operation and Maintenance manuals for all storm-water management structures (Structural BMPs, detention structures, conveyance structures, permeable pavements, bio retention structures, etc.) to the Contracting representative and the 802 CES/CEPM via the AF3000 process. The CEPM will provide 502 CES/CEO-Operations, CEIE-Environmental Management, and CEN-GeoBase offices. The Contractor shall allow a minimum 20 days for review.

3.4 PETROLEUM, OILS & LUBRICANTS (POL)/ STORAGE TANKS AND EQUIPMENT

**POL Usage**: Contractor is not authorized to set up aboveground storage tanks for fuel at any JBSA installation. Fuel for vehicles shall be brought to the installation, as needed. Storage of small amounts of POL as well as fueling and lubrication of equipment must be conducted in a manner that affords the maximum protection against spill and evaporation. Manage and store equipment fuel and POL in approved containers for flammable and combustible products in accordance with all Federal, State, and Local requirements. Store on secondary containment pallets, covered impermeable surfaces or in approved storage containers with appropriately sized (110% of largest container) secondary containment and keep liquids away from storm water sewers, grids, channels, and waterways. Fire extinguishers and spill kits must be available, and no smoking signs posted. Prior approval and coordination through 802 CES Environmental office is required for any fuel/POL storage containers greater than 50 gallons and contractor shall submit a plan for such storage 30 days prior to bring fuel onto the installation. It is the contractor's responsibility and requirement to coordinate all communications with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative. Contractor must ensure compliance with the JBSA facility specific Spill Prevention, Control, and Countermeasures (SPCC) Plans.

3.4.1 Vehicle and Equipment Refueling

Use of fuel and POL in greater than 50-gallon containers are not allowed on JBSA properties, without prior approval from the 802 CES Environmental offices. It is the contractor's responsibility and requirement to coordinate all communications with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative. Aboveground Storage Tanks for fuel and POL are not authorized on any JBSA installation. Fuel must be brought to the site each day that work is performed, or as needed. Contractor personnel obtaining fuels from refuelers agree to follow all 30 TAC 334 requirements and the following list of Air Force Technical Orders to ensure compliance: AFTO 37-1-1 Department of the Air Force, General Operation and Inspection of Installed Fuel Storage and Dispensing System, AFTO 37A-1-101 General Instructions, USAF Fuel, Water, and Lubricant Dispensing Equipment, AFTO 42B-1-1 Quality Control of Fuels and Lubricants, and Compressed Gas Association Pamphlet CGA P-1 Safe Handling of Compressed Gases. Used lubricants and used oil to

be discarded must be stored in marked corrosion-resistant containers and recycled or disposed of off-site in accordance with 40 CFR 279.

3.4.2 Tank Installation/Modifications

POL Tank/Equipment prior to tank installation: Tanks and equipment must be installed in accordance with all Federal, state, and local laws and regulations. At least ***60 days prior to installation***, 802 CES/CEIE must be notified of all planned tank/equipment specifications, including location, installation date, product to be stored, quantity of product, volume of tank, material of construction, containment type, Stage I Vapor recovery, and tank dimensions and any additional required information to comply with State tank regulations 30 TAC 334. Any planned tank installation, to include emergency generator belly tanks, that are 1,100 gallons or larger requires registration with the State. Contractor ***must notify*** the 802 CES Environmental Office as soon as known, prior to installation, for the tank to be registered with the State. All notifications to the TCEQ on tank installations/registrations will be made by 802 CES/CEIE Environmental Office with contractor provided information. It is the contractor's responsibility and requirement to coordinate all communications with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative. Installation of underground storage tanks and/or vaulted aboveground storage tanks are not authorized on any JBSA properties.

Modification to Existing Tanks/Equipment: The Contractor must notify 802 CES Environmental at least 60 days prior to beginning any removal or repair/modification to existing tank/equipment as the state may be required to be notified in advance with a Construction Notification. If confined space entry into an existing tank is required, then a confined space permit must be coordinated with JBSA Safety, Fire Department and 802 CES/CEIE Environmental office. The Contractor shall provide 802 CES/CEIE Environmental Office with a description of work being performed prior to beginning work. It is the contractor's responsibility and requirement to coordinate all communications with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.For work on underground and aboveground storage tanks, the Contractor must be licensed and registered in accordance with 30 TAC 334 section 401.

3.5 EROSION CONTROLS

The Contractor shall construct or install temporary and permanent erosion and sedimentation control features as indicated on the drawings prior to start of construction. Berms, dikes, drains, sedimentation basins, grassing, and mulching shall be maintained until permanent drainage and erosion control facilities are completed and operative. **Reference the JBSA Storm Water Management Plan (SWMP) and contact 802 CES/CEIE Water Quality Team. The Contractor shall coordinate all communications with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.**

3.6 EARTHWORK

Earth work shall be planned and conducted IAW this specification and the JBSA Soil Management Plan to minimize length of exposure time for unprotected soils. Side and back slopes shall be protected as soon as practicable upon completion of rough grading. Earthwork brought to final grade shall be finished as indicated by approved project design

specification.

3.6.1 Waste Characterization of Waste Materials

Excavated spoils shall either be reused on site or removed from the installation throughout the project or must ensure it is removed from the installation at the completion of the project. No permanent stockpiling of soil whatsoever is authorized on JBSA. <AM#0003>Based on characterization, soil must be transported to a TCEQ permitted disposal location approved by TCEQ and 802 CES/CEIE. All soil must comply with the requirements of the JBSA Soil Management Plan. All excavated soil on site should be considered Class II, Non-Hazardous Material and taken to a TCEQ approved Facility.</AM#0003>Refer to the JBSA Soil Management Plan for excavated spoils.

3.6.1.1 Waste Determination

Based on review of required analytics data, the 802 CES/CEIE will make a Hazardous/Non-hazardous determination delineating soil in accordance with TCEQ guidance (30 TAC Chapter 335 Subchapter R sections 335-501-508)

3.6.1.2 Excess Waste Material

All excess soil/waste materials shall be properly manifested/transported to an TCEQ-permitted landfill (Covel Gardens or Tessman Rd Landfill are locally available) and approved by 802 CES/CEIE.

3.6.1.3 Waste Generator

All manifests will list JBSA 802 CES/CEIE as the Generator and returned to JBSA 802 CES/CEIE by the final receiving facility, along with weight tickets, when fully executed.

3.6.1.4 Lead Waste Manifest

All Waste Manifests for Lead-containing materials shall be signed (approved) by JBSA area specific Environmental Office, without exception.

3.6.1.5 Return Manifests

Contractor provided return manifests and weight tickets are required for the development of Annual Waste Summary totals.

3.6.1.6 Required Testing

<AM#0003>All soil testing for classification is the Contractor's responsibility to include collecting the sample, having it analyzed, and any subsequent requirements. The Government will not bear any associated cost for the testing analytics.</AM#0003> Prior to waste removal, the contractor's qualified sampler, who has the requisite training required by the Department of Transportation (DOT) and the Environmental Protection Agency's Resource Conservation and Recovery Act (RCRA) shall perform the following test methods and analytical parameters for every 200 CY of soil/waste materials that are to be removed from JBSA:

a. RCRA 11 metals (method SW 7000 series, TCLP extraction)

b. Organochlorine Pesticides/Polychlorinated Biphenyl (PCBs) (method SW 8081a/8080, TCLP extraction)

c. Semi-Volatile Organic Compounds (SVOCs) (method SW 8270, TCLP extraction)

d. Volatile Organic Compounds (VOCs) (method SW 8260 TCLP extraction) to include BTEX

e. Total Petroleum Hydrocarbons (TPH) (TCEQ method 1005)

f. Non-halogenated Organics (SW 8015, TCLP extraction)

g. Reactivity, Corrosivity, Ignitibility (RCI)

**Note: Contact 802 CES/CEIE for guidance on which TCEQ certified Labs offer all the above methods.**

Additional sampling may be necessary based on JBSA historic information or additional landfill requirements.

**Contractor shall submit all analytical results to 802 CES/CEIE for review prior to removal of waste from area specific location.**

For Questions regarding Hazardous/Non-hazardous determinations, contact HazWaste Program Manager at 210-652-6204/210-452-8929.

It is the contractor's responsibility and requirement to coordinate all communications with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

## 3.7 LANDSCAPING

All new landscaping must follow the JBSA INRMP requirements. All new landscape plant species must be regionally native and follow the JBSA Critical Management Plan for current watering restrictions. Compliance with the JBSA Critical Period Management Plan is mandatory. **No planting of new turf or plants in Stage III water restrictions is authorized unless absolutely necessary. Coordinate with the JBSA Natural Resource Manager for help determining if your project is absolutely essential. In Stage IV and V, the installation of new turf and plants is prohibited.** It is the contractor's responsibility and requirement to coordinate all communications with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

## 3.8 AIR QUALITY

### 3.8.1 National Ambient Air Quality Standards

Equipment operation and activities or processes performed by the Contractor in accomplishing the specified construction shall be in accordance with all federal and state air emission regulations and performance standards. Contractor shall ensure that the National Ambient Air Quality Standards (NAAQS) set by the Environmental Protection Agency are maintained and modeled if needed. New construction, renovation, or modification to a facility that will impact air quality emissions will require a New Source Review (NSR) permitting process PRIOR to any construction beginning. In addition, an Air Conformity Applicability Model (ACAM) questionnaire must be completed (for all new construction, renovation, and modification projects) and submitted to the JBSA Air Team. For an electronic copy of the questionnaire, please contact the JBSA Air Team. It is the contractor's

responsibility and requirement to coordinate all communications with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative. All equipment to be installed within any facility (i.e., Boilers, chillers, stationary generators, etc.) are subject to this permitting process.

Title V of the Clean Air Act requires major sources of air pollutants, and certain other sources, to obtain and operate in compliance with an operating permit. Sources with these "Title V permits" are required by the Act to certify compliance with the applicable requirements of their permits at least annually. The Title V permit only applies to JBSA-LAK.

### 3.8.2 Equipment Inventory Requirements

The contractor shall provide the 802 CES/CEIE Air Quality Media Team and 502 CONS (or the respective contracting agency of the Proponent) a list of proposed equipment which may have an impact on JBSA Air Emissions or Air Quality and comply with the Clean Air Act when conducting construction or other work at JBSA. Inventory data, in the form of a picture of all emission source ID data plates, shall be submitted to the Air Program Manager for all air emission sources, including but not limited to: Water Heater(s), Boiler(s), Generator(s), A/C Unit(s), and Water-Cooling Tower(s).

It is the contractor's responsibility and requirement to coordinate all communications and documentation with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

#### 3.8.2.1 State Permitting

Prior to construction, per 30 TAC 116 section 110 any person who plans to construct any new facility that will emit or modify any existing facility which may emit air contaminants into the air shall take one of these steps BEFORE any actual work on the facility begins:

a. Obtain a state air permit by following the general application process described in 30 TAC Section 116.111

b. Satisfy the conditions for a standard permit described in 30 TAC 116 Subchapter F, 30 TAC 321 Subchapter B, 30 TAC 332, or 30 TAC 330 Subchapter N

c. Satisfy the conditions for a flexible permit described in 30 TAC 116 Subchapter G

d. Satisfy the conditions for all relevant permits by rule (PBR) described in 30 TAC 106

e. Ensure that the criteria for a de minimums facility or source stated in 30 TAC 116 section 119 are satisfied

In accordance with the HSC 382.0518(a) (relating to preconstruction authorization), "Before work is begun on the construction of a new facility or modification of an existing facility that may emit air contaminants, the person planning the construction or modification must obtain a permit from the TCEQ."

**The TCEQ has issued guidelines that anything other than site clearance or site preparation is considered "start of construction."**

All work such as excavation, form erection, or steel laying pertaining to foundations upon which permit units will rest shall be considered construction. For permit units not requiring a concrete foundation, the erection or construction of associated items like earthen dams, placement of piling, soil stabilization, storage tank fills, or retaining structures shall be considered construction, and will NOT be allowed without prior receipt of the required construction permit.

Land clearing, soil load bearing tests, leveling of the area, sewer and utility lines, road building, power line installation, fencing, construction shack building, etc., are considered "site clearance / preparation." However, once the soil and site are ready for foundations, the first excavation into the readied soil is considered "start of construction."

Note: After an application has been submitted for a permit, construction may not begin until JBSA receives a copy of the Pre-Construction Authorization (PCA) from TCEQ.

For JBSA permitting requirements, contractor shall provide to 502 CONS or the respective contracting agency of the Proponent and the installation Air Quality Media Team any and all data related to processes to be conducted in a facility to include, but not limited to, any process or procedure which might entail or include anodizing, brushing, blasting, electroplating, evaporation, exhausting, misting, splashing, smoking, spraying, welding, melting, smelting, reacting, (forms from resins), vaporizing, or otherwise releases Volatile Organic Compounds (VOCs), Particulates, or other air emissions into the air. Equipment that requires permitting by the TCEQ must be approved before being utilized. If any doubt exists, please contact the Air Quality Media Team at the general contact numbers in paragraph 1.1, Requirements, Contact information. The 802 CES/CEIE will perform the permitting paperwork for projects, provided all supporting documents and emissions calculations are certified and supplied to the Air Quality Program Manager in a timely manner, at least 180 days PRIOR to the land clearing.

It is the contractor's responsibility and requirement to coordinate all communications and documentation with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

### 3.8.3 Ozone-Depleting Substance

The contractor shall adhere to Air Force and JBSA policies regarding halons and chlorofluorocarbons (CFCs). The contractor shall not introduce any Class I Ozone-Depleting Substances (ODS) to JBSA during the course of this contract. The contractor shall be responsible for the recovery and recycling of all Class II ODS, including any necessary sampling, marking, labeling, and disposal. All ODSs recovered are the property of the US Government and must be turned in to the JBSA Refrigerant Management Shop. The contractor may refer to AFMAN 32-7002 Environmental Compliance and Pollution Prevention Chapter 3 paragraphs 2.15 and 3.3.5 for further guidance. The contractor shall remain ultimately responsible for any ODS work related to these tasks. Contractors shall follow paragraph 3.10.4 when submitting their hazardous materials listing for use on the installation to the Hazardous Material & Air Program Managers to determine if material will be tracked for environmental purposes.

3.8.4 Control Of Emissions

The contractor shall ensure prevention of dust, air pollution and odors.

3.8.4.1 Particulate Control

Dust particles, aerosols and gaseous by-products from construction activities, and processing and preparation of materials shall be controlled at all times. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the air pollution standards to be exceeded or which would cause a hazard or a nuisance. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs. Such emissions of airborne particulate matter shall not exceed 20% opacity as defined in 40 CFR 60.11 Appendix A, method 9. Approved practices for control are as follows:

a. Watering: Apply water by means of trucks and/or hoses during construction activities.

b. Chemical Stabilizers: During periods of high winds apply chemical stabilizers per manufacturer's directions and prior to any forecasted or expected wind events. Apply water as necessary, and prior to expected wind events. If chemical stabilizers are to be used, contractor shall contact the JBSA Water Quality Team prior to use.

It is the contractor's responsibility and requirement to coordinate all communications and documentation with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

c. Pre-grading planning: Grade each phase and apply chemical stabilizers or ground cover to graded areas where construction is scheduled to begin.

d. Wind fencing: Provide three-to-five-foot barriers with 50% or less porosity, adjacent to roadways or urban areas. Normally, used in conjunction with watering or chemical stabilization. Use trees and shrubs for long-term sites.

e. Material coverage: For hauling vehicles cover entire surface of hauled material once vehicle is full. Do not overload haul vehicle. Freeboard should not be less than 3 inches.

f. Mix material with water prior to loading, and/or to entire surface of material after loading. Apply water as necessary during loading operation.

g. Empty loader slowly and keep bucket close to the truck while dumping.

h. Altering loading and unloading procedures. Confine loading and unloading procedures to the downwind side of storage piles. Loading activities may require wind fencing.

i. Coverings: Tarps, plastic, or other materials can be used as a temporary covering. When used, coverings must be anchored to prevent movement of coverings from wind.

j. Vegetation: Establish as quickly as possible when active operations have ceased.

k. Prevent Access: Install fencing around the perimeter of property. Install "No trespassing" signs.

l. Paving or chip sealing: Requires routine street sweeping if subject to material accumulation.

m. Gravel/Recycled Asphalt: Maintain milling activities to a size and depth effective in controlling dust.

o. Eliminate unnecessary travel and restrict access to reduce vehicle trips.

p. Locate haul roads as far from existing housing as possible.

q. Stay on established routes.

r. Stop work activities temporarily if required.

s. Properly maintain equipment to reduce pollutant emissions.

t. Wheel Washers: Wheel washers shall be placed where vehicles exit unpaved areas onto paved areas.

3.8.4.2 Vehicles

All vehicles used to haul materials of any kind shall have their receptacle covered at all times when materials are not being accessed. Additionally, vehicles are authorized an idling period no more than 15 minutes on JBSA properties before they must be shut off.

3.8.4.3 Site Access

Install a gravel pad or stabilized entrance at the access point to the construction site and designate a single entrance and exit. Stay on established routes.

3.8.4.4 Roadways

Sweep/Clean roadways. Sweeping of roadways on a regular basis shall be used to prevent dust/particulate build-up. Do not clean streets or roadways with water. Do not discharge water or debris into the Storm Drain.

3.9 INTEGRATED SOLID WASTE MANAGEMENT (NON-HAZARDOUS WASTE AND RECYCLING)

Numerous Executive Orders direct all federal activities to develop and implement a mandatory recycling program. Recycling across JBSA is focused on the elimination of recyclable materials from the trash and burial in a landfill. DOD mandates diversion of 60% of all non-hazardous solid waste generated by Construction, Demolition, and Renovation projects through recycling or reuse. The ISWMP shall include the contractor's plan(s) for a minimum 60 percent diversion rate or justification for not meeting this goal due to time and/or cost constraints.

Contractors shall be responsible for properly recycling or disposing of all solid waste generated by their activities. Follow applicable industry

standards in the management of waste. Apply sound environmental principles in the management of waste. (1) Practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction waste and demolition debris/waste from landfills and incinerators and to facilitate the recycling or reuse of excess construction materials.

3.9.1 Points of Contact

- Qualified Recycling Program (QRP) Manager - 210-671-5371/4844
- Concrete, Asphalt, Asphalt Milling Materials recycling - 210-671-0331/4844
- Pollution Prevention (P2) Program Manager - 210-671-8015/4844

It is the contractor's responsibility and requirement to coordinate all communications and documentation with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

3.9.2 Meetings

3.9.2.1 Design/Planning

Project designers and planners shall meet with environmental management staff during the planning phase of the project to identify possible pollution prevention and solid waste diversion opportunities. If this is a contract to construct or renovate a facility, discuss opportunities to add dedicated recycling areas for use by future occupants.

3.9.2.2 Pre-Construction

After award of the Contract and prior to commencement of work, schedule and conduct a meeting, IAW Section (Meetings), with the Contracting Officer, 802 CES/CEPM and 802 CES/CEIE to discuss the proposed EPP and ISWMP and to develop a mutual understanding relative to the management of the project wastes and how waste diversion requirements will be met.

It is the contractor's responsibility and requirement to coordinate all communications and documentation with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

3.9.2.3 Regular Project Meetings

Discuss integrated solid waste and recycling management at regular meetings, IAW Section 1.7 MEETINGS.

3.9.3 Definitions

3.9.3.1 Co-Mingle

The practice of placing unrelated materials together in a single container, usually for benefits of convenience and speed.

3.9.3.2 Construction Waste

Waste generated by construction activities, such as scrap materials, damaged or spoiled materials, temporary and expendable construction materials, and other waste generated by the workforce during construction activities.

3.9.3.3 Demolition Debris/Waste

Waste generated from demolition activities, including minor incidental demolition waste materials generated as a result of Intentional dismantling of all or portions of a building, to include clearing of building contents that have been destroyed or damaged.

3.9.3.4 Disposal

Depositing waste in a solid waste disposal facility, usually a managed landfill or incinerator, regulated in the US under the Resource Conservation and Recovery Act (RCRA).

3.9.3.5 Diversion

The practice of diverting waste from disposal in a landfill or incinerator, by means of eliminating or minimizing waste, recycling, or reuse of materials.

3.9.3.6 Green waste

Materials that can be composted or used as mulch, including plant materials (trees, shrubs, limbs, brush, leaves), sawdust, raw lumber (not treated, painted, pressed, or particleboard), and certain food scraps.

3.9.3.7 Recycling

The series of activities, including collection, separation, and processing, by which products or other materials are diverted from the solid waste stream for use in the form of raw materials in the manufacture of new products sold or distributed in commerce, or the reuse of such materials as substitutes for goods made of virgin materials, other than fuel.

3.9.3.8 Reuse

The use of a product or materials again for the same purpose, in its original form or with little enhancement or change.

3.9.3.9 Salvage

Usable, salable, salvageable items derived from buildings undergoing demolition or deconstruction, parts from vehicles, machinery, other equipment, or other components.

3.9.3.10 Source Separation

The practice of administering and implementing a management strategy to identify and segregate unrelated waste at the first opportunity.

3.9.4 Integrated Solid Waste Management

Implement an Integrated Solid Waste Management Program (Construction Waste Management Program) for the project. Take a pro-active, responsible role in the management of construction waste, recycling processes, disposal of demolition debris/waste, and require all subcontractors, vendors, and suppliers to participate in the Integrated Solid Waste Management Program. Establish a process for clear tracking and documentation of construction waste and demolition debris/waste.

3.9.4.1 Implementation of Integrated Solid Waste Management Program

Develop and document how the Integrated Solid Waste Management Program will be implemented in an Integrated Solid Waste Management Plan. Submit an Integrated Solid Waste Management Plan to the Contracting Officer, 802 CES/CEPM and the 802 CES/CEIE for approval, IAW Section 1.6 ENVIRONMENTAL PROTECTION PLAN.

It is the contractor's responsibility and requirement to coordinate all communications and documentation with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

Construction waste and demolition debris/waste materials include un-used construction materials not incorporated in the final work, as well as demolition debris/waste materials from demolition activities or deconstruction activities. In the management of waste, consider the availability of viable markets, the condition of materials, the ability to provide material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates.

3.9.4.2 Special Programs

Implement special programs involving rebates or similar incentives related to recycling of construction waste and demolition debris/waste materials. Contractor may retain revenue or savings from salvaged or recycling, unless otherwise directed. Contractor is encouraged to utilize the JBSA Qualified Recycling Program (QRP) for recycling of metals and other items accepted by the QRP; the QRP will retain revenues from these recycled materials; contact the QRP POC listed above for information and coordination. Ensure firms and facilities used for recycling, reuse, and disposal are permitted for the intended use to the extent required by federal, state, and local regulations and are approved for use by the 802 CES/CEIE.

3.9.4.3 Special Instructions

Provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the projects. Designation of single source separating or commingling will be clearly marked on the containers.

3.9.5 Integrated Solid Waste Management Plan

The contractor shall develop an Integrated Solid Waste Management Plan (ISWMP). This plan shall be in lieu of the Construction Waste Management Plan required by 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL and shall address all materials addressed in 01 74 19. The ISWMP shall be submitted with the Environmental Protection Plan IAW Section 1.6 ENVIRONMENTAL PROTECTION PLAN. The ISWMP shall be revised and resubmitted as required to obtain approval from the 802 CES/CEIE. Manage demolition debris/waste or deconstruction materials in accordance with the approved ISWMP.
It is the contractor's responsibility and requirement to coordinate all communications and documentation with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

An approved ISWMP will not relieve the Contractor of responsibility for compliance with applicable environmental regulations or meeting project cumulative waste diversion requirement. Ensure all subcontractors receive a

copy of the approved ISWMP. The plan demonstrates how to meet the project waste diversion requirement.

The ISWMP shall include, but not be limited to, the following:

a. Names of individuals responsible for waste management and waste management tracking, along with roles and responsibilities on the project.

b. Actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.

c. Description of the regular meetings to be held to address waste management.

d. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas on site and equipment to be used for processing, sorting, and temporary storage of materials.

e. Description and estimated quantities of the proposed job-site waste, including recyclable materials, salvable materials, and construction and demolition debris (C&D debris) to be generated. This includes waste that is separated for re-use, salvage, recycling, or disposal. Manage all waste streams associated with the project. Indicate whether materials will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, recycled, or disposed. Typical waste streams are listed below. Include additional waste and recycling streams not listed.

JBSA expects materials with an asterisk (*) to be recycled to the maximum extent practicable.

1. *Asphalt and asphalt milling materials
2. Carpet
3. Ceiling Tiles
4. *Clean air conditioning units, refrigerators, and freezers - after refrigerant removal (See Section 3.6.3 regarding removal of refrigerants)
5. *Clean concrete, and concrete with rebar
6. *Corrugated cardboard
7. Glass
8. Gypsum
9. *Ink and toner (printer) cartridges
10. Insulation
11. Land Clearing Debris
12. *Masonry and Concrete Masonry Units (CMU)
13. *Non-hazardous paint and paint cans
14. Paper, including newspapers, magazines, books, phone books, envelopes
15. Plastics (PET, HDPE,PVC,LDPE,PP,PS, Other)
16. *Tanks and vessels - only if triple-rinsed, if necessary, and cut open
17. Trash (lunch wastes, miscellaneous municipal solid waste items)
18. *Used oils
19. Wood, including pallets
20. *Ferrous and non-ferrous Metals (includes, but is not limited to: banding, aluminum, aluminum tracks from partitions, boilers, bronze,

cable, chillers, copper, copper wire, door and window frames, ductwork, galvanized, gutters and flashing, iron, metal doors, metal framing, metal roofing, metal shelving, other trim, pipes, piping, plumbing fixtures/fittings/faucets, rebar, roofing, sheet metal, stainless steel, steel, steel from decking, steel handrails and stairs, stud trim, transformers, zinc)

f. Identification of the recycling facilities to be used by name, address, and phone number. Transfer stations are not acceptable recycling or disposal facilities.

g. Identification of local and regional re-use programs to be used by name, location, and phone number (non-profit organizations, local housing agencies, material exchange networks, resale stores).

h. Identification of landfill(s) where solid waste will be disposed, applicable landfill tipping fee(s), and the projected cost of disposing of all project waste in the landfill(s). (Only Waste Management Covel Gardens landfill & Republic Services Tessman Road landfill are approved by TCEQ and JBSA. (Transfer Stations are not acceptable recycling or disposal facilities.)

i. Projected cost of disposing of all project waste in the landfill(s). Actual costs and cost savings will be reported to 802 CES/CEIE monthly.

j. Identification of materials that cannot be recycled or reused with an explanation or justification, to be approved by the Contracting Officer.

k. Description of how materials identified in item (e) above will be protected from contamination.

l. Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site).

m. Copy of training plan for subcontractors and other services to prevent contamination by co-mingling materials identified for diversion and waste materials.

n. Facilities or subcontractors offering construction waste transport on-site or off-site must ensure that proper shipping orders, bills of lading, manifests, or other shipping documents containing waste diversion information meet requirements of 40 CFR 273 Universal Waste Management, 49 CFR 173 Shippers - General Requirements for Shipments and Packagings, and 49 CFR 178 Specifications for Packaging. Only appropriately appointed and trained 802 CES/CEIE personnel will sign manifests.

o. List of supplier(s) who delivers construction materials in bulk, or packages products in returnable containers or returnable packaging, or has take-back programs. List each program and the applicable material to actively monitor and track to assist in meeting waste diversion requirements on the project.

p. For projects requiring Third Party Certification, also include:

1. Identification of at least 5 construction or demolition material streams for diversion.

2. Detailed plan and distribution of waste diversion between buildings when project is a part of a campus

3.9.6 ISWMP Implementation

The Contractor Shall:

a. Designate an on-site party (or parties) responsible for instructing workers and overseeing and documenting results of the ISWMP for the project

b. Distribute copies of the ISWMP to key personnel and submit the plan to the Contracting Officer and 802 CES/CEIE as part of the Environmental Protection Plan required per Section 1.3 Submittals and Section 1.6 Environmental Protection Plan.

c. Provide on-site instruction of appropriate separation, handling, and recycling, salvage, re-use, and return methods to be used by all parties.

d. Lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, re-use, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked to avoid contamination of materials. Reduce the amount of solid waste generated through procurement of products with less or reusable packaging, buying only the amounts needed, investigating new recycling/re-use opportunities, and altering operations to reduce wastes (e.g., using double-sided copies).

e. Ensure safe and effective solid waste management through the proper storage of solid waste and recyclables.

f. Coordinate with 802 CES/CEIE on all matters involving solid waste management and recycling, to include sampling, lab analysis, and characterization of waste streams as required by the 802 CES/CEIE.

g. Ensure firms and facilities used for recycling, reuse, and disposal are permitted for the intended use to the extent required by federal, state, and local regulations, and are approved for use by the 802 CES/CEIE. Provide a copy of the permit or license to the 802 CES/CEIE if requested.

h. Ensure no wastes from the project are placed in trash dumpsters or roll-off containers on JBSA that are not associated with the project's waste management plan without express written approval of the 802 CES/CEIE and the Contracting Officer.

3.9.7 Specific Materials

a. Universal wastes (lamps, ballasts, mercury-containing equipment, batteries, paint and paint-related waste, aerosol cans) will be properly manifested and managed IAW the JBSA Hazardous Waste Management Plan. Refer to Section 3.8 HAZARDOUS WASTE.

b. Recyclable metal that has tested positive for lead-based paint will be managed IAW the JBSA Lead-Based Paint Management Plan and will

require a waste manifest, weight ticket, and certificate of disposal from the selected recycling facility. Refer to Section 3.10 TOXIC SUBSTANCES.

c. Asbestos-containing C&D Debris will be properly profiled, manifested, and managed IAW the JBSA Asbestos Management and Operations Plan. Refer to Section 3.10 TOXIC SUBSTANCES.

d. Compressed gas and liquid fuel cylinders MUST NEVER be placed into any containers, recycling bins in buildings, scrap metal dumpsters, or base refuse and trash dumpsters. Contact the Hazardous Waste Manager at 210-652-6204/210-671-4844 for specific guidance on disposal of these items.

e. Scrap metal recycling may be coordinated through the JBSA Qualified Recycling Program. Proceeds from these scrap metal sales will be retained by the QRP. Contact the QRP POC listed above for information and coordination. Trip tickets and weight tickets for all recycled metal shall be submitted to 802 CES/CEIE monthly.

f. Other recyclable items accepted by the JBSA QRP may be given to the QRP for recycling, including paper, cardboard, certain plastics, aluminum cans, ink & toner cartridges, and wood pallets. Contact the QRP or P2 POC listed above for a current list of accepted items. Items must be separated by type before transport to a JBSA Recycle Center. Proceeds from sales of these items will be retained by the QRP.

g. Used oil - manage IAW 40 CFR Parts 260-278, Hazardous Waste and Used Oil Management

3.9.8 Manifesting Requirements

a. All manifests will list JBSA 802 CES/CEIE as the Generator and will be returned to JBSA 802 CES/CEIE by the final receiving facility, along with weight tickets, when fully executed. Only appropriately appointed 802 CES/CEIE personnel will sign manifests.

b. Concrete, asphalt, and asphalt milling materials to be recycled will be manifested and delivered directly to the recycling facility. All manifests will be generated and signed only by appropriately appointed 802 CES/CEIE personnel. Contact Concrete, Asphalt, Asphalt Milling Materials POC listed above for procedures.

c. C&D debris to be landfilled and/or recycled will be characterized, sampled as required by 802 CES/CEIE, manifested, and delivered directly to a TCEQ-permitted landfill approved by 802 CES/CEIE. All landfill profiles and manifests will be signed only by appropriately appointed 802 CES/CEIE personnel. Refer to Section 3.8.2 Disposal and contact 802 CES/CEIE POC listed above for profile sheet and manifest procedures, including identification of any sampling requirements. Transfer stations are not acceptable recycling or disposal facilities.

d. Facilities or subcontractors offering construction waste transport on-site or off-site must ensure that proper shipping orders, bills of lading, manifests, or other shipping documents containing waste diversion information meet requirements of 40 CFR 273 Universal Waste Management, 49 CFR 173 Shippers - General Requirements for Shipments and Packagings, and 49 CFR 178 Specifications for Packaging. Only

appropriately appointed 802 CES/CEIE personnel will sign manifests.

3.9.9 Collection

Collect, store, protect, and handle reusable and recyclable materials at the site in a manner which prevents contamination, and provides protection from the elements to preserve their usefulness and monetary value. Provide receptacles and storage areas designated specifically for recyclable and reusable materials and label them clearly and appropriately to prevent contamination from other waste materials. Keep receptacles or storage areas neat and clean.

Train subcontractors and other service providers to either separate waste streams or use the co-mingling method as described in the ISWMP. Handle hazardous waste and hazardous materials in accordance with applicable regulations, other Sections within this ENVIRONMENTAL SPECIFICATION, and Section 02 81 00 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS. Separate materials by one of the following methods described herein:

3.9.9.1 Source Separation Method

Separate waste products and materials that are recyclable from trash and sort into appropriately marked separate containers and then transport to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the category types as defined in the ISWMP.

3.9.9.2 Co-Mingled Method

Place waste products and recyclable materials into a single container and then transport to an authorized recycling facility, which meets all applicable requirements to accept and dispose of recyclable materials in accordance with all applicable local, state and federal regulations. The Co-mingled materials must be sorted and processed in accordance with the approved ISWMP. Transfer stations are not acceptable recycling or disposal facilities.

3.9.9.3 JBSA Qualified Recycling Program

Source separated recyclable materials, of the types accepted by the QRP, may be delivered to a JBSA Recycle Center. Contact the QRP POC listed above for locations, hours, and accepted materials list. Scrap metals, including large equipment items, may be recycled through the Installation QRP. Contact the QRP POC listed above for delivery instructions or coordination with the QRP and a local metal recycler for collection/delivery.

3.9.9.4 Other Methods

Other methods proposed by the Contractor may be used when approved by the 802 CES/CEIE and the Contracting Officer.

3.9.10 DISPOSAL

Control accumulation of waste materials and trash. Recycle or dispose of collected materials off-site at intervals approved by the Contracting Officer and in compliance with waste management procedures as described in the ISWMP. Except as otherwise specified in other sections of the

specifications, dispose of in accordance with the following:

3.9.10.1 Reuse

Give first consideration to reusing construction and demolition materials as a disposition strategy. Recover for reuse materials, products, and components as described in the approved ISWMP. Coordinate with the Contracting Officer and the 802 CES/CEIE to identify onsite reuse opportunities or material sales or donation available through Government resale or donation programs. Sale of recovered materials is not allowed on the Installation. Consider the use of surplus industrial supply broker services, who match entities with reusable or repurpose industrial materials with entities with need of such materials.

It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

3.9.10.2 Recycle

Recycle non-hazardous construction and demolition/debris materials that are not suitable for reuse. Track rejection of contaminated recyclable materials by the recycling facility. Rejected recyclables materials will not be counted as a percentage of diversion calculation. Recycle all fluorescent lamps, HID lamps, mercury (Hg)-containing thermostats and ampoules, and PCB-containing ballasts and electrical components as directed by the Contracting Officer and the JBSA Hazardous Waste Program Manager. Do not crush lamps on site as this creates a hazardous waste stream with additional handling requirements.

3.9.10.3 Compost / Green Waste

Consider separating items that can be composted or mulched (trees, limbs, brush, raw lumber, sawdust, etc.) and deliver these materials to off-base compost or mulch facilities. Ensure materials meet or exceed the compost or mulch facility requirements for material type, size, and contamination level. Track rejection of materials by the compost or mulch facility and document reason(s) for rejection. Rejected materials will not be counted as a percentage of diversion calculation.

3.9.10.4 Waste

Dispose by landfill or incineration only those waste materials with no practical use, economic benefit, or recycling opportunity, IAW the approved ISWMP.

3.9.11 Records (Documentation)

3.9.11.1 General

Maintain records to document the types and quantities of waste generated and diverted though re-use, recycling, and sale to third parties or through disposal to a landfill or incinerator facility. Provide explanations for materials not recycled, reused, or sold. Collect and retain manifests, weight tickets, sales receipts, and invoices specifically identifying diverted project waste materials or disposed materials.

3.9.11.2 Accumulated

Maintain a running record of materials generated and diverted from landfill disposal, including accumulated diversion rates for the project. Make records available to the Contracting Officer during construction or incidental demolition activities. Provide a copy of the diversion records to the Contracting Officer upon completion of the construction, incidental demolitions, or minor deconstruction activities.

3.9.12 Reports

3.9.12.1 General

Maintain current integrated solid waste (construction waste) diversion information on site for periodic inspection by the Contracting Officer. It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

Include in the monthly reports, annual reports, and final reports: the project name; contract information; information for waste generated, diverted, and disposed of for the current reporting period and show cumulative totals for the project. Reports must identify material types, weights, disposal costs, recycling costs, and estimated cost savings for all materials salvaged, reused/donated, recycled, and disposed. Also include in each report supporting documentation to include manifests, weigh tickets, receipts, and invoices specifically identifying the project and waste material type and weighted sum. This requirement is mandatory on all projects. All material donated, recycled, or disposed of from across JBSA shall be documented and tracked to meet Environmental Reporting requirements.

Also include proof of reclamation of oil from compressors and other equipment prior to recycling or disposal and documentation of proper disposal of the used oil.

3.9.12.2 Monthly Diversion and Landfill Report

Provide cumulative reports at the end of each month to the 802 CES/CEIE. Reports may be submitted with monthly waste disposal reports required by other Sections herein.

3.9.12.3 Annual Diversion and Landfill Report

Provide a cumulative diversion and landfill report annually. Submit annual report not later than 30 calendar days after the preceding fiscal year has ended.

3.9.12.4 Final Diversion and Landfill Report

A Final Diversion and Landfill Report is required at the end of the project. Provide Final Diversion and Landfill Report 60 days prior to the acceptance of the work by the Contracting Officer.

3.10 HAZARDOUS WASTE

JBSA is the primary generator, and the Contractor shall be considered the primary co-generator for all hazardous wastes (includes Universal Waste) generated throughout the duration of the contract. The Contractor shall

follow guidelines established in the JBSA Hazardous Waste Management Plan. All hazardous waste management activities shall be coordinated through and approved by 802 CES/CEIE. Under no circumstances may hazardous, special, or universal waste be disposed of in municipal waste dumpsters.

It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

3.10.1 Regulations

The contractor shall be familiar with and have immediate access to the following regulations: 40 CFR Parts 260-278, Hazardous Waste and Used Oil Management, 48 CFR, Parts 171-177, and the JBSA Hazardous Waste Management Plan for Hazardous and Special Waste (including Universal Waste).

3.10.2 Disposal

All construction debris, hazardous waste, and non-hazardous waste, to include all construction recycling and construction soils, shall be characterized by the lab analysis defined in paragraph 3.1.4.1, profiled, reviewed by the JBSA Hazardous Waste Media Team, manifested as required and signed by appropriately appointed 802 CES/CEIE personnel before leaving any JBSA properties.

All integrated solid waste, C&D waste and Recycling Shall be sampled, characterized, and manifested per section 3.7 Integrated Solid Waste Management (Non-Hazardous Waste and Recycling)

All Asbestos and Lead-contaminated materials, PCBs and Mercury Shall be sampled, characterized and manifested per section 3.10 Toxic Substances

**In order to obtain manifests from State-permitted local landfills, the following must be accomplished:**

1) The Contractor must inform Environmental Waste Management Team of the type and quantity of waste requiring disposal.

2) The Environmental Waste Management Team will identify the number of samples to be taken and if any additional testing is required.

3) The Contractor shall collect and transport the samples to a State of Texas accredited laboratory for analysis.

4) Upon receipt of the analytical report, the Contractor shall forward the report to the Environmental Waste Management Team for waste characterization.

5) The Environmental Waste Management Team shall characterization the waste as hazardous or non-hazardous and inform the Contractor of approved State-permitted local landfills eligible to receive the waste.

6) The Contractor must request and complete the State-permitted landfill's Waste Profile Sheet.

7) The Contractor shall provide a copy of the completed Waste Profile Sheet for review and prior to any electronic submissions. Non-electronic submission shall require a completed Waste Profile Sheet

sent to the Environmental Waste Management Team for QA/QC review and signature approval. **JBSA 802 CES/CEIE will be listed as the Generator on all profiles.**

8) The Contractor must deliver the signed Waste Profile Sheet and the analytical report to the State-permitted landfill. Electronic waste profiles shall be entered by the Waste Management Team after analytical review, into the appropriate system specific to landfill requirements.

9) If approved by the State-permitted landfill, the permitted landfill will print the required number of shipping waste manifests.

10) The State-permitted landfill will notify the Contractor when the shipping waste manifests are ready for pick-up.

11) The Contractor shall deliver the shipping waste manifests to the Environmental Waste Management Team for signature.

12) The Environmental Waste Management Team will notify the Contractor when the shipping waste manifests are signed and ready for pick-up.

**Please note that all waste classification is performed by the State-permitted landfill in accordance with TCEQ regulations. JBSA Environmental personnel are not authorized to, or responsible for, classifying waste.**

**Instructions on how to fill out Waste Manifests are as follows:**

1. One (1) manifest per truck.
2. Write in block 1 & 11 the amount of waste being hauled off.
3. Write in block 12 the unit of measurement (i.e., CY = cubic yards).
4. 802 CEI/CEIEC personnel will date and sign block 15 for the Generator, prior to the Transporter receiving waste.
5. Have the Transporter driver print, sign and date in block 17 for Transporter.
6. Remove the last copy of the manifest (Generator's Copy) and provide to Hazardous Waste Program Personnel at the end of each workday.
7. The driver takes all remaining copies to the landfill.
8. Landfill personnel will print, sign and date in block 20 for the Facility receipt of waste.
8. Landfill personnel will provide the driver the Transporter's Copy of the Manifest.
10. Landfill personnel will mail the original manifest to Hazardous Waste Program Personnel within 45 days.

The contractor shall be responsible for all actions and expenses associated with disposal of wastes generated by their project(s) at each JBSA location. The contractor shall have only DOT and HAZWOPER trained personnel to manage all waste.

Disposal shall be accomplished in compliance with all local, state, and federal rules and instructions, including mandated recycling requirements. This responsibility also includes preparation, packaging, marking, and labeling of wastes in accordance with 49 CFR SUBCHAPTER C. The contractor shall not sign any manifests. All manifests, regardless of waste classification, will be signed only by appropriately appointed 802 CES/CEIE personnel. This includes manifests for all recyclable materials or construction debris.

3.10.3 Light Bulbs

Lamps shall not be disposed of in municipal dumpsters or managed as municipal solid waste. All lights shall be checked for mercury containing lamps. If the lamp is a sodium vapor, fluorescent, or metal halide bulb, the bulbs shall be shipped as Universal Waste or recycled at an approved EPA recycling center. Universal Waste manifests shall be signed by appropriately appointed 802 CES/CEIE personnel before leaving JBSA properties.

The contractor shall prove that the recycler is an EPA approved recycling facility. A non-hazardous waste manifest shall be used for shipping. Copies of shipment manifests and associated weight tickets shall be provided to the 802 CES/CEIE personnel to enable tracking of shipments from cradle to grave.

3.10.4 Light Ballasts

When fluorescent and mercury vapor fixtures are removed, the ballast must be examined for PCB labeling. Ballast is presumed to contain PCBs unless clearly labeled "NO PCBs". Suspected ballast must be removed and recycled through a licensed recycling center for PCBs. All PCB ballasts will be manifested before leaving the borders of any contiguous JBSA location. See paragraph 3.8.2 Disposal for instructions.

3.11 HAZARDOUS AND/OR TOXIC MATERIALS

3.11.1 Regulations

Hazardous Materials used shall be used IAW FAR 52.223-3 and AFMAN 32-7002 Environmental Compliance and Pollution Prevention.

3.11.2 Safety Data Sheets

Hazardous Materials shall be used IAW AFMAN 32-7002 Environmental Compliance and Pollution Prevention and the following Federal Acquisition Regulation (FAR) Clauses:

52.223-3 Hazardous Materials and Material Safety Data Sheets
52.223-5 Pollution Prevention (P2) and EPCRA
52.223-11 Ozone Depleting Substances
52.223-14 Toxic Release Reporting

3.11.3 Coordination

All hazardous materials to be used in the project by the contractor and its subcontractors shall be coordinated through the JBSA Contracting Office. A current copy of all manufacturer-specific SDSs shall be submitted to the Contracting Officer a minimum of 9 calendar days prior to the delivery of the materials via an AF Form 3000. The Contracting Office will transmit the contractor submittal to the respective JBSA Project Manager for processing IAW AFMAN 32-7002. Additionally, the size and/or weight of each container must be provided with the SDS. The Hazardous Materials Manager is responsible for the approval of all hazardous materials proposed in the project.

It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices

through the 802 CES/CEPM Project Managers and Contracting Representative.

This requirement is mandatory on all projects, as all hazardous materials used across JBSA shall be documented and tracked to meet Environmental Reporting requirements. Also, due to Bexar County being designated as Non-Attainment by the U.S. Environmental Protection Agency (US EPA), contractor can only use materials with Low Volatile Organic Compounds (VOCs) which include, but not limited to:

a. Paints
b. Adhesives
c. Primers
d. Sealants
e. Specialty Coatings
f. Solvents

3.11.3.1 Refrigerants

During renovations or modifications performed on a building HVAC or Chiller unit, if the refrigerant is to be evacuated/removed, contractor is required, by AFMAN 32-7002 Environmental Compliance and Pollution Prevention, to turn over the evacuated refrigerant to the Government. Contact the CE Refrigerant Shop at JBSA-LAK (210)671-4738, JBSA-SAM (210)808-913/6032 and JBSA-RND (210)652-3202.

It is the contractor's responsibility and requirement to coordinate all communications and submittals with JBSA installation offices through the 802 CES/CEPM Project Managers and Contracting Representative.

3.11.3.2 Halons

3.11.3.2.1 New Construction

During the construction of a new facility which specifies the installation of Halon for fire suppression contact the JBSA Hazardous Materials Office **PRIOR** to installation via the 802 CES/CEPM Project Managers and Contracting Representative. Halon systems are no longer allowed on DoD installations.

3.11.4 Hazardous Material Tracking

Once all SDSs have been reviewed, an inventory listing will be provided to the Contracting Officer who in-turn will provide copies to the area specific HAZMAT manager for tracking, consumption and reporting purposes. The inventory list will include the stock number, nomenclature (trade name/part number), manufacturer, container size, quantity usage, contract number, contract quality assessment evaluator's name or government point of contact, and contract performance period. Any contract that is less than one month in duration will be reported at the end of the contract period, and any contract over a month in duration will be reported by the 5th day of each month.

3.11.5 Hazardous Material Storage

Hazardous material brought on base by contractors shall be stored IAW manufacturer recommendation per SDS and references listed in the 29 CFR 199.1200 regulations. All flammable materials shall be stored in approved flammable containers and storage areas comply with references listed in subpart REGULATIONS. Careful consideration shall be taken when storing chemicals that may have an adverse reaction to each other. All

necessary precautions shall be taken to ensure the safe storage of these materials and to protect from contaminating the environment. Site-specific spill plans shall be revised as necessary to reflect current hazardous material storage and usage per paragraph 3.11 Emergency Response, Spill Procedures, Fuel Tanks of this document. All hazardous materials storage areas are subject to inspections by the Installation Hazardous Materials Manager for compliance.

3.12 Sub TOXIC SUBSTANCES (ASBESTOS, PCBS, MERCURY, AND LEAD-BASED PAINT)

3.12.1 National Emission Standards For Asbestos Containing Materials

3.12.1.1 Abatement Activities

All abatement activities must follow 25 TAC 296, and the National Emission Standards for Hazardous Air Pollutants 40 CFR 61, Subpart M (NESHAP). The 25 TAC 296 for Asbestos is enforced at each JBSA specific location, since these rules are the most restrictive. In addition to the NESHAP, 40 CFR 61.145 Standards for Demolition and Renovation, the JBSA Asbestos Management Plan, and the JBSA Asbestos Operations Plan shall also be adhered to.

3.12.1.2 Renovation/Demolition Notifications

An asbestos inspection report is required prior to any disturbance of Asbestos Containing Materials regardless of construction date. All notifications shall be coordinated with the JBSA area specific Environmental Office through the area specific Contracting Officer and Project Manager. The Environmental Office will submit all Notifications and amendments through the DSHS electronic notification system and provide a copy to the contracting officer for distribution to all interested parties. All asbestos activities meeting the below requirements are required to have a Renovation/Demolition notification submitted to the Texas Department of State Health Services (TDSHS), Notification Section at the minimum of 14 working days prior to any abatement related activities. This authority will not be delegated to the contractor at any time. If the location specific environmental office is not available, the project manager for the contract may contact the Asbestos Program Officers. See paragraph 1.1 Requirements for a list of contacts.

Any concerns for any JBSA location may be addressed to the Toxic's Team Lead at JBSA-RND, government cell 210-540-0226.

It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

a. If a facility is scheduled for demolition, TDSHS must be notified through the TDSHS electronic notification system even if a facility doesn't contain asbestos.

b. If a facility is required to have 160 SF, or 260 LF of Asbestos Containing Materials removed from any component, then a State Renovation/Demolition Notification is required.

c. An amendment to a Notification is required when the amount of asbestos affected changes by 20%.

d. An amendment to the electronic notification is required for any

changes in Start and Stop Dates. This amendment must be posted 24 hours prior to the change. This includes demolition activities without any asbestos.

e. In no circumstance shall an asbestos related activity for a renovation or demolition take place prior to the Start Date as stated in the notification. This rule also includes any demolition activity that doesn't contain Asbestos Containing Materials.

3.12.1.3 Electronic Notifications

The contractor or sub-contractor responsible for abatement shall pay all TDSHS invoice costs associated with asbestos abatement, renovation, demolition activities, and/or disposal activities.

The following information is required for all notifications:

a. An indication of whether the notification is the original or an amendment.

b. Name, address, and telephone number of both the facility owner and operator and the asbestos removal contractor owner or operator. The facility owner for asbestos activities shall always be the area specific Environmental Office.

c. Type of activity; demolition/renovation, demolition without ACM; or renovation.

d. Description of the facility or affected part of the facility including the size in square feet and number of floors and age.

e. Procedures, including analytical methods, employed to detect the presence of all Asbestos Containing Material (ACM) and Category I and Category II non-friable ACM.

f. Estimate of the approximate amount of ACM to be removed from the facility in terms of length of pipe in linear feet, surface area in square feet on other facility components, or volume in cubic feet if off the facility components.

g. Physical location and street address, including building number or name and floor or room number as appropriate. city, county, and state where the facility is being demolished or renovated.

h. The scheduled starting and completion dates of asbestos removal work or any other activity, such as site preparation that would break up,
dislodge, or similarly disturb asbestos material in a demolition or renovation project.

i. The scheduled starting and completion dates of demolition.

j. Description of planned demolition or renovation work to be performed and methods to be employed, including demolition or renovation techniques to be used and description of affected facility components.

k. Description of work practices and engineering controls to be used to comply with the requirements of National Emission Standard for

Hazardous Air Pollutant, Renovation and Demolition rules including asbestos removal and waste-handling emission control procedures.

l. Name and location of the waste disposal site where the asbestos-containing waste material will be deposited.

m. For Emergency Renovations and Demolition Notifications, the following information shall be provided; the date and hour that the emergency occurred, a description of the sudden unexpected event, and an explanation of how the event caused an unsafe condition or would cause equipment damage or an unreasonable financial burden. The location specific Environmental Office will initiate an electronic notification. to TDSHS prior to the submission of an Emergency Notification. The Contractor shall submit a request for emergency action to the Contracting Officer; if a financial burden results, then proof containing cost burden shall be included in the request. All requests submitted due to non-emergency action may be subject to penaltyfrom TDSHS. At no time will abatement activities proceed without the Emergency Notification number. Not meeting the 10-day Notification requirement loss or increase in funding are not valid justifications for an Emergency. The final determination for granting an Emergency Notification is at the discretion of the area specific Environmental Manager after discussion with TDSHS representatives.

It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative and to build in additional time as needed to comply with deadlines and timelines provided with environmental requirements.

n. Description of procedures to be followed if unexpected ACM is found or Category II non-friable ACM becomes crumbled, pulverized, or reduced to powder.

o. Name, address, and telephone number of the waste transporter.

p. The abatement contractor will be responsible for entering as much of the known information into the written notification prior to submitting the notification through the JBSA area specific Contracting Office. The Environmental Asbestos Program Office will fill in the missing information. JBSA Environmental Office will submit the notification through the TDSHS Electronic Notification System and provide a copy of the completed electronic notification to the area specific Contracting Officer for distribution to all interested parties.

Any notifications submitted with phased abatement activities must include the TDSHS phased schedule form. Any phased activity must not have a break in any abatement activity which exceeds 30 days. The Renovation/Demolition Notification forms and the Scheduled Activity forms are available at the TDSHS web site:

http://www.dshs.texas.gov/asbestos/forms.aspx

q. Emergency Notification Procedures for Unforeseen Site Conditions. These procedures are only to be used when a situation arises where asbestos materials are disturbed in an inaccessible area that could not be accessed to conduct a thorough assessment. In the event that asbestos materials are disturbed, an Emergency Notification would be required dependent on the total amount of Asbestos Containing

Materials. To initiate an Emergency Notification, stop all work and contact the appropriate Contracting representative (CO or PM) and explain the circumstance. The contracting representative (CO or PM) will then contact the appropriate 802d Environmental. An amendment to the existing notification shall be submitted to the State by the 802d Environmental. If a notification does not exist, an emergency notification shall be submitted with the appropriate justification.

3.12.1.4 ACM Emission Control Procedures

Each owner or operator of a demolition or renovation activity to whom this paragraph applies, shall comply with the following procedures:

a. Remove all ACM from a facility being demolished or renovated before any activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal. All ACM shall be removed during demolition. A potential for non-friable ACM to become friable during processing of the construction debris is likely to occur.

b. If it is on a facility component that is encased in concrete or other similarly hard material and is adequately wet whenever exposed during demolition.

c. If it was not accessible for testing and was therefore, not discovered until after demolition began and, as a result of the demolition, the material cannot be safely removed. If not removed for safety reasons, the exposed ACM and any asbestos-contaminated debris must be treated as asbestos-containing waste material and adequately wet at all times until disposed of. This statement applies to facilities that are structurally damaged/unsound where an asbestos inspection is not possible due to safety concerns.

d. When a facility component that contains or is covered with, or coated with ACM which is being taken out of the facility as a unit or in sections:

1. Adequately wet all ACM exposed during cutting or disjoining operations.

2. Carefully lower each unit or section to the floor and to ground level, not dropping, throwing, sliding, or otherwise damaging or disturbing the ACM.

3. When ACM is stripped from a facility component while it remains in place in the facility, adequately wet the ACM during the stripping operation.

3.12.1.5 Wet Methods

In renovation or demolition operations, wet methods are not required if:

a. The owner or operator has obtained prior written approval from DSHS based on a written application that wetting materials to comply with this paragraph would unavoidably damage equipment or present a safety hazard; and;

b. The owner or operator will use an appropriate emission control

method:

1. A local exhaust ventilation and collection system is designed and operated to capture the particulate asbestos material produced by the stripping and removal of the asbestos materials. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in 40 CFR 61.152.

2. A glove-bag system is designed and operated to contain the particulate asbestos material produced by the stripping of the asbestos materials.

3. Leak-tight wrapping shall be used to contain all ACM prior to dismantlement.

c. In renovation operations, where wet methods would result in equipment damage or a safety hazard, and the methods allowed in paragraph 3.10.1.4(d) of this section cannot be used, another method may be used after obtaining written approval from the Administrator based upon a determination that it is equivalent to wetting in controlling emissions or to the methods allowed in paragraph 3.10.1.5(b) of this section.

1. A copy of the DSHS written approval shall be kept at the worksite and made available for inspection and a copy provided to the Contracting Officer for Environmental review. Any changes to wet methods shall be written by a DSHS-licensed asbestos consultant.

2. After a facility component is covered with, coated with, or contains ACM has been taken out of the facility as a unit or in sections pursuant to paragraph 3.10.1.4(d) of this section, it shall be stripped or contained in leak-tight wrapping.

3.12.1.6 Adequately wet the ACM during stripping or:

Use a local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material produced by the stripping. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in 40 CFR 61.152(b). For large facility components such as reactor vessels, large tanks, and steam generators, but not beams (which must be handled in accordance with paragraphs 3.10.1.4(b) and (d) of this section), the ACM is not required to be stripped if the following requirements are met:

1. The component is removed, transported, stored, disposed of, or reused without disturbing or damaging the ACM.

2. The component is encased in a leak-tight wrapping.

3. The leak-tight wrapping is labeled according to 40 CFR 61.149(d)(1)(i), (ii), and (iii) during all loading and unloading operations and during storage.

3.12.1.7 For all RACM, including material that has been removed or stripped:

a. Adequately wet the material and ensure that it remains wet until collected and contained or treated in preparation for disposal in accordance with 40 CFR 61.150; and:

b. Carefully lower the material to the ground and floor, not dropping, throwing, sliding, or otherwise damaging or disturbing the material.

c. Transport the material to the ground via leak-tight chutes or containers if it has been removed or stripped more than 50 feet above ground level and was not removed as units or in sections.

d. ACM contained in leak-tight wrapping that has been removed in accordance with paragraphs 3.10.1.5 (c) Wet Methods,(2)and 3.10.1.5 (b)(3) Wet Methods of this section need not be wetted.

3.12.1.8 When the temperature at the point of wetting is below 0 °C (32 °F):

a. The owner or operator need not comply with paragraph 3.10.1.4(d)1 and the wetting provisions of paragraph (3.10.1.5(c)2 of this section.

b. The owner or operator shall remove facility components containing, coated with, or covered with ACM as units or in sections to the maximum extent possible.

c. During periods when wetting operations are suspended due to freezing temperatures, the owner or operator must record the temperature in the area containing the facility components at the beginning, middle, and end of each workday and keep daily temperature records available for inspection by the Administrator during normal business hours at the demolition or renovation site. The owner or operator shall retain the temperature records for at least 2 years.

3.12.1.9 Handling of ACM

No ACM shall be stripped, removed, or otherwise handled or disturbed at a facility regulated by this section unless at least one on-site representative, such as a foreman or management-level person or other authorized representative, trained in the provisions of this regulation and the means of complying with them, is present. Every year, the trained on-site individual shall receive refresher training in the provisions of this regulation. The required training shall include as a minimum: applicability; notifications; material identification; control procedures for removals including, at least, wetting, local exhaust ventilation, negative pressure enclosures, glove-bag procedures, and High Efficiency Particulate Air (HEPA) filters; waste disposal work practices; reporting and record keeping; and asbestos hazards and worker protection. Evidence that the required training has been completed shall be posted and made available for inspection by the Administrator or the location specific Asbestos Program Manager at the demolition or renovation site.

3.12.1.10 Resilient Floor Covering Institute (RFCI) Procedures

**The RFCI procedures are not authorized at any JBSA area locations.**

3.12.2 Roofing Materials

Asbestos abatement for roofing materials is regulated as an Occupational Safety Health Administration (OSHA) Class II, asbestos activity. The abatement of asbestos containing roofing materials requires at a minimum, an 8-hour OSHA training course. A copy of all abatement workers training must be provided electronically to 802 CES/CEIE through 502 CONS prior to

any asbestos removal of roofing materials. All asbestos roofing materials will be manifested as asbestos waste. During the removal of roofing materials containing asbestos, a competent supervisor trained in the EPA Model Accreditation course must be on-site at all times and an OSHA Negative Exposure Assessment shall be accomplished.

3.12.2.1 Roof Area/NESHAP

If the asbestos containing roof area undergoing renovation is less than 160 SF, National Emission Standards for Hazardous Air Pollutants (NESHAP) does not apply, regardless of the removal method to be used, the type of material (Category I or II), or its condition (friable versus non-friable). 40 CFR 61.145(a)(4). Category I non-friable asbestos-containing roofing material, any project that is 5580 sqft or greater is subject to the NESHAP; conversely, it is EPA's interpretation that when an RB roof cutter or equipment that similarly damages the roofing material is used to remove Category I non-friable asbestos-containing roofing material in a roof removal project that is less than 5580 sqft, the project is not subject to the NESHAP, except that notification is always required for demolitions.

3.12.2.2 Asbestos Cement (Transite) Roof Shingles

For asbestos cement (A/C - Transite) shingles (or other Category II roofing material), if the area of the roofing material to be removed is at least 160 sqft and the removal methods will crumble, pulverize, reduce to powder, or contaminate with ACM (from other ACM that has been crumbled, pulverized or reduced to powder) 160 sqft or more of such roofing material, the removal is subject to the NESHAP. Notification is required if the material exceeds 160 sqft and must be abated by a certified asbestos abatement team.

3.12.2.3 Roofing Material

To determine if a removal operation that meets or exceeds the coverage threshold is subject to the NESHAP, any suspect roofing material (i.e. roofing material that may be ACM) should be tested for asbestos. If any such roofing material is equal to or greater than one percent asbestos and the removal operation is covered by the NESHAP, then DSHS must be notified and the work practices in Sec. 61.145(c) must be followed. In EPA's view, if a removal operation involves at least the threshold level of suspect material, a roofing contractor may choose not to test for asbestos if the contractor follows the notification and work practice requirements of the NESHAP.

3.12.3 Shingle Removal (Category II ACM Removal)

A/C shingles, which are Category II non-friable ACM, become regulated ACM if the material has a high probability of becoming or has become crumbled, pulverized or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations per 40 CFR 61.141. However, merely breaking an A/C shingle (or any other category II ACM) that is not friable may not necessarily cause the material to become ACM. A/C shingles are typically nailed to buildings on which they are attached. EPA believes that the extent of breakage that will normally result from carefully removing A/C shingles and lowering the shingles to the ground will not result in crumbling, pulverizing or reducing the shingles to powder. Conversely, the extent of breakage that will normally occur if the A/C shingles are dropped from a building or scraped off of a building with heavy machinery would cause the shingles to become ACM. EPA therefore construes the NESHAP to mean that the removal of A/C shingles

that are not friable, using methods that do not crumble, pulverize, or reduce the A/C shingles to powder (such as pry bars, spud bars and shovels to carefully pry the material), is not subject to the NESHAP provided that the A/C shingles are properly handled during and after removal, as discussed in this paragraph and the asbestos NESHAP. This interpretation also applies to other Category II non-friable asbestos-containing roofing materials.

### 3.12.4 Lead-Based Paint

All Lead-Based Paint work must be accomplished in accordance with federal, state, and local laws and the JBSA Lead-Based Paint Management Plan. No paint containing lead shall be used during the course of this contract. The Occupational Health and Safety Act (OSHA) Lead in Construction Standard, 29 CFR 1926.62 is in effect whenever materials are disturbed that contain any amount of lead. This will require contractors disturbing lead-based paint to institute medical surveillance, training, engineering controls, worker protection measures, and employee monitoring until monitoring results per the lead paint standard demonstrate that employee exposure is below the action level and permissible exposure limit. The contractor on site must maintain all documentation regarding lead exposure by either historical data or project data.

#### 3.12.4.1 Disposal Activities

The contractor shall be responsible for the collection, sampling, and disposal of all lead paint chips and lead paint-contaminated materials IAW the JBSA Hazardous Waste Management Plan. All necessary accumulation, disposal activities, and documentation shall be coordinated with the location specific Environmental Office. All analysis and disposal costs associated with Lead Based Paints is the responsibility of the contractor.

#### 3.12.4.2 Waste Manifests

All Waste Manifests for Lead-containing materials shall be signed (approved) by JBSA area specific Environmental office without exception. All Lead manifests will require a Waste Profile Sheet which is the responsibility of the abatement contractor. This profile sheet will establish and generate the waste manifest and the Land Disposal Restriction as required. The Waste Profile Sheet will be coordinated with the area specific Environmental Office through the Contracting Officer and the Project Manager. All waste profile sheets will be signed by JBSA Environmental Staff. The waste manifest will be signed by a JBSA Environmental Staff member prior to removal of material or components from each JBSA specific location. All Hazardous Waste, Lead disposals must include a Land Disposal Restriction prior to leaving JBSA.

It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

#### 3.12.4.3 Toxic Characteristic Leaching Procedure (TCLP)

Any lead waste in an industrial or administrative facility will require a Toxic Characteristic Leaching Procedure (TCLP) analysis to determine proper disposal procedures. All copies of lab results will be provided to JBSA Environmental prior to disposal of such material. All analysis will be accomplished by an approved TCEQ National Environmental Laboratory Accreditation Conference (NELAC), synonymous with the National

Environmental Laboratory Accreditation Program (NELAP) laboratory.

3.12.4.4 Residential Facilities

Lead-contaminated waste in residential housing may be disposed of as Household Waste.

3.12.4.5 Child Occupied Facility

Lead abatement in a target or child-occupied facility requires notification to the Texas Department of State Health Services seven working days prior to abatement activities by the Lead Certified firm. All notification costs and penalties are the responsibility of the Lead firm. A copy of the notification and any amendments shall be provided to the JBSA Contracting Office, Project Manager and JBSA Environmental.

3.12.4.6 Pre-Submittals Required

**Submittals required for review prior to Lead Based Paint Activities**. The following documents will be reviewed prior to any renovation in a target or child occupied facilities:

a. Lead Work Plans

b. Lead Occupant Protection Plan.

c. Texas Department of State Health Services Lead Licenses

d. Lead Notifications

e. Lead Training Certificates

f. Lead Inspection reports that have not been provided by the area specific Environmental Office. Any inspection reports done by a licensed Lead Inspector or Lead Risk Assessor.

g. Lead Based Paint Reports that were not included in the original assessment or results to a change in the scope of work.

3.12.4.7 TCLP Analysis

**Submittal required after OSHA Lead Based Paint removal or preparation activities**. TCLP analysis is required for all lead dust, paint chips, equipment and supplies to determine proper disposal requirements. Analysis must be done by an approved TCEQ Laboratory for the specific media. RCRA 10 metals are the minimum requirement for all regulated facilities excluding target and child-occupied facilities. These facilities are exempt from Hazardous Waste rules: any lead from target and child-occupied facilities is handled as household waste.

3.12.4.8 Clearance Certification

A clearance certification will be required prior to occupants reoccupying the area where lead abatement activities are accomplished. Visual and Wet Wipe samples will be conducted in all Temporary Lodging Facilities (TLF) or Child Care Facilities built before 1978 and has the potential residency of a child under the age of 6 or an expectant female. The facility must pass the minimum lead criteria in 40 CFR, part 745.227. The use of clearance verification cards will not be used in JBSA facilities. All clearances will

be conducted by a Texas Licensed Lead Risk Assessor.

### 3.12.5 Exit Lamp

Any demolition of a facility will require the inspection of exit lamps to ensure that they do not contain tritium. Lamps found to contain tritium will be disposed of IAW the appropriate federal regulations. Tritium Exit signs must still comply with Nuclear Regulatory Commission Radio-Active Regulations. If Tritium is found contact 802 CES/CEIEC prior to any removal activities to determine disposal and manifesting requirements.

### 3.12.6 Abrasive Media

Any paint removal operations that require the use of abrasive media, whether it's water, sand, or any other blast media to include water, will require a containment to hold all abrasive media within the blasting area. Note that any properties/projects falling within the jurisdiction of the NPS, SHPO, or under Cultural Resources consultation, abrasive media or water pressure shall not be used. Appropriate methods must follow the NPS Preservation briefs related to the abrasive media being used. See NPS Preservation briefs 1, 6, 7, 10, 22, 27,37,38, 42 available at NPS.gov. All drains, vents or any other openings will be masked or covered with a suitable material to prevent any breaches of media from the containment area. All media must be kept dry from the start of the contract until the material has been disposed of. The contractor will be responsible for disposing of the spent media in accordance with all Department of Transportation, Texas Commission on Environmental Quality, and Resource Conservation and Recovery Act requirements. Any breaches will be repaired immediately before continuing the blast operation process. All abrasive blasting procedures must be in accordance with 29 CFR 1910.94 and all other local, state and federal regulations applicable to Abrasive Blasting Operations. All material leaving JBSA locations for disposal must be manifested and signed by the specific Environmental Office staff.

Dry Abrasive Cleaning is permitted by rule PBR 30 TAC 106.452. See PBR for enclosed and abrasive cleaning and outside blast cleaning rules. Logs must be turned in to the 802 CES/CEIE Air Quality Media Team annotating number of hours actual blasting took place and pounds of waste media removed.

#### 3.12.6.1 Blasting/Lead in Construction Rules

If the blasting is in an area where LBP has been identified, all OSHA 29 CFR 1926.62, Lead in Construction Rules, will apply. The media will have a TCLP analysis accomplished by a Texas Certified NELAC/ NELAP laboratory to determine characteristics of the waste stream for proper landfill disposal. All non-approved laboratory results will be disapproved, and the test will be re-accomplished at no cost to the government Approved laboratories may be found on the Texas Commission on Environmental Quality website at:

https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_li

### 3.12.7 Residential Property Renovation

Residential property renovation includes Child Care Centers, Temporary Lodging Facilities, etc. and applies to all renovations performed for compensation. Child-occupied facility means a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, under 6 years of age, on at least two different days within any week

(Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visits last at least 6 hours, and the combined annual visits last at least 60 hours. Child-occupied facilities may include, but are not limited to, day care centers, preschools and kindergarten classrooms. Child-occupied facilities may be located in target housing or in public or commercial buildings. With respect to common areas in public or commercial buildings that contain child-occupied facilities, the child-occupied facility encompasses only those common areas that are routinely used by children under age 6, such as restrooms and cafeterias. Common areas that children under age 6 only pass through, such as hallways, stairways, and garages are not included. In addition, with respect to exteriors of public or commercial buildings that contain child-occupied facilities, the child-occupied facility encompasses only the exterior sides of the building that are immediately adjacent to the child-occupied facility or the common areas routinely used by children under age six.

3.12.7.1 Certified Renovators

The Repair, Renovate, and Painting rules only apply to Target and Child Occupied facilities. This training and certification does not meet the Occupational Safety and Health Administration training requirements to conduct Lead work in other facilities, therefore, this type of certification will not be accepted for Commercial or Industrial Facility LBP projects. Renovations shall be directed by renovators certified by an authorized EPA training provider and performed by certified renovators or individuals trained by a certified renovator (training records must be available on site) in target housing or child-occupied facilities.

3.12.7.2 General Contractors

All general contractors and hired lead firms that conduct any lead-based paint renovation or repair procedures, not to include lead abatement activities, shall both be certified as an EPA Renovation, Repair, and Painting firm and have received the Renovation, Repair and Painting 8-hour training course from an EPA-certified provider. A copy of the EPA application and a copy of the renovator training certification shall be provided to the 802 CES/CEIE for review through the contracting office prior to the Notice to Proceed. The general contractor and the lead firm shall provide a copy of both the EPA training certification and the EPA firm certification.

Pressure Washing is not authorized on any facility containing Lead painted surfaces. This process could cause cross contamination of the soils and surrounding areas instituting additional clean-up procedures and additional costs that will be the sole responsibility of the contractor to comply. No detergents are authorized to be used on any facility as this could result in contamination of our local waterways both on and off the installation.

3.12.7.3 Distribution of the EPA Pamphlets

The Lead Safe Certified Guide to Renovate Right will be provided to the facility manager IAW 40 CFR 745 Subpart E any time a Child Occupied or Target facility is being renovated that contains Lead-Based Paint. Proof of distribution will be provided to 802 CES/CEIE through the base Contracting Office. If renovation is to be done in an occupied TLF, then the pamphlet will be provided to the occupant and to any additional facility occupant that has a child under the age of 6 or an expectant female in or adjacent to the target or Child Occupied facility. If the facility is not occupied, then the pamphlet will be provided to the facility manager to validate

proof of pamphlet acceptance in accordance with the EPA rules.

3.12.7.4 Occupant Protection

To ensure occupant protection, firms must post signs clearly defining the work area and warning occupants and other persons not involved in renovation activities to remain outside of the work area. To the extent practicable, these signs must be in the primary language of the occupants. These signs must be posted in English and Spanish before beginning the renovation and must remain in place and readable until the renovation and the third-party clearances have been completed. If warning signs have been posted in accordance with 24 CFR 35.1345(b)(2) or 29 CFR 1926.62(m), additional signs are not required.

3.12.7.5 Work Area Isolation

Contractor shall contain the work area. Before beginning the renovation, the firm must isolate the work area so that no dust or debris leaves the work area while the renovation is being performed. In addition, the firm must maintain the integrity of the containment by ensuring that any plastic or other impermeable materials are not torn or displaced and taking any other steps necessary to ensure that no dust or debris leaves the work area while the renovation is being performed. The firm must also ensure that containment is installed in such a manner that it does not interfere with occupant and worker egress in an emergency.

3.12.7.6 Work Area Preparation-Interior

For interior renovations, the firm must:

a. Remove all objects from the work area, including furniture, rugs, and window coverings, or cover them with plastic sheeting or other impermeable material with all seams and edges taped or otherwise sealed.

b. Close and cover all ducts opening in the work area with taped-down plastic sheeting or other impermeable material.

c. Close windows and doors in the work area. Doors must be covered with plastic sheeting or other impermeable material. Doors used as an entrance to the work area must be covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.

d. Cover the floor surface, including installed carpet, with taped-down plastic sheeting or other impermeable material in the work area 6 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to contain the dust, whichever is greater.

e. Use precautions to ensure that all personnel, tools, and other items, including the exteriors of containers of waste, are free of dust and debris before leaving the work area.

3.12.7.7 Work Area Preparation-Exterior

For exterior renovations, the firm must:

a. Close all doors and windows within 20 feet of the renovation. On multi-story buildings, close all doors and windows within 20 feet of the renovation on the same floor as the renovation, and close all doors

and windows on all floors below that are the same horizontal distance from the renovation.

b. Ensure that doors within the work area that will be used while the job is being performed are covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.

c. Cover the ground with plastic sheeting or other disposable impermeable material extending 10 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to collect falling paint debris, whichever is greater, unless the property line prevents 10 feet of such ground covering.

d. In certain situations, the renovation firm must take extra precautions in containing the work area to ensure that dust and debris from the renovation does not contaminate other buildings or other areas of the property or migrate to adjacent properties.

3.12.7.8 Prohibited or Restricted Work

The work listed below shall be prohibited or restricted during a renovation as follows:

a. Open-flame burning or torching of lead-based paint is prohibited.

b. The use of machines that remove lead-based paint through high-speed operation such as sanding, grinding, power planning, needle gun, pressure washing, abrasive blasting, or sandblasting, is prohibited unless such machines are used with HEPA exhaust control.

c. Operating a heat gun on lead-based paint is permitted only at temperatures below 1000 degrees Fahrenheit.

3.12.7.9 Renovation Waste

Waste from renovation activities must be properly managed.

a. Waste must be contained to prevent releases of dust and debris before the waste is removed from the work area for storage or disposal. If a chute is used to remove waste from the work area, it must be covered.

b. At the conclusion of each workday and at the conclusion of the renovation, waste that has been collected from renovation activities must be stored under containment, in an enclosure, or behind a barrier that prevents release of dust and debris out of the work area and prevents access to dust and debris.

c. When the firm transports waste from renovation activities, the firm must contain the waste to prevent release of dust and debris.

3.12.7.10 Cleaning the work area

After the renovation has been completed, the firm must clean the work area until no dust, debris or residue remains.

3.12.7.11 Interior and Exterior Renovations

The firm must:

a. Collect all paint chips and debris and without dispersing any of it, seal this material in a heavy-duty bag.

b. Remove the protective sheeting. Mist the sheeting before folding it, fold the dirty side inward, and either tape shut to seal or seal in heavy-duty bags. Sheeting used to isolate contaminated rooms from non-contaminated rooms must remain in place until after the cleaning and removal of other sheeting. Dispose of the sheeting as waste.

3.12.7.12 Additional Cleaning

**Additional cleaning for interior renovations.** The firm must clean all objects and surfaces in the work area and within 2 feet of the work area in the following manner, cleaning from higher to lower:

a. Walls; clean walls starting at the ceiling and working down to the floor by either vacuuming with a HEPA vacuum or wiping with a damp cloth.

b. Remaining surfaces. Thoroughly vacuum all remaining surfaces and objects in the work area, including furniture and fixtures, with a HEPA vacuum. The HEPA vacuum must be equipped with a beater bar when vacuuming carpets and rugs.

c. Wipe all remaining surfaces and objects in the work area, except for carpeted or upholstered surfaces, with a damp cloth. Mop uncarpeted floors thoroughly, using a mopping method that keeps the wash water separate from the rinse water, such as the 2-bucket mopping method, or using a wet mopping system.

3.12.7.13 Post Cleaning Verification

Standards for post-renovation cleaning verification:

a. Interiors: A certified renovator must perform a visual inspection to determine whether dust, debris or residue is still present. If dust, debris or residue is present, these conditions must be removed by re-cleaning and another visual inspection must be performed.

b. All Target or Child Occupied facilities clearances will be done by a certified Inspector, Risk Assessor or a dust sampling technician. Verification procedure will not be authorized.

c. The renovation firm is required to re-clean the work area until the dust clearance sample results are below the clearance standards in 745.227(e)(8).
https://www.govregs.com/regulations/40/745.227

3.13 EMERGENCY RESPONSE, SPILL PROCEDURES, FUEL TANKS

3.13.1 Spills

All fuel, oil, and chemical spills/releases that pose a threat to Occupational Health & Safety or the environment must be immediately reported to the installation Fire Emergency Services utilizing 911. If

contacting 911 via cell phone, request that the city dispatcher transfer you to the specific JBSA installation's Fire Emergency Services

The contractor is required to train his/her personnel on spill procedures, fire-suppression systems, and Safety Data Sheets for all materials used and/or stored on the project site. Immediately after notifying the location specific Fire Emergency Services of a release, the contractor shall notify the Contracting Officer and 802 CES/CEIE Environmental at JBSA-LAK (210) 671-4844, JBSA-RND (210)652-4668 and JBSA-SAM/BUL (210) 221-1142. A verbal report must be made to 802 CES/CEIE within one hour of discovery followed by a detailed written notification within 11-15 hours. Cleanup and all associated costs due to spills are the responsibility of the contractor, and the contractor shall reimburse any government cost upon receipt of invoice. The 802 CES/CEIE shall make all required spill notifications to federal, state and local regulatory agencies.

It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

3.13.2 Spill Kits and Clean Up Equipment

The contractor shall provide and maintain spill clean-up equipment, sufficient in both type and quantity, at all sites involving the storage, and handling of fuel, POL, hazardous materials and/or hazardous wastes. The type of equipment and quantity required will be identified in the contractor's site-specific contingency plans. Contractor shall train employees in the use of the spill kits and clean up equipment and document the training. If a spill occurs, the contractor shall initiate containment, control, and clean-up actions. Notify the 802 CES/CEIE Environmental office immediately if release extends off-site or enters the natural environment. The contractor shall take sufficient measures to prevent spillage of hazardous and toxic materials during dispensing and shall collect waste in suitable containers observing chemical compatibility requirements.

3.13.3 Emergency Response Plan

The Emergency Response Plan as required per Section 1.3 Submittals, shall include, but not be limited to the following:

3.13.3.1 Training

Contractor shall provide for review by the Contracting Officer documentation to demonstrate that the contractor has sufficient knowledge and training to address potential spills at the work site. The contractor should have appropriate DOT and HAZWOPER trained personnel to manage all spill response.

3.13.3.2 Site Specific Spill Prevention/Response Plan

A "Site Specific Spill Prevention/Response Plan" shall be prepared that addresses all locations where the contractor handles chemicals, hazardous materials or petroleum products. Site-specific spill plans shall be revised as necessary to reflect current hazardous material storage and usage. The plan shall detail the contractor representative and alternate who will be contacted in the event of an emergency. The plan will identify equipment such as Spill Kits, that will be used to contain and clean up spills. Revisions to the plan shall be coordinated with 802 CES/CEIE through the Contracting Officer.

It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

3.13.4 Storage Tanks

802 CES/CEIE does not allow the use of storage tanks (fixed or portable) and must approve the use of drums (55-gallons or greater) on JBSA properties, and the contractor must ensure that adequate spill containment and spill materials (spill kits) are readily available. The contractor must have written spill procedures for all hazardous materials, tanks, and heavy equipment they use on the installation detailed in the site-specific Spill Prevention/Response Plan.

3.14 POST-CONSTRUCTION CLEANUP

3.14.1 Area Restoration

The Contractor shall clean up all areas affected by construction and restore them back to their original condition to include landscaping, silt fences, planting of trees, grass, and shrubs damaged by construction; plus raking and disposal of debris such as roof shingles, paper, nails, glass, sheet metal, bricks, and waste concrete. All temporary best management practices (i.e., silt fences, geotextile), inert material, and erosion and sediment controls shall be removed by the contractor after site has reached final stabilization.

3.14.2 Backfilled Areas

Backfilled areas shall be compacted and landscaped as required by the 502 CES general construction requirements/Contract Specification.

3.15 JBSA ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

JBSA is committed to conducting its mission in a safe and environmentally responsible manner. Each contractor shall be aware that JBSA has an environmental policy to Stop pollution, Obey laws, Always improve, and Reduce waste (SOAR).

The environmental policy is found in eDASH at the following link and is available from 802 CES/CEIE by request:

https://usaf.dps.mil/teams/10625/JBSA/Shared%20Documents/EMS/01.%20Scope%20and%20Commitm

Each contractor shall be aware that JBSA has an EMS and that there is a commitment for everyone on these installations to protect human health, natural resources, and the environment. All contractors and contractor employees who work on JBSA, must complete General EMS training and maintain certificates of completion, to be provided upon request.

General EMS Awareness training is located on the Air Force Learning Portal TEACH at https://usaf.learningbuilder.com/

Conformance with the Environmental Management System

Perform work under this contract consistent with the policy and objectives identified in the JBSA Environmental Management System (EMS). Perform work in a manner that conforms to objectives and targets of the environmental

programs and operational controls identified by the EMS. Support Government personnel when environmental compliance and EMS audits are conducted by escorting auditors at the Project site, answering questions, and providing proof of records being maintained. Provide monitoring and measurement information as necessary to address environmental performance relative to environmental, energy, and transportation management goals. In the event an EMS nonconformance or environmental noncompliance associated with the contracted services, tasks, or actions occurs, take corrective and preventative actions. In addition, employees must be aware of their roles and responsibilities under the installation EMS and of how these EMS roles and responsibilities affect work performed under the contract. Coordinate with the installation's EMS coordinator to identify training needs associated with environmental aspects and the EMS and arrange training or take other action to meet these needs. Provide training documentation to the Contracting Officer. The JBSA Environmental Office will retain associated environmental compliance records. Make EMS Awareness training completion certificates available to Government auditors during EMS audits and include the certificates in the Employee Training Records.

## 3.16 INSTALLATION RESTORATION MANAGEMENT

### 3.16.1 Installation Restoration Program (IRP)

The Contractor acknowledges the JBSA Installation Restoration Program (IRP) and the IRP Management Action Plan. The Contractor shall comply with all aspects of the plan and will utilize the AF Form 103 (Base Civil Engineering Work Clearance Request) Digging Permit process before performing any earthmoving or subsurface work.

### 3.16.2 Soil and Groundwater Contamination

Contractors awarded construction projects on JBSA should be aware of the potential to encounter soil and/or groundwater contamination throughout many areas of the base properties and that the regulatory agency can halt projects for long periods of time due to the discovery of contamination. Cooperation between the contractor and 802 CES/CEIE will result in expediting the progress of construction with IRP compliance issues.

### 3.16.3 Environmental Restoration Program (ERP) Sites

The following guidance has been developed to assist in the construction of projects in possibly contaminated areas (ERP sites).

#### 3.16.3.1 Guideline Sets

Guideline Set 1 is the most stringent and involves projects in an area that has known contamination and regulatory land use controls. Guideline Set 2 is general and applies to any area of the installation where contamination has not been confirmed. It is imperative that contractors involve 802 CES/CEIE early and often in the construction process to minimize the impact that contaminated soils and/or groundwater may have on their project.

It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.

#### 3.16.3.2 Guideline Set 1

Projects located on a site with known soil and/or groundwater contamination

with land use controls. All restrictions will be coordinated with the 802 CES/CEIE and the Environmental Restoration Program Manager.

a. Contractor shall educate workers on potential to encounter contamination and to assure workers are adequately protected with personal protective equipment.

b. If unusual soil or groundwater color or odor is encountered, contact 802 CES/CEIE immediately, non-duty hours, contact EMCS at Joint Base Randolph 652-3143 and Lackland at 210-671-2288.

**It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative**.

3.16.3.3 Guideline Set 2

Sites without land use control and not in close proximity to known contamination or an ERP site:

a. If unusual soil or groundwater color or odor is encountered during subsurface construction work, contact 802 CES/CEIE during regular duty hours and EMCS after hours.

b. Contractor shall educate workers on potential to encounter contamination and to assure workers are adequately protected with personal protective equipment.

3.17 EXPLOSIVE ORDNANCE

The Contractor is hereby notified that the site may have Un-exploded Ordinance (UXO) and shall perform a UXO survey/clearance for the site, to include access & utility routes, a minimum of a 15' wide clear zone beyond grading operations. Should UXO be encountered during progress of the Work, the Contractor shall cease work immediately and contact 802 CES Environmental for immediate direction and assistance. Do not, under any circumstances, attempt excavation and handling of hazardous material UXO. Coordinate with the Contracting Officer for procedures and approvals required by JBSA.

**It is the contractor's responsibility and requirement to coordinate all communications and submittals with 802 CES/CEIE Environmental Offices through the 802 CES/CEPM Project Managers and Contracting Representative.**

Include in the ENVIRONMENTAL PROTECTION PLAN measures to:

a. Immediately stop operations in the affected area.

b. Notify onsite personnel of the UXO hazard and evacuate the immediate area of the UXO.

c. Restrict access to the area.

d. Notify the 802 CES Environmental Office and the Contracting Officer immediately.

-- End of Section --

SECTION 01 78 00

CLOSEOUT SUBMITTALS
<AMENDMENT 0003>

# 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 within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

| | |
|---|---|
| EM 1110-1-2909 | (2012) Engineering and Design -- Geospatial Data and Systems |
| ERDC/ITL SR-23-1 | (2023) A/E/C Graphics Standard, Release 2.2 |
| ERDC/ITL SR-24-3 | (2024) A/E/C CAD Standard - Release 6.2 |

U.S. DEPARTMENT OF DEFENSE (DOD)

| | |
|---|---|
| UFC 1-300-08 | (2023) Criteria for Transfer and Acceptance of DoD Real Property |

## 1.2 DEFINITIONS

### 1.2.1 As-Built Drawings

As-built drawings are the marked-up drawings, maintained by the Contractor on-site, that depict actual conditions and deviations from the Contract Documents. These deviations and additions may result from coordination required by, but not limited to: contract modifications; official responses to submitted Requests for Information (RFI's); direction from the Contracting Officer; design that is the responsibility of the Contractor, and differing site conditions. Maintain the as-builts throughout construction as red-lined PDF files <AM#0003>in both hard copy and electronic copies for monthly government review and submission</AM#0003>. These files serve as the basis for the creation of the record drawings.

### 1.2.2 Record Drawings

The record drawings are the final compilation of actual conditions reflected in the as-built drawings.

Produce the record drawings from the Record Model(s) and do not include annotations indicating revisions.

### 1.2.3 Record Model

A model reflecting approved changes during construction including red-lines, requests for information (RFI's), and contract modifications. Include updated construction phase facility/site data for components.

### 1.2.4 Advanced Modeling

A subset of geospatial technologies as defined in EM 1110-1-2909 to include Building Information Modeling (BIM), Civil Information Modeling (CIM), Geographic Information Systems (GIS), and Computer-Aided Design (CAD). Advanced modeling is comprised of models and drawings that form a digital representation of the project, or part thereof, that are comprised of model elements with facility data.

### 1.2.5 USACE CAD/BIM Technology Center

The USACE CAD/BIM Technology Center hosts all standard content for USACE. This content can be accessed through the CAD/BIM Technology Center website, https://cadbimcenter.erdc.dren.mil/.

## 1.3 SOURCE DRAWING FILES

Request the full set of electronic drawings, in the source format, for Record Drawing preparation, after award and at least 30 days prior to required use.

### 1.3.1 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse is at the sole risk of the Contractor and without liability or legal exposure to the Government. The Contractor must make no claim and waives to the fullest extent permitted by law, any claim or cause of action of any nature against the Government, its agents or sub consultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold the Government harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic CAD drawing files are not construction documents. Differences may exist between the CAD files and the corresponding construction documents. The Government makes no representation regarding the accuracy or completeness of the electronic CAD files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. In the event that a conflict arises between the signed and sealed construction documents prepared by the Government and the furnished Source drawing files, the signed and sealed construction documents govern. The Contractor is responsible for determining if any conflict exists. Use of these Source Drawing files does not relieve the Contractor of duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate the work of all contractors for the project. If the Contractor uses, duplicates or modifies these electronic source drawing files for use in producing construction data related to this contract, remove all previous indicia of ownership (seals, logos, signatures, initials and dates).

## 1.4 RECORD DRAWINGS

The Government will provide pdf and or program files at the preconstruction conference that contains one set of "as-designed" electronic CAD files in the specified software and format revised to reflect all amendments and the final contract PDF drawings. The CAD files are provided to enable

preparation of as-built or as-constructed drawings. If discrepancies exist between the CAD files and the contract PDF drawings, correct the CAD files to show the contract PDF drawings.

### 1.4.1 Variation with Contract Drawings

The electronic files provided are not part of the contract documents. If there is any discrepancy between the electronic files and the contract drawings, the contract drawings govern. The Government has no responsibility to modify any GFM due to changes in the design that occur after award.

Evaluate the content and quality of the GFM upon receipt. If major discrepancies or omissions occur in the GFM, notify the Contracting Officer and indicate the nature of such variations.

### 1.4.2 Definition

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

### 1.4.3 Contractor-Original Record Drawings

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

### 1.4.4 Data Loss, Corruption, and Error

Transfer of GFM files may result in corrupted files resulting in data loss and errors. Use of GFM files at own risk. Verify data integrity upon receipt and request a replacement if necessary. Make any adjustment in file structure, format, or software version as needed to make GFM compatible with computer systems and/or software to meet the requirements of the contract.

### 1.4.5 Modeling Completeness and Quality

The Government makes no guarantee that the GFM provide the level of completeness or quality as required by the contract. Further, the Government makes no guarantee that identified variations will be corrected upon notification.

## 1.5 PROJECT RECORD DOCUMENTS

### 1.5.1 Preliminary Record Drawings

The Contractor shall mark up both a reproducible set and a set of prints to

show as-built conditions. <AM#0003>The Contractor is also required to maintain an electronic version of the marked-up contract documents in PDF format that is reviewable by the Government monthly prior to submission of the monthly pay estimate. Monthly updates shall be easily identified from month to month. If proprietary software is used to maintain these records, a copy of the software should be made available to the Government on the Contractor-furnished tablet and/or standalone laptop.</AM#0003> These two sets, hereafter called preliminary record drawings, or singly, reproducibles or prints, shall be kept current and available on the jobsite at all times, except as noted below. For drawings contained within the Specifications, the Contractor shall mark up copies of these drawings to show as-built conditions; these copies will be considered the preliminary record drawings and shall be kept current and available on the jobsite at all times, except as noted below. Assign a member of the Contractor's Quality Control Organization to be responsibility for the maintenance and currency of the preliminary record drawings. This assignment and any reassignment of duties concerning the maintenance of the record drawings shall be promptly reported to the Contracting Officer's representative for approval. All changes from the contract drawings which are made in the work or additional information which might be uncovered in the course of construction, including uncharted utilities, shall be accurately and neatly recorded as they occur by means of details and notes. Clearly identify all changes and/or required additions to the preliminary record drawings in a contrasting color and which is compatible with reproduction of the preliminary record drawings. Update preliminary record drawings by Friday of each week. During periods when the reproducibles are being copied and are therefore not available at the jobsite, continue posting all required data to the prints. Minimize the time that the reproducibles are away from the jobsite and update them with all as-built data immediately upon their return. The preliminary record drawings will be jointly inspected for accuracy and completeness by the Contracting Officer's representative and the assigned representative of the Contractor's Quality Control Organization prior to submission of each monthly pay estimate. See paragraph, "Withholding for Preliminary Record Drawings." The record drawings shall show the following information, but not be limited thereto:

a. The location and description of utility lines or other installation of any kind or description known to or found to exist within the construction area. The location of exterior utilities includes actual measured horizontal distances from utilities to permanent facilities/ features. These measurements shall be within an accuracy range of 6 inches and shall be shown at sufficient points to permit easy location of utilities for future maintenance purposes. Show measurements for all change of direction points and all surface or underground components such as valves, manholes, drop inlets, cleanouts, meter, etc. Indicate the general depth range of each underground utility line (i.e., 3 to 4 feet in depth). The description of exterior utilities includes the actual quantity, size, and material of utility lines.

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

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

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

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

f. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

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

h. Options

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

i. Blue Line or Black Line Prints

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

j. Prefinal Inspection For Each Item of Work

As part of the prefinal inspection for each item of work, the current updated preliminary marked-up record drawings and as-built CADD drawing files will be reviewed. They shall comply with this specification prior to scheduling the final inspection, and/or prior to substantial completion of the item of work.

k. Preliminary Record Drawing Final Submittal

Prior to scheduling the red zone meeting and the final acceptance inspection of the last or only bid schedule item of work, the updated preliminary marked-up record drawings and the updated as-built CADD drawing files shall be completed and delivered to the Contracting Officer's Representative for review and acceptance. If upon review, the drawings and files are found to contain errors and/or omissions, they will be returned to the Contractor for corrections. Failure of the Contractor to make timely delivery of the preliminary record drawings and files on any or all items of work will be cause for the Government to delay substantial completion and to withhold the amount indicated in paragraph "Withholding for Preliminary Record Drawings," in accordance with the terms and conditions of the contract.

l. Withholding for Preliminary Record Drawings

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

m. Final Inspection

For each interim item of work, furnish a copy of the preliminary record drawings for that item, which the Contractor has reproduced from the approved preliminary record drawing reproducibles, to the Contracting Officer's representative at the time of final inspection for that item. At

the time of final inspection on the last or only item of work, the Contractor shall deliver a copy of the complete set of the approved preliminary record drawings to the Contracting Officer's Representative.

#### 1.5.1.1 Final Record Drawings

For contracts that do not require the drawings' CADD files to be updated, the preliminary record drawings, including fire protection/detection shop drawings and other special drawings, upon approval, will be considered the final record drawings and both sets will be retained by the Contracting Officer.

#### 1.5.1.2 Final Record Drawings

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

a. Drafting

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

b. CADD Standards

CADD Standards are specified in Section 01 35 13.20 00 SPECIAL PROJECT PROCEDURES - CAD .

The Contractor shall submit a written request for approval of any deviations from the Government's established CADD standards. Deviations will not be permitted unless prior written approval of such deviations has been received from the Government.

c. Final Revisions

When final revisions have been completed, place the words "REVISED RECORD DRAWING," in letters at least 3/16 inch high, and the date of completion in the revision block above the latest existing revision notation on each drawing CADD file.

d. Border Sheets

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

f. Copies of the Final Record Drawings

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

g. Submittal Requirements

The Contractor shall submit to the Contracting Officer the final record drawings, consisting of two sets each of corrected electronic (CADD and.cal) files; verification that the electronic (CADD and .pdf) files have been loaded and work on the designated computer systems and are error- and virus-free; the approved preliminary drawings; and all required reproduced items. See Section 01 35 17.00 44 SPECIAL PROJECT PROCEDURES FOR LACKLAND AIR FORCE BASE for additional requirements. The corrected .pdf files shall be compiled into sets so that the files can be viewed and printed by the Adobe PDF reader; sets shall be bookmarked by sheet number and title. All electronic CADD files will become the property of the Government.

1.5.1.3 Post-Record Drawing Work

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

1.5.1.4 Payment for Final Record Drawings

If there is no cost-loaded schedule activity for final record drawings, the Government will withhold the amount of $35,000, or 1% of the present construction value up to $200,000, whichever is the greater, until the final as-built drawing submittal has been approved by the Government.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Preliminary Record Drawings

Final Record Drawings

SD-03 Product Data

Warranty Management Plan

Warranty Tags

Spare Parts Data

warranty report

Inventory of Contractor Furnished and Insttalled Equipment

Inventory of Government Furnished Contractor Insttalled Equipment (GF/CI)

video

Red Zone Meeting

SD-08 Manufacturer's Instructions

Posted Instructions

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; G,

SD-11 Closeout Submittals

As-Built Drawings; G,

Record Drawings; G,

Record Model; G,

As-Built Record of Equipment and Materials

Warranted Equipment and Materials

Final Approved Shop Drawings; G,

Certification of EPA Designated Items; G,

Certification Of USDA Designated Items; G,

Interim DD FORM 1354; G,

High Performance and Sustainable Building (HPSB) Checklist; G

List Of Installed Building Equipment Items For DD Form 1354

Checklist For Form Dd1354

## 1.7 SPARE PARTS DATA

Submit two copies of the Spare Parts Data list.

a. Indicate manufacturer's name, part number, and stock level required for test and balance, pre-commissioning, maintenance and repair activities. List those items that may be standard to the normal maintenance of the system.

b. At acceptance of commissioning, ensure the required stock level is supplied as indicated in subparagraph a, for maintenance and repair activities through the facilities warranty period. Provision of spare parts does not relieve the Contractor of responsibilities listed under the contract guarantee provisions.

c. Supply any extra items of each part for spare parts inventory. Provision of spare parts does not relieve the Contractor of responsibilities listed under the contract guarantee provisions.

## 1.8 QUALITY CONTROL

Additions and corrections to the contract drawings must be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols must conform to ERDC/ITL SR-24-3.

## 1.9 WARRANTY MANAGEMENT

### 1.9.1 Warranty Management Plan

Develop a warranty management plan which contains information relevant to FAR 52.246-21 Warranty of Construction in Section 00 72 00 CONTRACT CLAUSES. At least 30 days before the planned pre-warranty conference, submit one set of the warranty management plan. Include within the warranty management plan all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan narrative must contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below must include due date and whether item has been submitted or was accomplished. Submit warranty information, made available during the construction phase, to the Contracting Officer for approval prior to each monthly pay estimate. Assemble approved information in a binder and turn over to the Government upon acceptance of the work. The construction warranty period must begin on the date of project acceptance and continue for the full product warranty period. Conduct a joint 4 month and 9-month warranty inspection, measured from time of acceptance; with the Contractor, Contracting Officer and the Customer Representative. The warranty management plan must include, but is not limited to, the following:

a. Roles and responsibilities of personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.

b. For each warranty, the name, address, telephone number, and e-mail of each of the guarantor's representatives nearest to the project location.

c. A list and status of delivery of Certificates of Warranty for extended warranty items, including roofs, HVAC balancing, pumps, motors,

transformers, and for commissioned systems, such as fire protection and alarm systems, sprinkler systems, and lightning protection systems.

d. Warranted Equipment and Materials list for each warranted equipment, item, feature of construction or system indicating:

(1) Name of item.
(2) Model and serial numbers.
(3) Location where installed.
(4) Name and phone numbers of manufacturers or suppliers.
(5) Names, addresses and telephone numbers of sources of spare parts.
(6) Warranties and terms of warranty. Include one-year overall warranty of construction, including the starting date of warranty of construction. Items which have warranties longer than one year must be indicated with separate warranty expiration dates.
(7) Cross-reference to warranty certificates as applicable.
(8) Starting point and duration of warranty period.
(9) Summary of maintenance procedures required to continue the warranty in force.
(10) Cross-reference to specific pertinent Operation and Maintenance manuals.
(11) Organization, names and phone numbers of persons to call for warranty service.
(12) Typical response time and repair time expected for various warranted equipment.

e. The plans for attendance at the 4- and 9- month post-construction warranty inspections conducted by the Government.

f. Procedure and status of tagging of equipment covered by warranties longer than one year.

g. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty or safety reasons.

1.9.2 Performance Bond

The Performance Bond must remain effective throughout the construction and warranty period .

a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.

c. Following oral or written notification of required construction warranty repair work, respond in a timely manner. Written verification will follow oral instructions. Failure to respond will be cause for the Contracting Officer to proceed against the Contractor.

1.9.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. At this meeting, establish and review communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty In connection with these requirements and at the time of the Contractor's quality control completion inspection, furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact must be located within the local service area of the warranted construction, be continuously available, and be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

1.9.4 Contractor's Response to Construction Warranty Service Requirements

The following warranty service requirements are applicable to contracts for Lackland AFB and will supplement requirements listed in Paragraph: Warranty of Construction. Following notification by the Contracting Officer or the Contracting Officer's Representative the Contractor shall respond to a warranty service requirement identified by the Contracting Officer's Representative in accordance with the "Warranty Service Priority List" of this program. This list prioritizes warranty work into the categories. The Contractor shall submit a warranty report on any warranty item that has been repaired during the warranty period. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframes specified, the Government will perform the work and backcharge the construction warranty payment item established.

Payment for this activity will be as follows: 25 percent after six months of the warranty period has passed; the remaining 75 percent will be paid at the end of the warranty period, if there are no outstanding warranty items.:

Priority 1A Perform on site inspection to evaluate situation, determine course of action, initiate work within 2 hours and work continuously to completion.

Priority 1B Perform on site inspection to evaluate situation, determine course of action, initiate work within 24 hours and work continuously to completion.

Priority 1C All other work to be initiated within 48 hours and work continuously to completion.

The "Warranty Service Priority List" is as follows:

1A Emergency deemed by the Base Civil Engineer such as a life threatening situation caused by a utility outage to Wilford Hall Medical Center (any items deemed hazardous to the safety of personnel).

1B All utilities, including HVAC, plumbing and electrical. Also,

intrusion alarm systems, all roof leaks, kitchen equipment, and fire detection and sprinkler systems.

1C All other areas.

Should parts be required to complete the work and the parts are not immediately available the Contractor shall have a maximum of 12 hours after arrival at the job site to provide the Contracting Officer's Representative with firm written proposals for emergency alternatives and temporary repairs for Government participation with the Contractor to provide emergency relief until the required parts are available on site for the Contractor to perform permanent warranty repair. The Contractors proposals shall include a firm date and time that the required parts shall be available on site to complete the permanent warranty repair. The Contracting Officer's Representative will evaluate the proposed alternatives and negotiate the alternative considered to be in the best interest of the Government to reduce the impact of the emergency condition. Alternatives considered by the Contracting Officer's Representative will include the alternative for the Contractor to "Do Nothing" while waiting until the required parts are available to perform permanent warranty repair. Negotiating a proposal which will require Government participation and the expenditure of Government funds shall constitute a separate procurement action by the using service.

### 1.9.5 Warranty Tags

At the time of installation, tag each warranted item with a durable, oil and water-resistant tag approved by the Contracting Officer. Attach each tag with a copper wire and spray with a silicone waterproof coating. Also, submit two record copies of the warranty tags showing the layout and design. The date of acceptance and the QC signature must remain blank until the project is accepted by the Contracting Officer. Show the following information on the tag.

| | |
|---|---|
| Type of product/material | |
| Model number | |
| Serial number | |
| Contract number | |
| Warranty period from/to | |
| Inspector's signature | |
| Construction Contractor | |
| Address | |

| | |
|---|---|
| Telephone number | |
| Warranty contact | |
| Address | |
| Telephone number | |
| Warranty response time priority code | |
| WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD. | |

PART 2 PRODUCTS

2.1 RECORD DRAWINGS

Prepare the CAD drawing files in the format specified in Section 01 35 13.20 00 SPECIAL PROJECT PROCEDURES-CAD, JBSA.

2.1.1 Additional Drawings

If additional drawings are required, prepare them using the specified electronic file format applying ERDC/ITL SR-24-3 and ERDC/ITL SR-23-1. The title block and drawing border to be used for any new final record drawings must be identical to that used on the contract drawings.

2.1.1.1 Sheet Numbers and File Names

If a sheet needs to be added between two sequential sheets, append a Supplemental Drawing Designator in accordance with ERDC/ITL SR-24-3 Adding a drawing sheet, and ERDC/ITL SR-23-1 Adding or deleting drawing sheets and index sheet procedures.

2.2 ADVANCED MODELING PACKAGE

For each Advanced Modeling Package submittal for both the Interim Record Model Package and the Final Record Model Package, submit in accordance with ERDC/ITL SR-24-3 and also provide the following items:

a. Advanced Modeling PxP: Provide an electronic copy of the most current approved version of the project Advanced Modeling PxP.

b. Electronic Files: Provide an electronic list (.txt file or similar), of all submitted electronic files including a description, directory, and file name for each file submitted. Identify which files have been produced from the Model and Facility Data. For all sheet files, include a list of the sheet titles and sheet numbers.

c. Advanced Modeling Submittal Checklist: Complete the USACE BIM/CIM Advanced Modeling Submittal Checklist and include with each submittal. Download the Checklist from the USACE CAD/BIM Technology Center website.

d. Advanced Modeling Files: Provide all native Advanced Modeling files associated with the production of the contract drawings and associated as-modeled drawings. Update and maintain in compliance with the Advanced Modeling formatting, content requirement, and standards in , in order to yield a complete and coordinated document package.

e. Quality Control (QC) Reports: Provide electronic PDFs of all QC reports and checklist utilized to ensure full compliance with the contract requirements and standards.

## 2.3 CERTIFICATION OF USDA DESIGNATED ITEMS

Submit the Certification of USDA Designated Items as required by FAR 52-223-1 Bio-based Product Certifications and FAR 52.223-2 Affirmative Procurement of Biobased Products Under Service and Construction Contracts. Include on the certification form the following information: project name, project number, Contractor name, license number, Contractor address, and certification. The certification will read as follows and be signed and dated by the Contractor. "I hereby certify the information provided herein is accurate and that the requisition/procurement of all materials listed on this form comply with current USDA standards for biobased materials content. The following exemptions may apply to the non-procurement of biobased content materials:

a. The product does not meet appropriate performance standards;

b. The product is not available within a reasonable time frame;

c. The product is not available competitively (from two or more sources);

d. The product is only available at an unreasonable price (compared with a comparable bio-based content product)."

Record each product used in the project that has a requirement or option of containing biobased content in accordance with SECTION 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING, noting total price, total value of post-industrial recycled content, total value of post-consumer recycled content, exemptions (a, b, c, or d, as indicated), and comments. Biobased content values may be determined by weight or volume percent, but must be consistent throughout.

## 2.4 INVENTORY OF CONTRACTOR FURNISHED AND INSTALLED EQUIPMENT

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

## 2.5 PDF AS-BUILT FILES

Provide electronic PDF "plots" of all contract drawings sheets associated with the as-built drawing submittal. Compile and organize the PDF set to match the contract drawings. Bookmark and label the pages of the PDF file in accordance with Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD).

## 2.6 REDLINES AND MARKUPS

Provide PDFs of the current working redlines and/or markups complying with the as-builts drawing and markup requirements contained in this specification.

## 2.7 GEO-DATA-BASE FILES

Provide a SDSFIE/FGDC GeoReferenced personal GeoDataBase. For all information outside of the building walls, provide a personal GeoDataBase in .mdb format using the latest version of Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE) as the database structure. Provide a shell database to define the projection and database structure.

For all drawings within and including the exterior walls, utilize the advanced modeling formats described and referenced herein. Provide a short GeoDataBase read-me file explaining the deliverable. The read-me file will include a description of the software used to create the data, projection, and include the attribute tables used.

## 2.8 AS-BUILT OR ADVANCED MODELING RE-SUBMISSION REQUIREMENTS

If elements of an as-built submittal or advanced modeling package are rejected, provide the following for each re-submission, in addition to any information required in Section 01 33 00 SUBMITTAL PROCEDURES:

a. Re-submit all components required under paragraph As-Builts or Advanced Modeling Package, including a new Advanced Modeling Submittal Checklist and updated content in response to Government comments.

b. Provide a copy of all Government review comments.

c. Provide a disposition/response to each Government review comment for a back-check of the re-submission deliverable.

# PART 3 EXECUTION

## 3.1 AS-BUILT DRAWINGS

Provide and maintain two black line print copies of the PDF contract drawings for As-Built Drawings. Maintain the as-builts throughout construction as red-lined hard copies on site and red-lined <AM#0003>electronic PDF files that are easily accessed and reviewed by the Government monthly</AM#0003>. Submit As-Built Drawings 30 days prior to final inspection and acceptance of the facility by the Contracting Officer.

### 3.1.1 Markup Guidelines

Make comments and markup the drawings complete without reference to letters, memos, or materials that are not part of the As-Built drawing.

Show what was changed, how it was changed, where item(s) were relocated and change related details. These working as-built markup prints must be neat, legible and accurate as follows:

a. Use base colors of red, green, and blue. Color code for changes as follows:

(1) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes.

(2) Deletions (Red) - Over-strike deleted graphic items (lines), lettering in notes and leaders.

(3) Additions (Green) - Added items, lettering in notes and leaders.

b. Provide a legend if colors other than the "base" colors of red, green, and blue are used.

c. Add and denote any additional equipment or material facilities, service lines, incorporated under As-Built Revisions if not already shown in legend.

d. Use frequent written explanations on markup drawings to describe changes. Do not totally rely on graphic means to convey the revision.

e. Use legible lettering and precise and clear digital values when marking prints. Clarify ambiguities concerning the nature and application of change involved.

f. Wherever a revision is made, also make changes to related section views, details, legend, profiles, plans and elevation views, schedules, notes and call out designations, and mark accordingly to avoid conflicting data on all other sheets.

g. For deletions, cross out all features, data and captions that relate to that revision.

h. For changes on small-scale drawings and in restricted areas, provide large-scale inserts, with leaders to the applicable location.

i. Indicate one of the following when attaching a print or sketch to a markup print:

1) Add an entire drawing to contract drawings.

2) Change the contract drawing to show changes on the drawing.

3) Provided for reference only to further detail the initial design.

j. Incorporate all shop and fabrication drawings into the markup drawings.

3.1.2 As-Built Drawings Content

Revise As-Built Drawings and or red-lined PDF files in accordance with ERDC/ITL SR-23-1 and ERDC/ITL SR-24-3. Keep these working as-built markup drawings current on a weekly basis and at least one set available on the jobsite at all times. Changes from the contract drawings which are made during construction or additional information which might be uncovered in the course of construction must be accurately and neatly recorded as they

occur by means of details and notes. Submit the working as-built markup drawings for approval prior to submission of each monthly pay estimate. For failure to maintain the working and final record drawings as specified herein, the Contracting Officer will withhold 10 percent of the monthly progress payment until approval of updated drawings. Show on the as-built drawings, but not limited to, the following information:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, show by offset dimensions to two permanently fixed surface features the end of each run including each change in direction on the record drawings. Locate valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Also record the average depth below the surface of each run.

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

c. Layout and schematic drawings of electrical circuits and piping.

d. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

e. Changes in details of design or additional information obtained from working drawings specified to be prepared or furnished by the Contractor; including but not limited to shop drawings, fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment, and foundations.

f. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

g. Changes or Revisions which result from the final inspection.

h. Where contract drawings or specifications present options, show only the option selected for construction on the working as-built markup drawings.

i. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, furnish a contour map of the final borrow pit/spoil area elevations.

j. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

k. Changes in location of equipment and architectural features.

l. Modifications.

m. Actual location of anchors, construction and control joints, etc., in concrete.

n. Unusual or uncharted obstructions that are encountered in the contract work area during construction.

o. Location, extent, thickness, and size of stone protection particularly

where it will be normally submerged by water.

## 3.2 RECORD DRAWING FILES

If additional drawings are required, prepare them using the specified electronic file format applying ERDC/ITL SR-24-3 and ERDC/ITL SR-23-1. The title block and drawing border to be used for any new final record drawings must be identical to that used on the contract drawings. Accomplish additions and corrections to the contract drawings using CAD files. Provide all program files and hardware necessary to prepare final PDF record drawings. The Contracting Officer will review final PDF record drawings for accuracy and return them to the Contractor for required corrections, changes, additions, and deletions.

### 3.2.1 Rename the CAD Drawing files

Rename the CAD Drawing files using the contract number as the Project Code field,(e.g., W91238-15-C-10A-102.DWG) as instructed in the Pre-Construction conference. Use only those renamed files for the Marked-up changes. Make all changes on the layer/level as the original item.

a. For AutoCAD files (DWG), enter all as-built delta changes and notations on the AS-BUILT layer.

b. When final revisions have been completed, show the wording "RECORD DRAWING AS-BUILTS" followed by the name of the Contractor in letters at least 3/16 inch high on the cover sheet drawing. Date RECORD DRAWING AS-BUILTS" drawing revisions in the revision block.

c. Within 10 days after Government approval of all of the working record drawings for a phase of work, prepare the final CAD record drawings for that phase of work and submit PDF drawing files and two sets of prints for review and approval. The Government will promptly return one set of prints annotated with any necessary corrections. Within 10 days revise the CAD files accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Government. Within 10 days of substantial completion of all phases of work, submit the final record drawing package for the entire project. Submit one set of electronic CAD files, and one set of the approved working record PDF and or program files with two sets of prints. The CAD files must be complete in all details and identical in form and function to the CAD drawing files supplied by the Government. Prepare AutoCAD files for transmittal using e-Transmit. Make any transactions or adjustments necessary to accomplish this. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CAD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final record PDF drawing files, CAD files and marked prints as specified will be cause for withholding any payment due under this contract. Approval and acceptance of final record drawings must be accomplished before final payment is made.

## 3.3 RECORD DRAWINGS

Prepare final record drawings after the completion of each definable feature of work as listed in the Contractor Quality Control Plan (such as Foundations, Utilities, or Structural Steel as appropriate for the project). Transfer the changes from the approved working as-built markup drawings to the original electronic CAD drawing files. Modify the as-built

CAD drawing files to correctly show the features of the project as-built by bringing the working CAD drawing set into agreement with approved working as-built markup drawings, and adding such additional drawings as may be necessary. Refer to ERDC/ITL SR-23-1. Jointly review the working as-built markup drawings with printouts from working as-built CAD drawing PDF files for accuracy and completeness. Monthly review of working as-built CAD drawing PDF file printouts must cover all sheets revised since the previous review. These PDF drawing files are part of the permanent records of this project. Any drawings damaged or lost must be satisfactorily replaced at no expense to the Government.

Drawing revisions (include within change order price the cost to change working and final record drawings to reflect revisions) and compliance with the following procedures.

a. Follow directions in the revision for posting descriptive changes.

b. The revision delta size must be 5/16 inch unless the area where the delta is to be placed is crowded. Use a smaller size delta for crowded areas.

c. Place a revision delta at the location of each deletion.

d. For new details or sections which are added to a drawing, place a revision delta by the detail or section title.

e. For minor changes, place a revision delta by the area changed on the drawing (each location).

f. For major changes to a drawing, place a revision delta by the title of the affected plan, section, or detail at each location.

g. For changes to schedules or drawings, place a revision delta either by the schedule heading or by the change in the schedule.

### 3.3.1 Final Record Drawing Package

Submit the final record PDF and CAD drawings package for the entire project within 20 days of substantial completion of all phases of work. Submit one set of ANSI D size PDF and CAD files, two sets of ANSI D size prints and one set of the approved working record drawings. The package must be complete in all details and identical in form and function to the contract drawing files supplied by the Government.

## 3.4 FINAL APPROVED SHOP DRAWINGS

Submit final approved project shop drawings 30 days after transfer of the completed facility.

## 3.5 AS-BUILT RECORD OF EQUIPMENT AND MATERIALS

Furnish one copy of preliminary record of equipment and materials used on the project 15 days prior to final inspection. This preliminary submittal will be reviewed and returned 2 days after final inspection with Government comments. Submit Two sets of final record of equipment and materials 10 days after final inspection. Key the designations to the related area depicted on the contract drawings. List the following data:

| RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA | | | | |
|---|---|---|---|---|
| Description | Specification Section | Manufacturer and Catalog, Model, and Serial Number | Composition and Size | Where Used |
| | | | | |
| | | | | |

## 3.6 OPERATION AND MAINTENANCE MANUALS

Provide project operation and maintenance manuals as specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA.Provide two electronic copies of the Operation and Maintenance Manual files and one hard copy of the Operation and Maintenance Manuals. Submit to the Contracting Officer for approval 30 calendar days prior to final inspection and acceptance of the facility by the Contracting Officer. Update and resubmit files for final approval at final acceptance of the facility by the Contracting Officer.

The Contractor shall be responsible for the preparation, coordination, execution and submittal of all Equipment Operating, Maintenance, and Repair manuals (O & M Manuals), including spare parts lists **(with the names and PHONE NUMBERS of local suppliers)**, special tools, inventories of equipment manuals, and maintenance instructions, and shall conduct all training for operating and service personnel. Operation and maintenance manuals shall cover all system installations provided in this Contract and shall be in sufficient detail to facilitate normal maintenance and troubleshooting by persons with minimum experience with the installed equipment.

### 3.6.1 Submittal Requirements

All of the above listed items required in the technical specifications shall be fully developed and submitted to the Contracting Officer not less than 120 calendar days prior to the scheduled final acceptance inspection date and prior to scheduling training for operating and service personnel. The Contractor shall coordinate the content of each instruction period required in the technical specifications with the Contracting Officer's Representative prior to the actual start of the training period.

#### 3.6.1.1 Field Training

Field Training is a requirement for substantial completion. The Contractor shall conduct a training course for the operating staff for each particular system. The training is to be conducted during hours of normal working time and shall start after the system is functionally complete. The field instructions shall cover all of the items contained in the Equipment Operating, Maintenance and Repair Manuals. The training will include both classroom and "hands-on" training. The Contractor shall submit a lesson plan outlining the information to be discussed during training periods. This lesson plan will be submitted 90 days before contract completion and approved before the field training occurs. Training shall be recorded on video DVD and shall be furnished to the Government within ten (10) days following training. The taping shall include the entire session(s). The original video(s) or DVD's shall be labeled and turned over to the Contracting Officer. The video cameras and DVD's utilized by the

Contractor shall be of a quality to enable clear and understandable playbacks of the recorded events. Training shall be documented by the Contractor and a list of attendees shall be furnished to the Government.

3.6.1.2 Draft O & M Manuals

On those systems where complete and comprehensive operation and maintenance manuals cannot be fully developed until the system(s) is (are) checked, tested, and/or balanced, and the checking, testing, and/or balancing has not been done when submittals are required, a proposed draft of those system manual(s) shall be submitted. The covers of draft O & M Manuals shall be labeled "DRAFT" in large (not less than font size 24), legible, printed letters. Submit fully developed O & M Manuals for approval after the systems have been checked, tested, and/or balanced but prior to the scheduled final acceptance inspection date.

3.6.1.3 Commencement of Warranty of Construction

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

3.6.2 Government Possession of Work

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

3.6.3 Payment for O&M Manuals

If there is no cost-loaded schedule activity for O&M manuals, the Government will withhold the amount of $20,000, or 1% of the present construction value up to $200,000, whichever is the greater. No payment will be made until submittal and approval of all O&M manuals are complete.

3.6.4 Preparation And Submission Of Operation And Maintenance Manuals

This paragraph establishes general requirements for the preparation and submission of equipment operating, maintenance, and repair manuals as called for in the various sections of the specifications. Specific instruction(s) relating to a particular system or piece of equipment shall be incorporated into the manuals in accordance with the applicable technical specification. See Section 01 78 23 OPERATION AND MAINTENANCE DATA for additional information concerning the Operation and Maintenance data packages required by the technical sections.

3.6.4.1 General Requirements

Furnish one permanent electronic copy of the final Equipment Operating, Maintenance, and Repair Manuals on CD-ROM disk.Documents on the CD-ROM disk drive shall be in portable document format (.pdf); all printed and graphic documents, drawings, and illustrations shall be legible and bookmarked.

3.6.4.2 Equipment Operating, Maintenance, and Repair Manuals

a. General

Provide separate manuals for each utility system as defined hereinafter. Provide the number of copies of the manuals specified specified above or in the applicable technical section. Include in the manuals, in separate sections, the following information for each item of equipment. These requirements may be supplemented by additional requirements specified in the technical sections:

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

(2) Catalog cuts showing application information.

(3) Installation information showing minimum acceptable requirements.

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

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

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

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

(6) Parts lists with names and addresses of closest parts supply agencies, the current unit prices, and the sources of supply. Include spare parts data for each different item of materials and equipment specified.

(7) Names and addresses of local manufacturers representatives.

b. Facility Heating Systems

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

c. Air-Conditioning Systems

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

d. Temperature Control and HVAC Distribution Systems

(1) Provide the information described for the following equipment:

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

(2) Provide all information described for the following equipment:

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

e. Central Heating Plants

Provide the information described for the following equipment: Boilers, converters, heat exchangers, pumps, fans, steam traps, pollution control equipment, chemical feed equipment, control systems, fuel handling equipment, de-aerators, tanks (flash, expansion, return water, etc.), water softeners, and valves.

f. District Heating Distribution Systems

Provide the information described for the following equipment: Valves, fans, pumps, converters and heat exchangers, steam traps, tanks (expansion, flash, etc.) and piping systems.

g. Exterior Electrical Systems

Information shall be provided on the following equipment: Power transformers, relays, reclosers, breakers, and capacitor bank controls.

h. Interior Electrical Systems

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

i. Energy Management and Control System

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

j. Domestic Water Systems

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

k. Wastewater Treatment Systems

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

l. Fire Protection Systems

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

m. Fire Detection Systems

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

n. Plumbing Systems

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

o. Liquid Fuels Systems

Information shall be provided on the following equipment: Tanks, automatic valves, manual valves, filter separators, pumps, mechanical loading arms, nozzles, meters, electronic controls, electrical switch gear, and fluidic controls.

p. Cathodic Protection Systems

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

q. Generator Installations

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

r. Miscellaneous Systems

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

### 3.6.5 RED ZONE MEETING

Approximately 60 days before the anticipated final inspection and acceptance of the facility by the Contracting Officer, or at 80% construction progress completion, whichever occurs first, the Contractor's Supervisor and Quality Control Manager and the Government's project delivery team will conduct what is known as the Red Zone Meeting to discuss the close-out process, to schedule the events and review responsibilities for actions necessary to produce a timely physical, as well as fiscal, project close-out. The Red Zone meeting derives its name from the football term used to describe the team effort to move the ball the last 20 yards into the end zone. The close-out of a construction project sometimes can be equally as hard and most definitely requires the whole team's efforts. The ACO will chair the meeting. Exhibit One is a generic meeting checklist.

## 3.7 CLEANUP

Leave premises "broom clean." Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Clean or Replace filters of operating equipment. Clean debris from roofs, gutters, downspouts and drainage systems. Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site..

## 3.8 REAL PROPERTY RECORD

DD Form 1354, TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY, is the formal document that the Corps of Engineers uses to transfer project ownership to the installation. The Installation uses the document to update their real property maintenance records. Upon award of a construction contract, the Geographic District will enter the project data and contract costs available at the time of award into the Government's Resident Managers System (RMS) database. This data is captured on an Excel spreadsheet and electronically uploaded into RMS, from which the actual DD Form 1354 can then be printed.

After award of the construction contract, the Contractor shall assist the Corps of Engineers construction field office by updating the Excel spreadsheet data that will be provided at the Preconstruction Meeting. The Government will provide to the Contractor a copy of the Excel file used to record the construction changes and provide instructions for updating the data through the life of the project.

The data - when required - consists of:

1. A description of the item
2. The applicable Category Code
3. The item's contract cost to the Government
4. The quantity and unit of measure

This assistance will be required when a construction modification is issued. When a construction modification occurs that impacts quantities and/or costs, such as installing 150 LF of new 10" water main, the DD Form 1354 data will require changes to existing line items and/or additional line items of data due to the construction modification. The Contractor shall assist by providing the new construction data (quantities/costs)

broken down by applicable Category Codes necessary for the Government to use in updating the DD Form 1354 data in RMS. The updated Excel spreadsheet shall be provided at the Red Zone meeting. Data shall be provided to the Contracting Officer Representative.

Refer to UFC 1-300-08 for instruction on completing the DD Form 1354. For information purposes, a blank DD Form 1354 (fill-able) in ADOBE (PDF) may be obtained at the following web site:
http://www.dtic.mil/whs/directives/infomgt/forms/eforms/dd1354.pdf

Submit the completed Checklist for Form DD1354 of Installed Building Equipment items. Attach this list to the updated DD Form 1354.

3.8.1 Interim DD FORM 1354

Near the completion of Project, but a minimum of 60 days prior to final acceptance of the work, complete and submit an accounting of all installed property with Interim DD FORM 1354. Include any additional assets, improvements, and alterations from the Draft DD FORM 1354.

3.8.2 Completed DD FORM 1354

Attach the Real Property receiving Component's completed High Performance and Sustainable Building (HPSB) Checklist for each applicable building to the completed DD 1354, in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING. For convenience, a blank fillable PDF DD FORM 1354 may be obtained at the following link:
www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd1354.pdf

Submit the completed List of Installed Building Equipment items for DD FORM 1354. Attach this list to the updated DD FORM 1354.

3.9 EXHIBIT 1

***SAMPLE***

**Red Zone Meeting Checklist**
Date:_____

Contract No.:_____
Description / Location:_____
Contractor: _____
Contracting Officer: _____

| **Action** | **Completion** | **Milestone** |
|---|---|---|
| Inspections | | |
| Fire | | |
| Safety | | |
| Pre-final | | |
| Mechanical Test & Balance | | |
| Commissioning | | |
| Landscaping Complete | | |
| Beneficial Occupancy Date (BOD) | | |
| Furniture Installation | | |

***SAMPLE***

**Red Zone Meeting Checklist**

Date:_____

Contract No.:_____

Description / Location:_____

Contractor: _____

Contracting Officer: _____

| **Action** | **Completion** | **Milestone** |
|---|---|---|
| Comm Installation | | |
| As-Built Contract Drawings | | |
| Provide all O&M manuals, tools, shop drawings, spare parts, etc. provided to customer | | |
| Provide Warranty documents to Customer | | |
| Contract completion | | |
| Final Inspection | | |
| User move-in | | |
| DD Form 1354, Transfer of Real Property completed & signed | | |
| Ribbon cutting | | |
| DD Form 2626 - Final CPARS | | |
| Final Payment Completed | | |
| Release of Claims (see Exhibit 2) | | |
| Return of Unobligated Funds | | |
| Move Project from CIP to General Ledger | | |
| Financial completion | | |

3.10 3.3 EXHIBIT 2

FINAL PAYMENT RELEASE

The undersigned as the Contractor under Contract No. W9126G-__-_-____ dated _____ between the United States of America and said Contractor, for _____ located at in accordance with paragraph (____) of Contract Clause _____, PAYMENTS TO CONTRACTOR, of said Contract, hereby releases the United States, its officers, agents, and employees from any and all claims relating to or arising by virtue of said Contract, or any modification or change thereto, except with respect to those claims, if any, listed below:

(Identify claim or if none, write in "none.")

Executed this ____ day of _____ 20__

(Contractor's name in CAPS)

By _____

Title_____

-- End of Section --

SECTION 03 45 00

PRECAST ARCHITECTURAL AND STRUCTURAL CONCRETE

**AMENDMENT 0003**

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 within the text by the basic designation only.

AMERICAN CONCRETE INSTITUTE (ACI)

| | |
|---|---|
| ACI 211.1 | (1991; R 2009) Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete |
| ACI 211.2 | (1998; R 2004) Standard Practice for Selecting Proportions for Structural Lightweight Concrete |
| ACI 214R | (2011) Evaluation of Strength Test Results of Concrete |
| ACI 301 | (2016) Specifications for Structural Concrete |
| ACI 304R | (2000; R 2009) Guide for Measuring, Mixing, Transporting, and Placing Concrete |
| ACI 305R | (2020) Guide to Hot Weather Concreting |
| ACI 306.1 | (1990; R 2002) Standard Specification for Cold Weather Concreting |
| ACI 318 | (2014; Errata 1-2 2014; Errata 3-5 2015; Errata 6 2016; Errata 7-9 2017) Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary (ACI 318R-14) |
| ACI SP-66 | (2004) ACI Detailing Manual |

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

| | |
|---|---|
| ASCE 7-16 | (2017; Errata 2018; Supp 1 2018) Minimum Design Loads and Associated Criteria for Buildings and Other Structures |

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

| | |
|---|---|
| ASHRAE 90.1 - IP | (2019; Errata 1 2019; Errata 2-5 2020; Addenda BY-CP 2020; Addenda AF-DB 2020; Addenda A-G 2020; Addenda F-Y 2021; Errata 6-8 2021; Interpretation 1-4 2020; |

| | |
|---|---|
| | Interpretation 5-8 2021 Addenda AS-AQ 2022) Energy Standard for Buildings Except Low-Rise Residential Buildings |
| ASHRAE FUN IP | (2021) Fundamentals Handbook, I-P Edition |

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

| | |
|---|---|
| ASME B18.21.1 | (2009; R 2016) Washers: Helical Spring-Lock, Tooth Lock, and Plain Washers (Inch Series) |

AMERICAN WELDING SOCIETY (AWS)

| | |
|---|---|
| AWS D1.1/D1.1M | (2020; Errata 1 2021) Structural Welding Code - Steel |

ASTM INTERNATIONAL (ASTM)

| | |
|---|---|
| ASTM A27/A27M | (2020) Standard Specification for Steel Castings, Carbon, for General Application |
| ASTM A36/A36M | (2019) Standard Specification for Carbon Structural Steel |
| ASTM A47/A47M | (1999; R 2022; E 2022) Standard Specification for Ferritic Malleable Iron Castings |
| ASTM A153/A153M | (2016a) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware |
| ASTM A283/A283M | (2013) Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates |
| ASTM A416/A416M | (2018) Standard Specification for Low-Relaxation, Seven-Wire for Prestressed Concrete |
| ASTM A449 | (2014; R 2020) Standard Specification for Hex Cap Screws, Bolts, and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use |
| ASTM A563 | (2021; E 2022a) Standard Specification for Carbon and Alloy Steel Nuts |
| ASTM A615/A615M | (2022) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement |
| ASTM A666 | (2015) Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate and Flat Bar |
| ASTM A706/A706M | (2022) Standard Specification for Low-Alloy Steel Deformed and Plain Bars |

| | |
|---|---|
| | for Concrete Reinforcement |
| ASTM A996/A996M | (2016) Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement |
| ASTM A1064/A1064M | (2022) Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete |
| ASTM C31/C31M | (2022) Standard Practice for Making and Curing Concrete Test Specimens in the Field |
| ASTM C33/C33M | (2018) Standard Specification for Concrete Aggregates |
| ASTM C39/C39M | (2021) Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens |
| ASTM C40 | (2011) Standard Test Method for Organic Impurities in Fine Aggregates for Concrete |
| ASTM C42/C42M | (2020) Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete |
| ASTM C78/C78M | (2022) Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading) |
| ASTM C88 | (2018) Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate |
| ASTM C94/C94M | (2022a) Standard Specification for Ready-Mixed Concrete |
| ASTM C114 | (2015) Standard Test Methods for Chemical Analysis of Hydraulic Cement |
| ASTM C115/C115M | (2010; E 2013) Standard Test Method for Fineness of Portland Cement by the Turbidimeter |
| ASTM C117 | (2017) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing |
| ASTM C123/C123M | (2014) Standard Test Method for Lightweight Particles in Aggregate |
| ASTM C125 | (2021a) Standard Terminology Relating to Concrete and Concrete Aggregates |
| ASTM C127 | (2015) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate |

| | |
|---|---|
| ASTM C128 | (2015) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate |
| ASTM C131/C131M | (2020) Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine |
| ASTM C136/C136M | (2019) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates |
| ASTM C142/C142M | (2017) Standard Test Method for Clay Lumps and Friable Particles in Aggregates |
| ASTM C143/C143M | (2020) Standard Test Method for Slump of Hydraulic-Cement Concrete |
| ASTM C150/C150M | (2022) Standard Specification for Portland Cement |
| ASTM C151/C151M | (2018) Standard Test Method for Autoclave Expansion of Hydraulic Cement |
| ASTM C172/C172M | (2017) Standard Practice for Sampling Freshly Mixed Concrete |
| ASTM C183/C183M | (2022) Standard Practice for Sampling and the Amount of Testing of Hydraulic Cement |
| ASTM C185 | (2020) Standard Test Method for Air Content of Hydraulic Cement Mortar |
| ASTM C186 | (2017) Standard Test Method for Heat of Hydration of Hydraulic Cement (Withdrawn 2019) |
| ASTM C191 | (2021) Standard Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle |
| ASTM C204 | (2017) Standard Test Methods for Fineness of Hydraulic Cement by Air Permeability Apparatus |
| ASTM C231/C231M | (2022) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method |
| ASTM C232/C232M | (2021) Standard Test Method for Bleeding of Concrete |
| ASTM C233/C233M | (2018) Standard Test Method for Air-Entraining Admixtures for Concrete |
| ASTM C260/C260M | (2010a; R 2016) Standard Specification for Air-Entraining Admixtures for Concrete |
| ASTM C266 | (2020) Standard Test Method for Time of |

| | |
|---|---|
| | Setting of Hydraulic-Cement Paste by Gillmore Needles |
| ASTM C311/C311M | (2022) Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete |
| ASTM C403/C403M | (2008) Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance |
| ASTM C451 | (2021) Standard Test Method for Early Stiffening of Hydraulic Cement (Paste Method) |
| ASTM C494/C494M | (2019; E 2022) Standard Specification for Chemical Admixtures for Concrete |
| ASTM C535 | (2016) Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine |
| ASTM C578 | (2022) Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation |
| ASTM C618 | (2022) Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete |
| ASTM C979/C979M | (2016) Standard Specification for Pigments for Integrally Colored Concrete |
| ASTM C1107/C1107M | (2020) Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink) |
| ASTM C1218/C1218M | (2020c) Standard Test Method for Water-Soluble Chloride in Mortar and Concrete |
| ASTM C1567 | (2022) Standard Test Method for Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method) |
| ASTM C1602/C1602M | (2022) Standard Specification for Mixing Water Used in Production of Hydraulic Cement Concrete |
| ASTM D75/D75M | (2019) Standard Practice for Sampling Aggregates |
| ASTM D3744/D3744M | (2011a) Standard Test Method for Aggregate Durability Index |
| ASTM D5759 | (2012; R 2020) Characterization of Coal Fly Ash and Clean Coal Combustion Fly Ash for Potential Uses |

PRECAST/PRESTRESSED CONCRETE INSTITUTE (PCI)

| | |
|---|---|
| PCI MNL-116 | (2021) Manual for Quality Control for Plants and Production of Structural Precast Concrete Products, 5th Edition |
| PCI MNL-117 | (2013) Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products, 3rd Edition |
| PCI MNL-120 | (2021) PCI Design Handbook - Precast and Prestressed Concrete, 8th Edition |
| PCI MNL-122 | (2007) Architectural Precast Concrete, 3rd Edition |

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Pre-Installation Meeting

SD-02 Shop Drawings

Precast Drawings; AE

Architect/Engineer review of shop drawings is for general conformance with design concept and project requirements only, and does not imply approval or any variance from the Contractor Documents.

SD-03 Product Data

Cast-In Embedded Items And Connectors including connections to structure; G

Connection Devices; G

Admixtures

SD-04 Samples

Concrete Wall Panel Surface Finish; G

Mock-up

Full Size Sample Wall Panel

SD-05 Design Data

Precast concrete wall panel connection and embedment Design Calculations. This is a performance based connection design; AE

Precase wall panel and connection design calculations.Concrete Mix Design; G

Concrete Mix Design for Repair of Surface Defects; AE

Moisture and Thermal Performance Calculations; G

SD-06 Test Reports

Strength Tests; G

Slump

Air Content

Test for Concrete Materials

Water

Testing Precast Units for Strength

SD-07 Certificates

Manufacturer's Qualifications; G

Fabricator Quality Certifications

Erector Certification

Erector's Post Audit Declaration

SD-08 Manufacturer's Instructions

Installation; G

Cleaning; G

SD-11 Closeout Submittals

Recycled Content for Fly Ash and Pozzolan; S

## 1.3 MODIFICATION OF REFERENCES

In the referenced ACI and PCI publications, consider the advisory provisions to be mandatory. Interpret reference to the "Building Official," the "Structural Engineer," and the "Architect/Engineer" to mean the Contracting Officer.

## 1.4 GENERAL REQUIREMENTS

Precast concrete units must be designed and fabricated by an experienced and certified precast concrete manufacturer. The manufacturer needs to have been regularly and continuously engaged in the manufacture of precast concrete work similar to that indicated on the drawings for at least 3 years. The Contractor must submit a statement detailing the Manufacturer's Qualifications. Coordinate precast work with the work of other trades.

1.4.1 Appearance Requirements

Fabricate samples, mockup and actual precast panels to match color and texture of panels at existing ATC5 building.

1.5 DESIGN

1.5.1 System Performance

Provide insulated precast sandwich wall panels with continuous edge-to-edge, top-to-bottom insulation, using thermally low-conductive wythe connectors. Design and fabricate panels so that wythes are permanently bonded together through all design loads and design conditions, so that panels each act as structurally composite unit.

1.5.1.1 Thermal Performance

Maintain effective minimum R-value of panels with less than twelve-percent reduction due to connection detailing and penetrations.

1.5.1.2 Moisture Performance

Design and construct sandwich wall panels to prevent formation of condensation on any interior surfaces. Comply with ASHRAE FUN IP Theory of Water Vapor Migration to prevent condensation.

1.5.1.3 Coordination

Coordinate support and loading requirements for windows with Section 08 51 13 ALUMINUM WINDOWS and Section 08 11 16 ALUMINUM DOORS AND FRAMES.

1.5.2 Standards and Loads

Precast unit design must conform to ASCE 7-16, ACI 318 and PCI MNL-122. Indicate design loads for precast concrete on the drawings. A differential temperature of 60 degrees F, between interior and exterior faces of the units, must be considered in the design. Stresses due to restrained volume change caused by shrinkage and temperature differential, handling, transportation and erection must be accounted for in the design.

Design panels to resist wind loads and panel gravity loads indicated. Coordinate design with window manufacturer. Design panel-to-building structure connections to fully support panels against all design loads, in all design conditions.

1.5.2.1 Loads

Loadings for members and connections shall include all applicable gravity loads as well as all lateral loads such as wind and earthquake, applicable construction loads such as handling, erection loads, and other applicable loads.

1.5.3 Connections

Connection of units to other members, or to other units must be of the type and configuration indicated. The design and sizing of connections for all design loads will be completed by the Contractor.

Configurations indicated are suggestive only. The design and sizing of

connections to the structure for all design loads shall be the responsibility of the Contractor. Design connections to resist wind loads and seismic loads acting on panels, and weight of panels, including moment resulting from eccentricity of attachment configuration. Provide braces and stiffeners required as a result of precast connections. The Contractor shall provide all embed and connection hardware required for this connection to the building structure.

This shall include all embed plates, angles, headed studs, reinforcing, or additional hardware or structure required for the connection of the precast panel to the structure.

Design precast members, including connections for handling and erection stress and for additional loads imposed by openings and support of the work of other trades. Design precast members for handling without cracking in accordance with PCI MNL-120. Coordinate design with window manufacturer. Design panel-to-building structure connections to fully support panels against all design loads, in all design conditions.

Provide wall to floor connections that are fully concealed at the floor surface and fully concealed or flush to the vertical wall surface.

1.5.4 Concrete Proportion

Base the selection of proportions for concrete on the methodology presented in ACI 211.1 for normal weight concrete and ACI 211.2 for lightweight concrete. Develop the concrete proportion using the same type and brand of cement, the same type and gradation of aggregates, and the same type and brand of admixture that will be used in the manufacture of precast concrete units for the project. Do not use calcium chloride in precast concrete and admixtures containing chloride ions, nitrates, or other substances that are corrosive will not be used in prestressed concrete.

Provide concrete for precast nits of minimum 28 day compressive strength of 5,000 psi.

1.5.5 Precase Wall Panel Connections andDesign Calculations

Calculations for design of members, connections and embedments not shown shall be made by a registered professional engineer experienced in the design of precast architecturaland structural concrete, and structural steel. Calculation will include the analysis of member for lifting stresses and the sizing of the lifting inserts. Submit calculations for review and approval prior to fabrication, signed and sealed by the registered design professional who prepared the design.

1.5.6 Moisture and Thermal Performance Calculations

Submit moisture and thermal calculations prepared and sealed by a registered professional engineer for review complying with ASHRAE 90.1 - IP, for the steady state thermal resistance for the precast concrete wall panels. Thermal calculations must demonstrate the thermal conductivity of all components, the spacing of all connectors, the percent area of the wall that is solid concrete, and the thermal resistance of all components. Determine location of condensation occurrence for all significant conditions.

## 1.6 DELIVERY, STORAGE, AND HANDLING

Deliver packaged materials, except for wall panels, to the project site in the original, unbroken packages or containers, each bearing a label clearly identifying manufacturer's name, brand name, weight or volume, and other pertinent information. Store packaged materials, and materials in containers, in a weathertight and dry place until ready for use.

Store products in manufacturer's unopened packaging in dry storage area, with ambient temperature between 30 degrees F and 120 degrees F, until installation.

## 1.7 STORAGE AND INSPECTION AT MANUFACTURER'S PLANT

Protect precast units temporarily stored at the manufacturer's plant from damage in accordance with PCI MNL-116, PCI MNL-117 and PCI MNL-122. Immediately prior to shipment to the jobsite, all precast concrete units must be inspected for quality to insure all precast units conform to the requirements specified. Inspection for quality will include, but will not be limited to, the following elements: color, texture, dimensional tolerances, chipping, cracking, staining, warping and honeycombing. Replace or repair all defective precast concrete units as approved.

## 1.8 PLANT INSPECTION

Precast units must be inspected by the QC representative prior to being transported to the job site. The Contractor is to give notice 14 days prior to the time the units will be available for plant inspection. Neither the exercise nor waiver of inspection at the plant will affect the Government's right to enforce contractual provisions after units are transported or erected.

### 1.8.1 Fabricator Quality Certifications

Plants must be certified by the PCI Plant Certification Program for Group A, Category A1, or Architectural Precast Association (APA) certification or National Precast Concrete Association (NPCA). When plants are not currently enrolled in one of the three certification programs listed above then they must provide a product quality control system in accordance with PCI MNL-117 and perform concrete and aggregate quality control testing using an approved, independent commercial testing laboratory.

## 1.9 ERECTOR CERTIFICATION

Erector with erecting organization and all erecting crews certified and designated by PCI's Certificate of Compliance to erect Category A (Architectural Systems) for non-load and S2 (Complex Structural Systems) for load-bearing members.

## 1.10 ERECTOR QUALIFICATIONS

A precast erector that is not certified by PCI who retains a PCI-Certified Field Auditor, at the erector's expense, to conduct a field audit of a project in the same category as this project prior to start of precast concrete erection and must submit the Erector's Post Audit Declaration to be considered qualified.

## 1.11 CONCRETE SAMPLING AND TESTING

### 1.11.1 Test for Concrete Materials

Sample and test concrete materials proposed for use in the work as follows.

| MATERIALS | REQUIREMENT | TEST METHOD | NUMBER OF TESTS |
|---|---|---|---|
| Aggregate | Sampling sieve analysis, calculating fineness modulus | ASTM D75/D75M, ASTM C136/C136M, ASTM C125, ASTM C33/C33M | One for each material source and grading size |
| | Amount of material passing No. 200 sieve | ASTM C117 | One for each material source and grading size |
| | Amount of friable particles | ASTM C142/C142M | One for each material source and grading size |
| | Amount of organic impurities | ASTM C40 | One for each material source and grading size |
| | Amount of coal and lignite | ASTM C123/C123M | One for each material source and grading size |
| | Magnesium sulfate soundness test | ASTM C88 | One for each material source and grading size |
| | Aggregate durability | ASTM D3744/D3744M | One for each material source and grading size |
| | Specific gravity of fine aggregate | ASTM C128 | One for each material source and grading size |
| | Specific gravity of course aggregates | ASTM C127, ASTM C33/C33M | One for each material source and grading size |
| | Resistance to abrasion of small and large size course aggregate | ASTM C131/C131M or ASTM C535 | One for each material source and grading size |
| | Potential reactivity to alkalis | ASTM C1567 | One for each material source and grading size |
| Portland Cement | Sampling | ASTM C183/C183M | One for each material source, type, and color |
| | Chemical analysis | ASTM C114 | One for each material source and grading size |
| | Fineness | ASTM C115/C115M or ASTM C204 | One for each material source and grading size |
| | Autoclave expansion time of setting | ASTM C151/C151M, ASTM C191, or ASTM C266 | One for each material source and grading size |

| | | | |
|---|---|---|---|
| | Air Content of mortar | ASTM C185 | One for each material source and grading size |
| | Heat of hydration | ASTM C186 | |
| | False set | ASTM C451 | |
| Air-entraining admixture using air-entrained concrete made of the proposed concrete materials | Materials for test | ASTM C233/C233M | One set of tests for each type and color of portland cement proposed for use |
| | Number of specimens | ASTM C233/C233M, Table 1 | |
| | Bleeding | ASTM C232/C232M | |
| | Time of setting | ASTM C403/C403M and ASTM C233/C233M | |

Submit reports for each material sampled and tested prior to the start of work. Reports must contain the project name and number, date, name of Contractor, name of precast unit manufacturer, name of concrete testing service, source of concrete aggregates, generic name of aggregate, and values specified.

1.11.2 Quality Control Testing During Fabrication

Sample and test concrete for quality control during fabrication as follows:

| REQUIREMENT | TEST METHOD | NUMBER OF TESTS |
|---|---|---|
| Sampling fresh concrete | ASTM C172/C172M except modified for slump per ASTM C94/C94M | As required for each test |
| Slump test | ASTM C143/C143M | One for each concrete load at point of discharge and one for each set of compressive strength tests |
| Air Content by pressure method | ASTM C231/C231M | One for each set of compressive strength tests |

| REQUIREMENT | TEST METHOD | NUMBER OF TESTS |
|---|---|---|
| Compressive test specimens | ASTM C31/C31M | One set of six specimens for each Compressive Strength test, one set per day or for every 20 cubic yards of concrete placed, whichever is greater. |

Compression test specimens may be either standard 6 by 12 inch cylinders or 4-inch cubes. Cubes may be molded individually or cut from slabs. Preparation and testing of cube specimens must be as nearly consistent with the test methods specified as possible, with the exception that the concrete will be placed in a single layer.

Curing of compression test specimens must be the same as the curing method used for the precast concrete wall panels until panels are stripped of forms and then standard moist cure will continue.

| REQUIREMENT | TEST METHOD | NUMBER OF TESTS |
|---|---|---|
| Concrete temperature | | Each time a set of compression test specimens is made |
| Compressive strength tests | ASTM C39/C39M | One set of facing strength tests mix and one set of backing mix for every ten panels or fraction thereof cast in any one day; two specimens in each set tested at 7 calendar days; three specimens in each set tested at 28 calendar days, and one specimen in each set retained in reserve for testing if required |

Evaluate compression test results at 28 days in accordance with ACI 214R using a coefficient of variation of 20 percent. Evaluate the strength of concrete by averaging the test results (two specimens) of standard cylinders tested at 28 days. Not more than 20 percent of the individual tests can have an average compressive strength less than the specified ultimate compressive strength. Submit test reports on the same day that tests are made.

Reports for Compressive Strength tests need to contain the project name and number, date of concrete placement, name of Contractor, name of precast concrete wall panel manufacturer, name of concrete testing service, panel identification letter and number, use of concrete mixture (facing or backing), design compressive strength at 28 calendar days, concrete-mix proportions and materials, and compressive breaking strength and type of break.

If 4-inch cubes are used for compressive strength specimens, average strength of the cubes at any test age must be multiplied by the factor of 0.8 to arrive at an estimate of the corresponding 6 by 12 inch cylinder strength. Report both of these values.

## 1.12 QUALITY ASSURANCE

### 1.12.1 Precast Drawings

Submit precast drawings with the following information:

a. Precast dimensions, cross-section, and edge details; location, size, and type of reinforcement, including reinforcement necessary for safe handling and erection of precast units and other embedded items. Comply with ACI SP-66.

b. Layout, dimensions, and identification of each precast unit, corresponding to installation sequence.

c. Setting drawings, instructions, and directions for installation of concrete inserts.

d. Location and details of anchorage devices and lifting devices embedded in panels, and connection details to building framing system.

e. Connection details

f. Exterior finishes

### 1.12.2 Approved Sample

Match color and finishes of precast concrete at Lackland AFB, ATC5. Match concrete color, aggregate color and aggregate size gradation. Match joint and panel appearance.

### 1.12.3 Concrete Wall Panel Surface Finish Sample

Submit a concrete wall panel sample 12 inches by 12 inches by approximately 1 1/2 inches in thickness, to illustrate quality, color, and texture of both exposed-to-view surface finish and finish of panel surfaces that will be concealed by other construction and to match approved sample. Obtain approval prior to submission of sample panels.

After approval of the surface, Contractor must provide one full size sample Wall Panel. Approved sample may be used in construction when properly identified.

### 1.12.4 Mock-Up

Erect mock-up at job site location approved by Contracting Officer's representative, in full sun, away from construction activities and away from vehicle traffic. Maintain mock-up panel until precast installation is complete and acceptable to the Government.

#### 1.12.4.1 Mock Up Panel Requirements

(1) Minimum size 8 feet by 8 feet.
(2) Construction: Match thickness and wythe construction of actual wall panels, including insulation.

(3) Include at least one representative wall panel connection.
(4) Incorporate edge and reveal detail as shown on drawings.
(5) Show each type of surface finish, matching approved sample.
(6) Include opening for window with frame installed, showing head, jamb and sill, showing concrete detailing and window installation, flashing and sealing.
(7) Include installation of one electrical and one telecommunications outlet with raceway to outlet.
(8) Show finish of interior surface.
(9) Maintain mock-up for comparison with finished work.
(10) Demonstrate acceptable grout patching at connection lift points.

Provide mock-up to establish that proposed materials and construction techniques provide acceptable visual effect. Provide same materials in mock-up as proposed for actual construction. Provide same casting, finishing, and handling techniques as proposed for actual construction. Retain samples of cement and aggregates used.

Do not proceed with remaining work until workmanship, color, and detail are approved by Contracting Officer's Representative. Modify mock-up as required to produce acceptable work. Remove mock-up after Government acceptance of complete precast installation.

After approval by Contracting Officer, transport mock-up to job-site and erect where directed by Contracting Officer.

1.12.4.2 Pre-Installation Meeting

Meet at the job site with representative of the manufacturer, erector, affected trades, and Government minimum 14 days prior to installation of precast panels. Notify the Contracting Officer's Representative at least 3 days in advance of the time of the meeting.

Present and discuss proposed sequencing, access, expected duration of work, preparation of structure to receive panels, sealing joints, grout patching connection recesses, protection of panels from damage, installation of floor and roof joint closures, and removal of protective materials.

1.12.5 Pre-Installation Meeting

Hold a meeting at the job site with representative of the manufacturer and all other trades that may be effected by work of this section. Notify the Contracting Officer at least 3 days in advance of the time of the meeting.

1.13 TOLERANCES

Dimensions of the finished panel, at the time of erection in the structure, must conform to the tolerances for precast, non-prestressed elements in PCI MNL-117, unless otherwise specified by the Architect.

PART 2 PRODUCTS

2.1 PANEL DESIGN BASIS PANEL CONFIGURATIONS

2.1.1 **<AM#0003>**~~ATC~~DCF**</AM#0003>** Precast Insulated Wall Panels

Provide three wythe sandwich panels in sizes **<AM#0003>**~~indicated~~per the drawings**</AM#0003>**. Design and fabricate only one-story panels.**<AM#0003>**~~Design Basis Configuration includes an exterior wythe of 2-1/2 inch thick~~

~~concrete, an inner wythe of 2 inch thick rigid insulation and an interior wythe of 3 inch thick concrete. Insulation thickness may be reduced but not eliminated at locations of connections and opening perimeters only.~~ **</AM#0003>** Join interior and exterior wythes with thermally low-conductive sandwich panel wythe connectors of sufficient strength to provide structurally composite panels meeting load requirements.**<AM#0003>**~~ Total panel thickness 7-1/2 inches.~~**</AM#0003>** Maximum panel weight 70 pounds per square foot. Provide a minimum R-value of **<AM#0003>**~~10~~18**</AM#0003>** at typical condition.**<AM#0003>**~~ Provide a minimum average R-value of 7.5 for each entire panel, exclusive of openings.~~**</AM#0003>**

2.1.2 Precast Yard Wall Panels

For outdoor equipment and dumpster walls, provide solid precast panels. Provide minimum 8 inch thick panels.

2.2 CONCRETE

2.2.1 Concrete Mix Design

ACI 211.1 and ACI 301. The Contractor must submit the mix design report giving the maximum nominal coarse aggregate size, the proportions of all ingredients and the type and amount of any admixtures that will be used in the manufacture of each strength and type of concrete, a minimum of sixty days prior to commencing operations. Provide mix proportion data using at least three different water-cementitious material ratios for each type of mixture, which produce a range of strength encompassing those required for each type of concrete required. Plot a curve for each concrete mixture, showing the relationships between water-cementitious material ratios and compressive strengths. Maximum permissible water-cementitious material ratio must be that value not exceeding the maximum water-cementitious material ratio specified, indicated by the curve to produce a design minimum laboratory compressive strength at 28 calendar days not less than that specified. The mix design report is to contain the project name and number, date, name of Contractor, name of precast concrete wall panel manufacturer, name of concrete testing service, use of concrete mixture (facing or backing), source of concrete aggregates for each mixture. Submit certified copies of laboratory test reports, including mill tests and all other test data, for portland cement, blended cement, pozzolan, ground granulated blast furnace slag, silica fume, and aggregates. The statement must be accompanied by test results from an approved testing laboratory, certifying that the proportions selected will produce concrete of the properties required. Make no substitutions without additional tests to verify that the concrete properties are satisfactory.

If, the compressive strength falls below that specified, adjust the mix proportions and water content and make necessary changes in the temperature, moisture, and curing procedures to secure the specified strength. Notify the Contracting Officer of all changes.

2.2.2 Exposed-to-View Facing Mixture

Match approved sample. Provide aggregates that are free of substances that change color upon oxidation of weathering. Obtain material used for work from the same basic source and stratum. During quarrying operation, verify the uniformity of rock face color by periodically comparing the rock face color to the approved course aggregate sample. Provide exact proportions of facing mixture to produce concrete having the specified properties and capable of obtaining the approved surface color and finish.

2.2.2.1 Design Basis Mixtures for Facing

Adjust relative quantities of white cement, gray cement, and color admixture of match approved sample:

Aggregate: 3/8 inch to 5/8 inch; Texas Aggregates, Bastrop River Plant, Bastrop, TX.

Sand: Martin Marietta Materials, Garwood, TX.

Cement: 450 pounds white cement to 200 pounds gray cement.

Color admixture: 0.75 percent Davis 5447.

2.2.3 Backing Mixture

Provide the approved mix design.

2.3 MATERIALS

2.3.1 Material Sustainability Criteria

For products in this section, where applicable and to extent allowed by performance criteria, provide and document the following in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING:

a. Recycled content for fly ash and pozzolan

2.3.2 Fine Aggregates

ASTM C33/C33M. The optional method of reducing the No. 50 and No. 100 sieve aggregates does not apply. The restriction to use only fine aggregates that do not contain any materials that are deleteriously reactive with alkalis in cement does apply.

2.3.3 Coarse Aggregate

ASTM C33/C33M, Class 5S. The restriction to use only coarse aggregates that do not contain any materials that are deleteriously reactive with alkalis in cement does apply. Aggregate must not contain slag or crushed concrete.

2.3.4 Exposed Aggregate

Crush coarse aggregate by a means that will produce material of cubical shape with a minimum of elongated, thin, or partially fractured particles. Material or crushing methods that produce particles classified by petrographic examination as being weak, highly fractured or somewhat friable, or both, in excess of 16 percent of the particles in any whole sample will be rejected. Material for coarse aggregate must be free of substances that change color on oxidation. Obtain material used for the work from the same basic source and stratum. Quarry material to produce a uniformly colored aggregate that does not change color upon weathering. During quarrying operations, the uniformity of rock face color must be verified by periodically comparing the rock face color to the approved coarse aggregate sample.

Fine aggregate will be quartz natural sand or stone screenings, or

manufactured sand produced from quartz. Aggregate must be free of substances that change color on oxidation. Color must conform to the approved sample.

2.3.5 Cementitious Materials

For exposed concrete, use one manufacturer and one source for each type of cement, ground slag, fly ash, and pozzolan.

2.3.5.1 Fly Ash

ASTM C618, Class F, except that the maximum allowable loss on ignition must not exceed 6 percent.

Add with cement. Fly ash content may be a maximum of 10 percent by weight of cementitious material, provided the fly ash does not reduce the amount of cement in the concrete mix below the minimum requirements of local building codes. Report the chemical analysis of the fly ash in accordance with ASTM C311/C311M. Evaluate and classify fly ash in accordance with ASTM D5759.

2.3.5.2 Raw or Calcined Natural Pozzolan

Natural pozzolan must be raw or calcined and conform to ASTM C618, Class N, including the optional requirement for uniformity.

2.3.5.3 Ultra Fine Fly Ash and Ultra Fine Pozzolan

Ultra Fine Fly Ash (UFFA) and Ultra Fine Pozzolan (UFP) must conform to ASTM C618, Class F or N, and the following additional requirements:

a. The strength activity index at 28 days of age must be at least 95 percent of the control specimens.

b. The average particle size must not exceed 6 microns.

c. The sum of $SiO_2$ + $Al_2O_3$ + $Fe_2O_3$ must be greater than 77 percent.

2.3.5.4 Portland Cement

Provide cement that conforms to ASTM C150/C150M, Type I, II, III, with tri-calcium aluminates (C3A) content less than 10 percent and a maximum cement-alkali content of 0.80 percent $Na_2O_e$ (sodium oxide) equivalent. Use one brand and type of cement for formed concrete having exposed-to-view finished surfaces.

2.3.6 Admixtures

ASTM C260/C260M for air-entraining admixtures. Other admixtures: ASTM C494/C494M. Certify that admixtures are free of chlorides. Coloring Admixture: ASTM C979/C979M, synthetic or natural mineral oxide or colored water reducing admixtures, temperature stable, and non-fading.

2.3.7 Water

Water must comply with the requirements of ASTM C1602/C1602M. Minimize the amount of water in the mix. Improve workability by adjusting the grading rather than by adding water. Water must be potable; free from injurious amounts of oils, acids, alkalis, salts, organic materials, or other substances deleterious to concrete. Submit test report showing water

complies with ASTM C1602/C1602M.

2.3.8 Reinforcement

All exposed steel must be phosphate treated, primed, and coated to prevent rust.

2.3.8.1 Reinforcing Bars

ACI 301 unless otherwise specified. ASTM A615/A615M, Grade 60, ASTM A706/A706M, Grade 60, or ASTM A996/A996M, Grade 60.

2.3.8.2 Welded Wire Reinforcement

ASTM A1064/A1064M.

2.3.8.3 Supports for Concrete Reinforcement

Include bolsters, chairs, spacers, and other devices necessary for proper spacing, supporting, and fastening in place in accordance with PCI MNL-117.

2.3.9 Prestressing Strands

Prestressing strands need to conform to ASTM A416/A416M Grade 270.

2.3.10 Tie Wire

Tie wire must be soft monel or 18-8 stainless steel.

2.3.11 Plates, Angles, Anchors and Embedment

ASTM A36/A36M, ferrous metal plate connectors for attachment to the structural framing using manufacturer standard construction procedures. Headed studs will use 60,000 psi steel with construction conforming to AWS D1.1/D1.1M, Type B. Deformed bar anchors must conform to ASTM A1064/A1064M. Coat steel items, other than stainless, with a rust-inhibiting paint or provide hot-dip galvanized after fabrication in accordance with ASTM A153/A153M.

Furnish and install anchors, inserts, lifting devices, and other accessories which are to be embedded in the precast units in accordance with the approved detail drawings. Embedded items must be accurately positioned in their designed location, and have sufficient anchorage and embedment to satisfy design requirements.

2.3.12 Form Release Agent

Release agent must be manufacturer's standard non-staining type.

2.3.13 Grout

Provide packaged, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, plasticizing and water-reducing agents, complying with ASTM C1107/C1107M and of consistency suitable for application within a 30-minute working time. Water-soluble chloride ion content less than 0.06 percent by weight of cement when tested according to ASTM C1218/C1218M.

## 2.4 CAST-IN EMBEDDED ITEMS AND CONNECTORS

### 2.4.1 Inserts

#### 2.4.1.1 Threaded-Type Concrete Inserts

ASTM A47/A47M, Grade 32510, or may be medium strength cast steel conforming to ASTM A27/A27M, Grade U-60-30. Provide galvanized ferrous casting having enlarged base with two nailing lugs minimum length less than the thickness of panel less 3/4 inch, and internally threaded to receive 3/4 inch diameter machine bolt. Ferrous castings must be ferritic malleable iron. Provide inserts hot-dip galvanized after fabrication in accordance with ASTM A153/A153M.

#### 2.4.1.2 Wedge-Type Concrete Inserts

Provide galvanized, box-type ferrous castings with integral anchor loop at back of box to accept 3/4 inch diameter bolts having special wedge-shaped head. Provide ferrous castings ASTM A47/A47M, Grade 32510, ferritic malleable iron or ASTM A27/A27M, Grade U-60-30, medium-strength cast steel. Provide inserts hot-dip galvanized after fabrication in accordance with ASTM A153/A153M.

#### 2.4.1.3 Slotted-Type Concrete Inserts

Provide pressed steel plate, welded construction, box type with slot to receive 3/4 inch diameter square head bolt, and provide lateral adjustment of bolt. Length of insert body, less anchorage lugs, must be 4 1/2 inches minimum. Provide insert with knockout cover. Steel plate must be 1/8 inch minimum thickness, ASTM A283/A283M, Grade C. Provide inserts hot-dip galvanized after fabrication in accordance with ASTM A153/A153M.

#### 2.4.1.4 Flashing Reglets

Reglets must be sheet metal open-type with continuous groove not less than 1-1/8 inches deep by 3/16-inch wide at opening and sloped upward, designed to anchor snap-lock counter flashing.

Metal must be minimum 0.011-inch thick conforming to ASTM A666, Type 302 or 304, No. 1 finish, soft temper.

### 2.4.2 Connection Devices

#### 2.4.2.1 Clip Angles

ASTM A36/A36M steel, galvanized after fabrication in accordance with ASTM A153/A153M.

#### 2.4.2.2 Ferrous Casting Clamps

ASTM A47/A47M, Grade 32510 malleable iron or cast steel, or ASTM A27/A27M, Grade 60-30, cast steel casting, hot-dip galvanized in accordance with ASTM A153/A153M.

#### 2.4.2.3 Threaded Fasteners

Provide galvanized machine bolts, washers and, when required, nuts.

a. Bolts: ASTM A449, 3/4 inch diameter machine bolts with hexagon

head.

b. Washers: ASME B18.21.1, medium or heavy lock-spring washers.

c. Nuts: ASTM A563, Grade C, heavy, hexagon-type nuts.

d. Square Nuts: ASTM A563, Grade A, plain, square-type nuts where required for slotted-type concrete inserts.

## 2.5 PRECAST ELEMENT FABRICATION

### 2.5.1 Formwork and Fabrication Tolerances

Provide forms and form-facing materials of wood, metal, plastic, or other approved material to produce concrete having the specified finish. Construct forms mortar-tight and of sufficient strength to withstand all pressures due to concrete placing operations and temperature changes. Brace and stiffen against deformation. Provide form liners where required to produce indicated finish. Provide dimensional tolerances per PCI MNL-117.

### 2.5.2 Reinforcement

ACI 301. Place reinforcing bars and welded wire reinforcement. Secure in position with tie wires, bar supports, and spacers.

### 2.5.3 Preparation for Placing Concrete

Remove hardened concrete, excess form parting compound, standing water, ice, snow, or other deleterious substances from form interiors and reinforcement before concrete placement. Secure reinforcement and embedded items.

### 2.5.4 Concrete Mixing and Conveying

#### 2.5.4.1 Batch Plant, Mixer, Mixing, and Measuring of Materials

ASTM C94/C94M.

#### 2.5.4.2 Conveying

Prevent segregation and loss of materials.

### 2.5.5 Concrete Placing

ACI 304R. Deposit concrete in the forms continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause formation of seams or planes of weakness within the precast concrete units. Place concrete at a constant temperature of between 50 and 90 degrees F throughout fabrication of each unit. Make temperature of forms or molds the same as or close to the concrete temperature. For hot or cold weather, use methods recommended by ACI 305R and ACI 306.1. Vibrate and consolidate concrete to prevent segregation and to produce a high-density concrete free of honeycomb and rock pockets. When specified, the exposed-to-view facing mixture is required to be a minimum thickness of 3/4 inches. Place backing mixture before facing mixture attains initial set.

2.5.6 Identification Markings

Permanently mark each precast unit to indicate pick-up points, location, orientation in the building, and date of casting. Identification markings need to correlate with approved detail drawings. Do not locate in exposed-to-view finished surfaces.

2.5.7 Finishing

2.5.7.1 Unformed Interior Surfaces (Standard Smooth Finish)

Provide a trowel finish. Level surface with a straightedge, and strike off. After surface water has disappeared, float and trowel surface. Provide smooth finished surface, free of trowel marks, and uniform in texture and appearance.

2.5.7.2 Exterior Reveal Exposed-to-View Surfaces

Provide a standard smooth finish to all exposed-to-view surfaces of reveals in panels. Provide a concrete surface having the texture imparted by a steel form or other approved smooth surfaces form-facing material.

2.5.7.3 Exposed Aggregate Finish

Provide for exposed-to-view surfaces of panels, including chamfers, edges, recesses, and projections, unless otherwise indicated. Provide standard smooth finish with outer skin of mortar removed, before concrete has hardened, and exposing coarse aggregate. A chemical retarder may be used on exposed face to facilitate removal of mortar. Match finish of the approved sample. Expose aggregates as soon after concrete placing as practicable by sand blasting, or by pressure washing the concrete surface to thoroughly clean exposed aggregate.

2.5.7.4 Other Surfaces

Surfaces of precast units not exposed to view or not otherwise indicated to be finished are to be finished in accordance with ACI 301 for a Surface Finish of 1.0 to match sample.

2.5.8 Curing

Provide moist or steam curing or curing compound. Do not remove precast units from forms; prevent moisture loss and maintain 50 degrees F minimum for at least 24 hours after finishing. Maintain precast units in a surface damp condition at 50 degrees F minimum until concrete has attained 75 percent minimum of the design compressive strength.

2.5.9 Repair of Surface Defects

Cut out defective areas to solid concrete, with edges of cuts perpendicular to the surface of the concrete, and clean thoroughly. Dampen area to be patched and brush-coat with nonshrink grout or bonding agent. Patch the surface in accordance with procedures previously submitted by the Contractor and approved by the Contracting Officer. Where exposed to view, the patches, when dry, needs to be indistinguishable from the surrounding surfaces.

2.5.9.1 Smooth, Concealed Surfaces

Acceptable defective area will be limited to holes left by rods and other temporary inserts, and to honeycomb or rock pockets of 1/4 inch diameter maximum. Remove fins and other projections on the surfaces.

2.5.9.2 Exposed-to-View Surfaces

The combined area of acceptable defective areas must not exceed 0.2 percent of the exposed-to-view surface area and will be limited to holes of 1/4 inch diameter maximum.

2.5.10 Stripping

Do not remove precast concrete units from forms until units develop sufficient strength to safely strip the formwork and to remove the precast concrete units from the forms to prevent damage to the units from overstress or chipping.

2.5.11 Built-In Anchorage Devices

Accurately position and securely anchor all anchorage devices. Openings in anchorage devices must be filled temporarily to prevent entry of concrete.

2.5.12 Lifting Devices

Lifting devices must be provided, and designed for a safety factor of 4, which includes 100 percent impact. Do not use brittle material.

2.5.13 Finishing for Formed Surfaces

Upon removal of forms, repair and patch defective areas. Where the finished surface will be exposed to view, the combined area of defective areas must not exceed 0.2 percent of the surface and will be limited to honeycomb or rock pockets not deep enough to expose the reinforcement. Where the finished surface will be concealed by other construction, defective areas are limited to holes left by the rods and other temporary inserts and honeycomb or rock pockets not deep enough to expose the reinforcement. Defective areas must be cut out to solid concrete, cleaned, and patched with grout. Where concrete surface will be exposed to view, the patches, when dry, must be indistinguishable from the surrounding surfaces.

Exposed-aggregate finish must match the finish of the approved sample. Aggregates in exposed-to-view surfaces will be exposed as soon after concrete placing as practical by power sanders, wire brushes, or other acceptable methods. Give surfaces one or more washings with a dilute solution of muriatic acid, then washed with fresh, clean water to remove all traces of the acid.

Create an abrasive-blast finish using an abrasive grit, equipment, application techniques, and cleaning procedures to expose aggregate and surrounding matrix surfaces.

Create an acid-etched finish using acid and hot-water solution, equipment, application techniques, and cleaning procedures to expose aggregate and surrounding matrix surfaces. Protect hardware, connections, and insulation from acid attach.

2.6 JOINT MATERIALS

Form joints as indicated and specified under Section 07 92 00 JOINT SEALANTS.

2.7 INSULATED PANEL ACCESSORIES

2.7.1 Extruded-Polystyrene (XPS) Board Insulation

ASTM C578, Type X, 1.30 lb/cu. ft or Type IV, 1.45 lb/cu. ft.

2.7.2 Thermally Low-Conductive Sandwich Panel Wythe Connectors

Non-corrosive, composite connectors, tested to meet load requirements and compatible with concrete and insulation, designed to transfer shear, wind and gravity loads between exterior and interior wythes. Provide connectors with maximum K-value of 2.1 BTU-in./sq/ft/-hour-degree F. Submit ICC-ES AC320 test report.

2.8 FABRICATION OF SANDWICH PANELS

Place reveal joint forms and surface setting retarders into forms. Place reinforcing and connections as indicated by approved shop drawings.

Place, level, and consolidate first concrete wythe.

Install thermally-low-conductive sandwich panel wythe connectors in accordance with manufacturer's instructions and as required by panel loads.

Place, level, consolidate, and trowel finish second concrete wythe.

When concrete has reached adequate strength, finish exterior surface as indicated.

PART 3 EXECUTION

3.1 PREPARATION

Deliver anchorage devices to the site in time to be installed before the start of concrete placing or during steel erection. Contractor must provide setting drawings, instructions, and directions for the installation of anchorage devices.

3.2 EXAMINATION

Do not begin installation until supporting structures have been properly prepared.

Verify that all parts of the supporting structure are complete and ready to receive the precast units and that site conditions are conducive to proper installation.

If support structure is the responsibility of another installer, notify Contracting Officer of unsatisfactory preparation before proceeding.

3.3 INSTALLATION

Install precast concrete units and accessories in accordance with approve detail drawings and descriptive data, and as specified below.

3.3.1 Building Framing System

Provide supporting members, including anchorage items attached to or embedded in building structural elements, prior to placement of precast units.

Verify that all parts of the supporting structure are complete and ready to receive the panels and that site conditions are conductive to proper installation. Install precast concrete wall panels and accessories in accordance with approved detail drawings and descriptive data, and as specified below.

3.3.2 Concrete Strength at Time of Precast Unit Installation

Do not install precast units until concrete has attained the minimum laboratory compressive strength at 28 calendar days specified.

Do not install precast units before 28 calendar days from the date of casting unless approval has been obtained to make one compressive strength test, ASTM C39/C39M, and one flexural strength test using simple beam with third-point loading, ASTM C78/C78M, on field cured concrete test specimens, ASTM C31/C31M, for each individual precast unit to determine the strength of the concrete.

3.3.3 Erection

Erect precast units in accordance with the detail drawings and without damage to other units or to adjacent members. Set units true to alignment and level, with joints properly spaced and aligned both vertically and horizontally. Erection tolerances must be in accordance with the requirements of PCI MNL-117 and PCI MNL-122. As units are being erected, shims and wedges will be placed as required to maintain correct alignment. After final attachment, grout precast units as shown. After erection, clean and touch-up welds and abraded surfaces of steel with a zinc-rich paint. Welds must be made by a certified welder in accordance with the manufacturer's erection drawings. Finish pickup points, boxouts, inserts, and similar items to match adjacent areas after erection. Erection of precast units must be supervised and performed by workmen skilled in this type of work. Welding and the qualifications of welders must be in accordance with AWS D1.1/D1.1M.

3.3.4 Erection Tolerances

Erect architectural precast concrete units level, plumb, square and in alignment without exceeding the noncumulative erection tolerances of PCI MNL-117, Appendix I.

3.3.5 Joints

Joint widths between precast units will be as specified unless otherwise indicated.

3.3.5.1 Joint Sealing

Joint sealing will be as specified in Section 07 92 00 JOINT SEALANTS.

3.3.6 Protection

Protect exposed-to-view facing from staining and other damage from subsequent operations. Do not allow laitance to penetrate, stain, or harden on exposed surfaces.

3.4 DEFECTIVE WORK

Repair precast concrete units damaged during erection as soon after occurrence as possible or replaced, as directed, using approved procedures. All repairs to precast concrete units must match the adjacent surfaces in color and texture, as approved. Unless otherwise approved, repair procedures will conform to PCI MNL-116 and PCI MNL-117.

3.5 JOINTS

Joints between precast units must be the width indicated and within limits of installation tolerances.

3.6 INSPECTION AND ACCEPTANCE PROVISIONS

3.6.1 Dimensional Tolerances

Precast units having dimensions outside the limits for fabrication tolerances will be rejected.

3.6.2 Surface Finish Requirements

Precast units will be rejected for the following surface finish deficiencies:

a. Exposed-to-view surfaces that do not match the color, aggregate size and distribution, and texture of the approved sample.

b. Exposed-to-view surfaces that contain defects that affect the appearance of the finish, such as cracks, spalls, honeycomb, rock pockets, or stains and discoloration of aggregate or matrix that cannot be removed by cleaning.

c. Concealed surfaces that contain cracks in excess of 0.01 inch wide, cracks that penetrate to the reinforcement regardless of width, honeycomb, rock pockets, and spalls except minor breakage at corners and edges.

3.6.3 Strength of Precast Units

Strength of precast concrete units will be considered potentially deficient if the units fail to comply with the requirements that control the strength of the units, including the following conditions:

a. Failure to meet compressive strength tests.

b. Reinforcement not conforming to the requirements specified.

c. Concrete curing and protection of precast units against extremes of temperature during curing not conforming to the requirements specified.

d. Precast units damaged during handling and erection.

### 3.6.4 Testing Precast Units for Strength

When there is evidence that the strength of precast concrete units does not meet specification requirements, cores drilled from hardened concrete for compressive strength determination must be made in accordance with ASTM C42/C42M and as follows:

a. Take at least three representative cores from the precast-concrete units that are considered potentially deficient.

b. Test cores with the saturated surface dry.

c. Strength of cores will be considered satisfactory if their average is equal to or greater than 90 percent of the 28-day design compressive strength of 6 by 12 inch cylinders.

Submit test reports on the same day that tests are made. Reports must contain the project name and number, date, name of contractor, name of precast concrete wall units manufacturer, name of concrete-testing service, identification letter and number of units represented by core tests, nominal maximum size of aggregate, design compressive strength of concrete at 28 calendar days, compressive breaking strength and type of break, length of core test specimen before capping, compressive strength after correcting for length diameter ratio, direction of application of the load on the core test specimen with respect to the horizontal plane of the concrete as placed, and the moisture condition of the core test specimen at time of testing.

If the results of the core tests are unsatisfactory or if core tests are impractical to obtain, a static load tests of a precast unit will be evaluated in accordance with ACI 318.

Replace precast units used for core tests or static load tests with units that meet the requirements of this section.

## 3.7 SAMPLING AND TESTING

### 3.7.1 Rejection

Precast units in place may be rejected for any one of the following product defects or installation deficiencies remaining after repairs and cleaning have been accomplished. "Visible" means visible to a person with normal eyesight when viewed from a distance of 20 feet in broad daylight.

a. Nonconformance to specified tolerances.

b. Air voids (bugholes or blowholes) larger than 3/8 inch diameter.

c. Visible casting lines.

d. Visible from joints.

e. Visible irregularities.

f. Visible stains on precast unit surfaces.

g. Visible differences between precast unit and approved sample.

h. Visible non-uniformity of textures or color.

i. Visible areas of backup concrete bleeding through the facing concrete.

j. Visible foreign material embedded in the face.

k. Visible repairs.

l. Visible reinforcement shadow lines.

m. Visible cracks.

n. Precast units that are damaged during construction operations.

3.7.2 Field Quality Control

Perform field inspection of precast unit connections. Notify the Contracting Officer in writing of defective welds, bolts, nuts and washers within 7 working days of the date of inspection. All defective connections or welds are to be removed and re-welded or repaired as required by the Contracting Officer.

3.7.2.1 Welded Connection Visual Inspection

AWS D1.1/D1.1M, furnish the services of AWS-certified welding inspector for erection inspections. Welding inspector must visually inspect all welds and identify all defective welds.

3.8 CLEANING

Clean exposed-to-view surfaces of precast units thoroughly with detergent and water; use a brush to remove foreign matter. Remove stains that remain after washing in accordance with recommendations of the precast manufacturer. Surfaces must be clean and uniform in color. Include precast concrete wall panel manufacturer's written recommendations for installation and cleaning.

-- End of Section --

SECTION 08 51 13

ALUMINUM WINDOWS (INCLUDING FIRE RATED EXTERIOR WINDOWS)

**AMENDMENT 0003**

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 within the text by the basic designation only.

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

| | |
|---|---|
| AAMA 501.1 | (2017) Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure |
| AAMA 701/702 | (2011) Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals |
| AAMA 907 | (2015) Voluntary Specification for Corrosion Resistant Coatings on Carbon Steel Components Used in Windows, Doors and Skylights |
| AAMA 1503 | (2009) Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections |
| AAMA 2604 | (2017a) Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels |
| AAMA 2605 | (2020) Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels |
| AAMA/WDMA/CSA 101/I.S.2/A440 | (2017) North American Fenestration Standard/Specification for Windows, Doors, and Skylights |

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

| | |
|---|---|
| ASHRAE 169 | (2013) Climate Data for Building Design Standards |

ASTM INTERNATIONAL (ASTM)

| | |
|---|---|
| ASTM E119 | (2022) Standard Test Methods for Fire Tests of Building Construction and Materials |

| | |
|---|---|
| ASTM E283 | (2019) Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen |
| ASTM E331 | (2000; R 2016) Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference |
| ASTM E1300 | (2016) Standard Practice for Determining Load Resistance of Glass in Buildings |
| ASTM F2248 | (2012) Standard Practice for Specifying an Equivalent 3-Second Duration Design Loading for Blast Resistant Glazing Fabricated with Laminated Glass |

NATIONAL FENESTRATION RATING COUNCIL (NFRC)

| | |
|---|---|
| NFRC 100 | (2020) Procedure for Determining Fenestration Product U-Factors |
| NFRC 200 | (2020) Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence |

SCREEN MANUFACTURERS ASSOCIATION (SMA)

| | |
|---|---|
| SMA 1004 | (1987; R 1998) Aluminum Tubular Frame Screens for Windows |
| SMA 1201 | (R 2013) Specifications for Insect Screens for Windows, Sliding Doors and Swinging Doors |

U.S. DEPARTMENT OF DEFENSE (DOD)

| | |
|---|---|
| UFC 4-010-01 | (2018; with Change 2, 2022) DoD Minimum Antiterrorism Standards for Buildings |

U.S. DEPARTMENT OF ENERGY (DOE)

| | |
|---|---|
| Energy Star | (1992; R 2006) Energy Star Energy Efficiency Labeling System (FEMP) |

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Windows; G

Fire Rated Windows, Exterior; G

Fabrication Drawings

SD-03 Product Data

Windows; G

Fire Rated Windows, Exterior; G

Recycled Content of Aluminum Windows; S

Hardware; G

Window Performance; G

Thermal-Barrier Windows; G

Screens; G

Weatherstripping; G

Accessories; G

Adhesives

Thermal Performance; G

Energy Star Label For Residential Aluminum Window Products; S

SD-04 Samples

Finish Sample

SD-05 Design Data

Structural Calculations for Deflection; G

Design Analysis; G

SD-06 Test Reports

Minimum Condensation Resistance Factor

SD-07 Certificates

Engineer's Qualifications

For field assembled aluminum windows, NFRC validated Project Label Certificate for Fenestration for the entire project; G

In lieu of a Project Label Certificate for Fenestration, an NFRC Bid Report for all of the field assembled windows on the project, provided in accordance with NFRC CMA procedures, or an equivalent report provided by the manufacturer for the field assembled windows, may be submitted with the pertinent drawings on condition

that the NFRC validated Project Label Certificate for Fenestration is submitted as a Closeout Submittal under provisions of Section 01 33 00 SUBMITTAL REQUIREMENTS.

SD-10 Operation and Maintenance Data

Windows, Data Package 1; G

Submit in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

## 1.3 QUALITY ASSURANCE

### 1.3.1 Qualification of Manufacturer

Window manufacturer must specialize in designing and manufacturing the type of aluminum windows specified in this section, and have a minimum of 5 years of documented successful experience. Manufacturer must have the facilities capable of meeting contract requirements, single-source responsibility and warranty.

### 1.3.2 Shop Drawing Requirements

Take field measurements prior to preparation of drawings and fabrications. Provide drawings that indicate elevations of windows, full-size sections, thickness and gages of metal, fastenings, proposed method of anchoring, size and spacing of anchors, details of construction, method of glazing, details of operating hardware, mullion details, method and materials for weatherstripping, method of attaching screens, material and method of attaching subframes, stools, casings, sills, trim, installation details, and other related items.

### 1.3.3 Engineer's Qualifications for Blast Design

All blast design calculations must be performed by or under the direct supervision of a registered engineer with a minimum of 5 years experience performing blast design. The engineer performing the blast design must be able to demonstrate experience on similar size projects using similar design methods to meet the requirements outlined in this specification.

### 1.3.4 Sample Requirements

#### 1.3.4.1 Finish Sample Requirements

Submit color chart of standard factory color coatings when factory-finish color coating is to be provided.

### 1.3.5 Design Data Requirements

Submit compliance with window bite requirements per Antiterrorism Performance Requirements. A registered Professional Engineer must provide calculations.

Submit design analysis with calculations showing that the design meets the requirements of paragraph ANTITERRORISM PERFORMANCE REQUIREMENTS.

## 1.4 DELIVERY AND STORAGE

Deliver windows to project site in an undamaged condition. Use care in

handling and hoisting windows during transportation and at the jobsite. Store windows and components out of contact with the ground, under a weathertight covering, so as to prevent bending, warping, or otherwise damaging the windows. Repair damaged windows to an "as new" condition as approved. If windows can not be repaired, provide a new unit.

## 1.5 PERFORMANCE REQUIREMENTS

### 1.5.1 Wind Loading Design Pressure

Design window components, including mullions, hardware, and anchors, to withstand a wind-loading design pressure as indicated on structural drawings.

### 1.5.2 Tests

Test windows proposed for use in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 for the particular type and quality window specified.

Perform tests by a nationally recognized independent testing laboratory equipped and capable of performing the required tests. Submit the results of the tests as certified laboratory reports required herein.

Minimum design load for a uniform-load structural test must be 50 psf.

## 1.6 DRAWINGS

Submit the Fabrication Drawings for aluminum window units showing complete window assembly including hardware, weatherstripping, and subframe assembly details.

## 1.7 WINDOW PERFORMANCE

Aluminum windows must meet the following performance requirements. Perform testing requirements by an independent testing laboratory or agency.

### 1.7.1 Structural Performance

Structural test pressures on window units must be for positive load (inward) and negative load (outward). After testing, there will be no glass breakage, permanent damage to fasteners, hardware parts, support arms or actuating mechanisms or any other damage which could cause window to be inoperable. There must be no permanent deformation of any main frame, sash or ventilator member in excess of the requirements established by AAMA/WDMA/CSA 101/I.S.2/A440 for the window types and classification specified in this section.

### 1.7.2 Antiterrorism Performance Requirements

Windows must meet the antiterrorism performance criteria as specified in the paragraphs below in accordance with UFC 4-010-01.

### 1.7.3 Air Infiltration

Air infiltration must not exceed the amount established by AAMA/WDMA/CSA 101/I.S.2/A440 for each window type.

1.7.4 Water Penetration

Water penetration must not exceed the amount established by AAMA/WDMA/CSA 101/I.S.2/A440 for each window type.

1.7.5 Thermal Performance

Windows (including frames and glass) will be independently tested and certified with a Solar Heat Gain Coefficient (SHGC) determined according to NFRC 200 procedures and a whole window U-factor determined in accordance with NFRC 100 within the ranges as indicated below according to the ASHRAE 169 Climate Zone of the project location. Provide visual Transmittance (VT) of 0.5 or greater. Submit documentation supporting compliance with Energy Star, FEMP designated, and Passive House qualifications as applicable. Provide proof of Energy Star label for residential aluminum window products.

1.7.5.1 Southern Climate

Windows installed in Climate Zone 2 will have a U-Factor of 0.40 BTU/h·ft$^{2}$· degrees F or less and a SHGC of 0.25 or less.

1.7.6 Life Safety Criteria

Provide windows with permanently installed devices that limit opening to a maximum of 6 inches.

1.8 WARRANTY

Provide Manufacturer's standard performance guarantees or warranties that extend beyond a 1 year period.

PART 2 PRODUCTS

2.1 WINDOWS

Provide prime windows that comply with AAMA/WDMA/CSA 101/I.S.2/A440 and the requirements specified herein. In addition to compliance with AAMA/WDMA/CSA 101/I.S.2/A440, window framing members for each individual light of glass must not deflect to the extent that deflection perpendicular to the glass light exceeds L/175 of the glass edge length when subjected to uniform loads at specified design pressures. Provide Structural calculations for deflection to substantiate compliance with deflection requirements. Provide windows of types, performance classes, performance grades, combinations, and sizes indicated or specified. Provide aluminum window frames with a minimum recycled content of 20 percent. Provide data identifying percentage of recycled content of aluminum windows. Design windows to accommodate hardware, glass, weatherstripping, screens, and accessories to be furnished. Each window must be a complete factory assembled unit with or without glass installed. Dimensions shown are minimum. Provide windows with insulating glass and thermal break necessary to achieve a minimum Condensation Resistance Factor (CRF) of 53 when tested in accordance with AAMA 1503. Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.

<AM#0003>~~2.1.1 Awning Windows (AP)~~

~~Type AP-AW- 80. Conceal operating mechanism within the frame members or enclose within a metal casing not less than 0.0625 inch thick sheet aluminum.~~

</AM#0003>2.1.1 Casement Windows (C)

Type C-AW- 80. Provide ventilators over 65 inches high with two separate locking devices. Conceal rods where possible.

2.1.2 Window Materials

Window frames and sash members, mullions, mullion covers, screen frames, and glazing beads shall be fabricated in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.

Weatherstripping will be woven wool pile weatherstripping 0.210 inch thick, conforming to AAMA 701/702, or polypropylene multifilament fiber weatherstripping installed in an integral weatherstripping groove in the sash or frame, and flexible polyvinylchloride weatherstripping installed in the sill member.

2.1.3 Fixed Windows (F)

Type F-AW- 80.

2.1.4 Fire Rated Windows

For fire rated windows, provide fixed 3 1/8-inch wide by 4 5/16-inch deep steel frames for 2 3/8-inch deep glazing system.

2.1.4.1 Construction

Steel tube and mineral wool insulation composite frame. Pre-welded frame joined with steel bolts.

2.1.4.2 Fire Rating

120-minute fire rating when tested under ASTM E119.

2.1.4.3 Weather Resistance System Performance

2.1.4.3.1 Air Infiltration

Maximum 0.06 CFM/SF when tested under ASTM E283 at 6.24 PSF pressure differential.

2.1.4.3.2 Static Pressure Water Leakage

No uncontrolled leakage when tested under ASTM E331 at 6.24 PSF pressure differential.

2.1.4.3.3 Dynamic Pressure Water Leakage

No uncontrolled water leakage when tested under AAMA 501.1 at 20-percent of positive wind-load design pressure.

2.1.5 Glass and Glazing

Materials are specified in Section 08 81 00 GLAZING.

2.1.6 Caulking and Sealing

Are specified in Section 07 92 00 JOINT SEALANTS.

2.1.7 Weatherstripping

AAMA/WDMA/CSA 101/I.S.2/A440. Provide for all ventilating (operable) sash for all windows. Provide woven wool pile weatherstripping 0.210 inch thick, conforming to AAMA 701/702, or polypropylene multifilament fiber weatherstripping installed in an integral weatherstripping groove in the sash or frame, and flexible polyvinylchloride weatherstripping installed in the sill member.

2.2 FABRICATION

Fabrication of window units must comply with AAMA/WDMA/CSA 101/I.S.2/A440.

2.2.1 Provisions for Glazing

Design windows and rabbets suitable for glass thickness shown. For minimum antiterrorism windows, attach glazing to its supporting frame using structural silicone sealant or adhesive glazing tape in accordance with ASTM F2248. Design sash for outside double glazing and for securing glass with glazing compound.

2.2.2 Fasteners

Use window manufacturer's standard for windows, trim, and accessories. Self-tapping sheet-metal screws are not acceptable for material more than 1/16 inch thick.

2.2.3 Adhesives

Provide joint sealants as specified in Section 07 92 00 JOINT SEALANTS. For interior application of joint sealants, comply with applicable regulations regarding reduced VOC's, and as specified in Section 07 92 00 JOINT SEALANTS.

2.2.4 Drips and Weep Holes

Provide continuous drips over heads of top ventilators. Where fixed windows adjoin ventilators, drips must be continuous across tops of fixed windows. Provide drips and weep holes as required to return water to the outside.

2.2.5 Combination Windows

Windows used in combination must be factory assembled of the same class and grade. Where factory assembly of individual windows into larger units is limited by transportation considerations, prefabricate, match mark, transport, and field assemble.

2.2.6 Mullions and Transom Bars

Provide mullions between multiple window units to resist two times (2X)

glazing resistance in accordance with ASTM F2248 and ASTM E1300. Provide mullions with a thermal break. Secure mullions and transom bars to adjoining construction and window units in such a manner as to permit expansion and contraction and to form a weathertight joint. Provide mullion covers on the interior and exterior to completely close exposed joints and recesses between window units and to present a neat appearance.

2.2.7 Accessories

Provide windows complete with necessary hardware, fastenings, clips, fins, anchors, glazing beads, and other appurtenances necessary for complete installation and proper operation. Furnish extruded aluminum subframe receptors and subsill with each window unit.

2.2.7.1 Hardware

AAMA/WDMA/CSA 101/I.S.2/A440. The item, type, and functional characteristics must be the manufacturer's standard for the particular window type. Provide hardware of suitable design and of sufficient strength to perform the function for which it is used. Equip all operating ventilators with a lock or latching device which can be secured from the inside.

2.2.7.2 Fasteners

Provide concealed anchors of the type recommended by the window manufacturer for the specific type of construction. Anchors and fasteners must be compatible with the window and the adjoining construction. Provide a minimum of three anchors for each jamb located approximately 6 inches from each end and at midpoint.

2.2.7.3 Window Anchors

Anchoring devices for installing windows must be made of aluminum, cadmium-plated steel, stainless steel, or zinc-plated steel conforming to AAMA/WDMA/CSA 101/I.S.2/A440.

2.2.8 Finishes

Comply with NAAMM's "Metal Finishes Manual" for applying and designating finishes. Exposed aluminum surfaces must be factory finished with high performance PVF organic coating. Color must be as indicated. All windows for each building must have the same finish.

2.2.8.1 Organic Coating

Clean and prime exposed aluminum surfaces. Provide a high-performance finish in accordance with AAMA 2605 with total dry film thickness of not less than 1.2 mils. Match color of finish specified in Section 08 11 16 ALUMINUM DOORS AND FRAMES (INCLUDING FIRE RATED ENTRANCE DOORS) and Section 08 44 00 CURTAIN WALL AND GLAZED ASSEMBLIES.

2.2.9 Finished - Fire Rated Windows

Provide baked polyester powder finish meeting requirements of AAMA 2604.

2.2.10 Screens

AAMA/WDMA/CSA 101/I.S.2/A440. Provide one insect screen for each operable

exterior sash or ventilator. Design screens to be rewirable, easily removable from inside the building, and to permit easy access to operating hardware. Manufacturers standard aluminum frame complying with SMA 1004 or SMA 1201. Fabricate frames with mitered or coped joints or corner extrusion, concealed fasteners and removable PVC spline/anchors concealing edge of frame.

## 2.3 THERMAL-BARRIER WINDOWS

Provide thermal-barrier windows, complete with accessories and fittings, where indicated.

Specify material and construction except as follows:

a. Aluminum alloy must be 6063-T6.

b. Frame construction, including operable sash, must be factory-assembled and factory-sealed inner and outer aluminum completely separated from metal-to-metal contact. Join assembly by a continuous, concealed, low conductance divider housed in an interlocking extrusion of the inner frame. Metal fasteners, straps, or anchors must not bridge the connection between the inner and outer frame.

c. Operating hardware for each sash must consist of spring-loaded nylon cushion blocks and pin locks designed to lock in predetermined locations.

d. Sash must be completely separated from metal-to-metal contact by means of woven-pile weatherstripping, plastic, or elastomeric separation members.

e. Operating and storm sash must be factory-glazed with the type of glass indicated and of the quality specified in Section 08 81 00 GLAZING.

## 2.4 MULLIONS

Provide mullions between multiple-window units where indicated.

Provide profiles for mullions and mullion covers, reinforced as required for the specified wind loading, and securely anchored to the adjoining construction. Mullion extrusion will include serrations or pockets to receive weatherstripping, sealant, or tape at the point of contact with each window flange.

Mullion assembly must include aluminum window clamps or brackets screwed or bolted to the mullion and the mullion cover.

Mullion cover must be screw-fastened to the mullion unless otherwise indicated.

Mullion reinforcing members must be fabricated of the materials specified in AAMA/WDMA/CSA 101/I.S.2/A440 and meet the specified design loading.

# PART 3 EXECUTION

## 3.1 INSTALLATION

### 3.1.1 Method of Installation

Install in accordance with the window manufacturer's printed instructions and details. Build in windows as the work progresses or install without forcing into prepared window openings. Set windows at proper elevation, location, and reveal; plumb, square, level, and in alignment; and brace, strut, and stay properly to prevent distortion and misalignment. Protect ventilators and operating parts against accumulation of dirt and building materials by keeping ventilators tightly closed and locked to frame. Bed screws or bolts in sill members, joints at mullions, contacts of windows with sills, built-in fins, and subframes in mastic sealant of a type recommended by the window manufacturer. Install and caulk windows in a manner that will prevent entrance of water and wind. Fasten insect screens securely in place.

Any materials that show visual evidence of biological growth due to the presence of moisture must not be installed on the building project.

### 3.1.2 Dissimilar Materials

Where aluminum surfaces are in contact with, or fastened to masonry, concrete, wood, or dissimilar metals, except stainless steel or zinc, protect the aluminum surface from dissimilar materials as recommended in the Appendix to AAMA/WDMA/CSA 101/I.S.2/A440. Do not coat surfaces in contact with sealants after installation with any type of protective material. Do not apply coatings or lacquers to surfaces to which caulking and glazing components must adhere.

### 3.1.3 Anchors and Fastenings

Make provision for securing units to each other, to masonry, and to other adjoining construction. Windows installed in masonry walls must have head and jamb members designed to recess into masonry wall not less than 7/16 inch.

### 3.1.4 Adjustments After Installation

After installation of windows and completion of glazing and field painting, adjust all ventilators and hardware to operate smoothly and to provide weathertight sealing when ventilators are closed and locked. Lubricate hardware and operating parts as necessary. Verify that products are properly installed, connected, and adjusted.

## 3.2 CLEANING

Clean interior and exterior surfaces of window units of mortar, plaster, paint spattering spots, and other foreign matter to present a neat appearance, to prevent fouling of weathering surfaces and weather-stripping, and to prevent interference with the operation of hardware. Replace all stained, discolored, or abraded windows that cannot be restored to their original condition with new windows.

-- End of Section --

# SECTION 09 30 10

# CERAMIC, QUARRY, AND GLASS TILING

## 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 within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

| | |
|---|---|
| ANSI A108/A118/A136.1 | (2024) American National Standard Specifications for the Installation of Ceramic Tile |
| ANSI A137.1 | (2019) American National Standards Specifications for Ceramic Tile |
| ANSI A137.3/A108.19 | (2017) American National Standard Specifications for Gauged Porcelain Tile and Gauged Porcelain Tile Panels/Slabs |

ASTM INTERNATIONAL (ASTM)

| | |
|---|---|
| ASTM A1064/A1064M | (2024) Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete |
| ASTM C150/C150M | (2024) Standard Specification for Portland Cement |
| ASTM C373 | (2018; R 2023)Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products |
| ASTM C648 | (2020) Standard Test Method for Breaking Strength of Ceramic Tile |
| ASTM C1026 | (2023) Standard Test Method for Measuring the Resistance of Ceramic and Glass Tile to Freeze-Thaw Cycling |

TILE COUNCIL OF NORTH AMERICA (TCNA)

| | |
|---|---|
| TCNA Hdbk | (2017) Handbook for Ceramic, Glass, and Stone Tile Installation |

### 1.2 SUBMITTALS

Government approval is required for submittals with a "G" or "S"

classification. Submittals not having a "G" or "S" classification are for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Mosaic Tile; G

Recycled Content for Mosaic Tile; S

Transition Strips; G

Mortar, Grout, and Adhesive; G

Reinforcing Wire Fabric

Cementitious Backer Units; G

Glass-Mat Gypsum Water-Resistant Backing Board; G

Waterproof Membrane; G

Crack Isolation Membrane; G

SD-04 Samples

Tile; G

Transition Strips; G

Grout; G

SD-07 Certificates

Water Absorption Rates

SD-08 Manufacturer's Instructions

Manufacturer's Approved Cleaning Instructions

SD-10 Operation and Maintenance Data

Mosaic Tile, Data Package 1; G
Transition Strips, Data Package 1; G

## 1.3 CERTIFICATIONS

### 1.3.1 Water Absorption Rates Certification

Provide certification for each tile type indicating compliance with the following water absorption (wa) rates per ANSI A137.1 criteria as tested per ASTM C373 requirements.

a. Mosaic Tile (Semi-Vitreous): Provide water absorption (wa) of more than 3.0 percent, but not more than 7.0 percent.

1.4 QUALITY ASSURANCE

Provide installers having a minimum of two years of experience with a company specializing in performing the type of work described. Each type and color of tile to be provided from a single source. Each type and color of mortar, adhesive, and grout to be provided from the same source.

1.5 DELIVERY, STORAGE, AND HANDLING

Ship tiles in sealed packages and clearly marked with the grade, type of tile, producer identification, and country of origin. Deliver materials to the project site in manufacturer's original unopened containers with seals unbroken and labels and hallmarks intact. Protect materials from weather, and store them under cover in accordance with manufacturer's printed instructions. Store and handle tiles per manufacturer's instructions for gauged porcelain tile and gauged porcelain tile panels/slabs.

1.6 ENVIRONMENTAL REQUIREMENTS

Do not perform ceramic tile work unless the substrate and ambient temperature is at least 50 degrees F and rising. Maintain temperature above 50 degrees F while the work is being performed and for at least 7 days after completion of the work. When temporary heaters are used, ventilate the area to the outside to avoid carbon dioxide damage to new tilework.

1.7 WARRANTY

Provide manufacturer's warranty to repair or replace defective tiling materials and workmanship, including tile, mortar and grout products and installation as a system, for a period of one year from date of final acceptance of the work.

1.8 EXTRA MATERIALS

Supply an extra 2 percent of each type tile used in clean and marked cartons.

PART 2 PRODUCTS

2.1 TILE

Provide tiles that comply with ANSI A137.1 and are standard grade tiles. Furnish gauged porcelain tile that comply with ANSI A137.3/A108.19. Provide a minimum breaking strength of 125 lbs. for wall tile and 250 lbs. for floor tile in accordance with ASTM C648. Provide exterior building tile for cold climate projects that is approved by the manufacturer for exterior use when tested in accordance with ASTM C1026. For materials like tile, accessories, and transition strips submit samples of sufficient size to show color range, pattern, type and joints.

Submit manufacturers' operations and maintenance data for ceramic tiling indicated in accordance with Section 01 78 23 OPERATIONS AND MAINTENANCE DATA.

Ceramic wall tile used at exterior locations shall be approved by the tile manufacturer for exterior wall application and compatible with the specified setting materials and substrate conditions.

2.1.1 Mosaic Tile

Furnish glazed, mosaic tile and trim composed of metal. Provide tile with a V1 aesthetic classification. Blend tiles in factory and in a packages to have same color range and continuous blend for installation. Provide nominal tile size(s) of 3 by 3 inch][a mixture of standard sizes in a stock pattern].

Provide mosaic tiling materials that contain a minimum of 3 percent recycled content. Provide data identifying percentage of recycled content for mosaic tile.

2.2 SETTING-BED

Submit manufacturer's catalog data. Compose the setting-bed of the following materials:

2.2.1 Portland Cement

Conform to ASTM C150/C150M for cement, Type I, white for wall mortar and gray for other uses.

2.2.2 Reinforcing Wire Fabric

Conform to ASTM A1064/A1064M for wire fabric. Provide 2 by 2 inch mesh, 16/16 wire.

2.3 WATER

Provide potable water.

2.4 MORTAR, GROUT, AND ADHESIVE

2.4.1 Dry-Set Portland Cement Mortar

TCNA Hdbk.

2.4.2 Furan Mortar

TCNA Hdbk.

2.4.3 Latex-Portland Cement Mortar/Polymer-Modified Mortar

TCNA Hdbk. Provide polymer-modified portland cement mortar, also referred to as latex-portland cement mortar, complying with ANSI A108/A118/A136.1 and recommended by the mortar manufacturer for exterior wall tile installation over concrete substrates. Mortar shall be compatible with the tile, grout, substrate, and exterior exposure conditions.

2.4.4 Ceramic Tile Grout

TCNA Hdbk; standard unsanded cement grout (dry-set grout).

2.4.5 Organic Adhesive

TCNA Hdbk, Type I. Water-resistant. Comply with ANSI A108/A118/A136.1. Organic adhesive shall not be used for exterior wall tile installations over precast concrete.

2.4.6 Sealants

Comply with applicable regulations regarding toxic and hazardous materials and as specified. Provide sealant that does not change the color or alter the appearance of the grout. Refer to Section 07 92 00 JOINT SEALANTS.

2.5 SUBSTRATES

2.5.1 Cementitious Backer Units

Provide cementitious backer unit, for use as tile substrate where indicated, in accordance with TCNA Hdbk. Furnish 5/8 inch thick cementitious backer units.

2.5.2 Exterior Precast Concrete Substrate

Exterior precast concrete wall surfaces indicated to receive ceramic wall tile are acceptable substrates for direct-bond tile installation where the substrate is sound, clean, plumb, true, and properly prepared to receive tile. Remove laitance, curing compounds, form release agents, sealers, coatings, contaminants, and other bond-inhibiting materials. Prepare substrate in accordance with TCNA Hdbk requirements and setting-material manufacturer’s written instructions for exterior wall tile installation over concrete.

2.6 MISCELLANEOUS TRIMS

2.6.1 Metal Strips

Provide trim shapes, height to match tile and setting thickness, designed specifically for wall applications. Provide rigid-vinyl cove strip where floor tile abuts.

2.7 WATERPROOF MEMBRANE

2.7.1 General

Manufacturer's standard product that complies with ANSI A108/A118/A136.1 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

2.8 COLOR, TEXTURE, AND PATTERN

Provide color, pattern and texture as indicated; colors listed are not intended to limit the selection of equal colors from other manufacturers.

PART 3 EXECUTION

3.1 PREPARATORY WORK AND WORKMANSHIP

Inspect surface to receive tile in conformance to the requirements of TCNA Hdbk for surface conditions for the type setting bed specified and for workmanship. Provide variations of tiled surfaces that fall within maximum values shown below:

| TYPE | WALLS | FLOORS |
|---|---|---|
| Dry-Set Mortar | 1/8 inch in 8 ft. | 1/8 inch in 10 ft. |
| Organic Adhesives | 1/8 inch in 8 ft. | 1/16 inch in 3 ft. |
| Latex-Portland Cement Mortar | 1/8 inch in 8 ft. | 1/8 inch in 10 ft. |
| Epoxy | 1/8 inch in 8 ft. | 1/8 inch in 10 ft. |

## 3.2 GENERAL INSTALLATION REQUIREMENTS

Do not start tile work until roughing in for mechanical and electrical work has been completed and tested, and built-in items requiring membrane waterproofing have been installed and tested. Close space, in which tile is being set, to traffic and other work. Keep closed until tile is firmly set. Apply tile in colors and patterns indicated in the area shown on the drawings. Install tile with the respective surfaces in true even planes to the elevations and grades shown. Solidly back tile bases and coves with mortar.

Do not install building construction materials that show visual evidence of biological growth.

## 3.3 INSTALLATION OF WALL TILE

Install wall tile in accordance with the TCNA Hdbk, method W202E for exterior wall tile bonded directly to concrete or masonry substrates, and with grout joints as recommended by the tile manufacturer for the type of tile.

### 3.3.1 Installation of Gauged Porcelain Tile

Install gauged porcelain tile in accordance with TCNA Hdbk method and ANSI A137.3/A108.19 for thin-bed method bonded with modified dry-set cement mortar over improved modified dry-set cement mortar.

### 3.3.2 Workable or Cured Mortar Bed

Install tile over workable mortar bed or a cured mortar bed at the option of the Contractor. Install a 4 mil polyethylene membrane, metal lath, and scratch coat. Conform to TCNA Hdbk method for workable mortar bed, materials, and installation of tile. Conform to TCNA Hdbk method for cured mortar bed and materials.

### 3.3.3 Polymer-Modified Mortar for Exterior Wall Tile

Use polymer-modified portland cement mortar / latex-portland cement mortar to install exterior wall tile directly over prepared precast concrete substrates in accordance with the TCNA Hdbk method specified and the setting-material manufacturer’s written instructions.

### 3.3.4 Ceramic Tile Grout

Prepare and install ceramic tile grout in accordance with TCNA Hdbk method. Provide and apply manufacturer's standard product for sealing grout joints in accordance with manufacturer's recommendations.]

## 3.4 INSTALLATION OF MISCELLANEOUS TRIMS

### 3.4.1 Metal Trims

Install trim where indicated. Embed anchoring leg in setting mortar in accordance with manufacturer's instructions. During grouting of tile joints, immediately wipe grout from finish surface.

## 3.5 EXPANSION JOINTS

### 3.5.1 Walls

Provide movement joints in wall tile assemblies in accordance with TCNA EJ171. Provide joints at control joints in the backing material, where backing material changes, at perimeters, changes in plane, and other locations recommended by the tile and setting-material manufacturers for exterior wall tile installations.

## 3.6 CLEANING AND PROTECTING

Upon completion, thoroughly clean tile surfaces in accordance with manufacturer's approved cleaning instructions. Do not use acid for cleaning glazed tile. After the grout has set, provide a protective coat of a noncorrosive soap or other approved method of protection for tile wall surfaces. Cover tiled floor areas with building paper before foot traffic is permitted over the finished tile floors

-- End of Section --

SECTION 09 51 00

ACOUSTICAL CEILINGS

**AMENDMENT 0003**

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 within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

| | |
|---|---|
| ASTM A489 | (2018; E 2018) Standard Specification for Carbon Steel Eyebolts |
| ASTM A641/A641M | (2019) Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire |
| ASTM A653/A653M | (2023) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process |
| ASTM A1008/A1008M | (2021a) Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable |
| ASTM B633 | (2019) Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel |
| ASTM C423 | (2009a) Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method |
| ASTM C635/C635M | (2022) Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings |
| ASTM C636/C636M | (2013) Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels |
| ASTM C834 | (2017) Standard Specification for Latex Sealants |
| ASTM E413 | (2022) Classification for Rating Sound Insulation |
| ASTM E580/E580M | (2022) Standard Practice for Installation of Ceiling Suspension Systems for |

| | |
|---|---|
| | Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions |
| ASTM E795 | (2016) Standard Practices for Mounting Test Specimens During Sound Absorption Tests |
| ASTM E1111/E1111M | (2014; R 2022) Standard Test Method for Measuring the Interzone Attenuation of Open Office Components |
| ASTM E1264 | (2022) Standard Classification for Acoustical Ceiling Products |
| ASTM E1414/E1414M | (2021a) Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum |
| ASTM E1477 | (1998; R 2022a) Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers |

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

| | |
|---|---|
| CDPH SECTION 01350 | (2010; Version 1.1) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers |

GREEN SEAL (GS)

| | |
|---|---|
| GS-36 | (2013) Adhesives for Commercial Use |

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

| | |
|---|---|
| SCS | SCS Global Services (SCS) Indoor Advantage |

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

| | |
|---|---|
| SCAQMD Rule 1168 | (2017) Adhesive and Sealant Applications |

U.S. DEPARTMENT OF DEFENSE (DOD)

| | |
|---|---|
| UFC 3-301-01 | (2019, with Change 1, 2022) Structural Engineering |

UNDERWRITERS LABORATORIES (UL)

| | |
|---|---|
| UL 2818 | (2013) GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings |

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. When used, a code following the "G" classification identifies the office that will review the submittal for the

Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Recycled Content for Type III Ceiling Tiles; S

Recycled Content for Suspension Systems; S

Acoustical Performance; G

**<AM#0003>** Fiberglass Reinforced Plastic (FRP) Ceiling Panels; G

FRP Panel Trim and Moldings, And Accessories; G

Adhesives And Sealants For FRP Panels; G**</AM#0003>**

SD-04 Samples

Acoustical Units; G

Acoustical Ceiling Tiles; G

**<AM#0003>** Fiberglass Reinforced Plastic (FRP) Ceiling Panels; G

FRP Panel Trim And Moldings; G**</AM#0003>**

SD-07 Certificates

Indoor Air Quality for Type III Ceiling Tiles; S

Indoor Air Quality for Adhesives; S

**<AM#0003>** Indoor Air Quality For FRP Panel Adhesives And Sealants; S **</AM#0003>**

## 1.3 CERTIFICATIONS

### 1.3.1 Indoor Air Quality Certifications

#### 1.3.1.1 Ceiling Tiles

Provide products certified to meet indoor air quality requirements by UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification or validation by other third-party programs that products meet the requirements of this section. Provide current product certification documentation from certification body.

#### 1.3.1.2 Adhesives and Sealants

Provide products certified to meet **<AM#0003>**indoor air quality for FRP panel adhesives and sealants**</AM#0003>** requirements by UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification or validation by other third-party programs that products meet the requirements of this Section. Provide current product certification documentation from certification body. When product does not have certification, provide validation that product meets the indoor air quality product requirements cited in this Section.

1.4 DELIVERY, STORAGE. AND HANDLING

Deliver materials to the site in the manufacturer's original unopened containers with brand name and type clearly marked. Carefully handle and store materials in dry, watertight enclosures. Immediately before installation, store acoustical units for not less than 24 hours at the same temperature and relative humidity as the space where they will be installed in order to assure proper temperature and moisture acclimation.

1.5 ENVIRONMENTAL REQUIREMENTS

Maintain a uniform temperature of not less than 60 degrees F nor more than 85 degrees F and a relative humidity of not more than 70 percent for 24 hours before, during, and 24 hours after installation of acoustical units.

1.6 SCHEDULING

Complete and dry interior finish work such as plastering, concrete and terrazzo work before ceiling installation. Complete mechanical, electrical, and other work above the ceiling line; install and start operating heating, ventilating, and air conditioning systems in order to maintain temperature and humidity requirements.

1.7 WARRANTY

Provide manufacturer's warranty to repair or replace defective materials and workmanship including but not limited to, sagging and warping of panels and rusting and of grid systems, for a period of ten years from date of final acceptance of the work.

1.8 EXTRA MATERIALS

Furnish spare tiles, from the same lot as those installed, of each color at the rate of 5 tiles for each 1000 tiles installed.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

Provide sound controlling units mechanically mounted on a ceiling suspension system for acoustical treatment. Provide the unit size, texture, finish, and color as specified. Coordinate the entire ceiling system with other details, like the location of access panels and ceiling penetrations, for instance, shown on the drawings. Submit drawings showing the the location, extent and details of acoustical treatment including suspension system, method of anchoring and fastening, and reflected ceiling plan.

2.1.1 Acoustical Performance

2.1.1.1 Ceiling Sound Transmission

Provide ceiling systems with the specified Ceiling Attenuation Class (CAC) ratings as determined in accordance with ASTM E1414/E1414M and ASTM E413. Provide sound attenuators over light fixtures, air terminals and other ceiling penetrations, provide acoustical blanket insulation on top of the ceiling or adjacent to partitions to provide lightweight acoustical plenum barriers above partitions as required to achieve the specified CAC ratings. Provide test ceiling continuous at the partition and assembled in

the suspension system in the same manner that the ceiling will be installed on the project.

2.1.1.2 Ceiling Sound Absorption

Determine the Noise Reduction Coefficient (NRC) in accordance with ASTM C423. Determine Articulation Class (AC) in accordance with ASTM E1111/E1111M.

2.1.2 Light Reflectance

Determine light reflectance factor in accordance with ASTM E1477 test method.

2.2 ACOUSTICAL UNITS

Submit samples of each type of acoustical unit and each type of suspension grid tee section showing texture, finish, and color. Conform acoustical units to ASTM E1264, Class A, and the following requirements:

2.2.1 Units for Exposed-Grid System A

2.2.1.1 Type

III (non-asbestos mineral fiber with painted finish). Provide Type III Acoustical Ceiling Tiles containing a minimum of 30 percent recycled content. Provide data identifying percentage of recycled content for Type III ceiling tiles. Provide certification of indoor air quality for Type III Ceiling Tiles.

2.2.1.2 Flame Spread

Class A, 25 or less.

2.2.1.3 Pattern

A, C & E.

2.2.1.4 Minimum NRC

0.7 when tested on mounting Type E-400 of ASTM E795.

2.2.1.5 Minimum Light Reflectance Coefficient

LR-1, 0.85 or greater.

2.2.1.6 Nominal Size

24 by 24 inch.

2.2.1.7 Edge Detail

Square.

2.2.1.8 Finish

Factory-applied standard finish. See following subsections labeled FINISHES and COLORS AND STANDARDS.

2.2.1.9 Minimum CAC

35.

<AM#0003>2.3 FIBERGLASS REINFORCED PLASTIC (FRP) CEILING PANELS

Provide fiberglass reinforced plastic ceiling panels where indicated on the reflected ceiling plans. Panels shall be suitable for food preparation, warewash, and high-humidity areas, and shall be compatible with the indicated cement board ceiling substrate and supporting ceiling assembly.

Provide panels in nominal 2 foot by 4 foot size, color bright white, textured finish, unless otherwise indicated on the Drawings. Provide manufacturer's standard FRP panel trim and moldings, fasteners, adhesives and sealants, sealants, and accessories required for a complete installation.

Provide panels with Class A flame spread rating, cleanable surface, moisture-resistant properties, and manufacturer's installation instructions for ceiling applications.

</AM#0003>2.4 SUSPENSION SYSTEM

Provide standard suspension system conforming to ASTM C635/C635M for intermediate-duty systems. Provide surfaces exposed to view of aluminum with colored factory-applied vinyl paint finish. Provide wall molding having a flange of not less than 15/16 inch. Provide inside and outside corner caps standard. Provide a suspension system with a maximum deflection of 1/360 of the span length capable of supporting the finished ceiling, light fixtures, air diffusers, and accessories, as shown. Conform seismic details to the guidance in UFC 3-301-01 and ASTM E580/E580M.

Provide Suspension System containing a minimum of 15 percent recycled content. Provide data identifying percentage of recycled content for suspension systems.

2.5 HANGERS

Provide hangers and attachment capable of supporting a minimum 300 pound ultimate vertical load without failure of supporting material or attachment.

2.5.1 Wires

Conform wires to ASTM A641/A641M, Class 1, 0.08 inch (12 gauge) in diameter.

2.5.2 Straps

Provide straps of 1 by 3/16 inch galvanized steel conforming to ASTM A653/A653M, with a light commercial zinc coating or ASTM A1008/A1008M with an electrodeposited zinc coating conforming to ASTM B633, Type RS.

2.5.3 Rods

Provide 3/16 inch diameter threaded steel rods, zinc or cadmium coated.

2.5.4 Eyebolts

Provide eyebolts of weldless, forged-carbon-steel, with a straight-shank in accordance with ASTM A489. Provide minimum 1/4 inch eyebolts.

2.5.5 Masonry Anchorage Devices

Comply with ASTM C636/C636M for anchorage devices for eyebolts.

2.6 ADHESIVE

Use adhesive as recommended by tile manufacturer. Provide non-aerosol adhesive products used on the interior of the building (defined as inside of the weatherproofing system) that meet either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of SCAQMD Rule 1168. Provide aerosol adhesives used on the interior of the building that meet either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of GS-36. For products located on the interior of the building (inside of the weatherproofing system), provide certification or validation of indoor air quality for adhesives.

2.7 FINISHES

Use manufacturer's standard textures, patterns and finishes as specified for acoustical units and suspension system members. Treat ceiling suspension system components to inhibit corrosion.

2.8 COLORS AND PATTERNS

Use colors and patterns for acoustical units and suspension system as indicated on drawings.

2.9 ACOUSTICAL SEALANT

Conform acoustical sealant to ASTM C834, nonstaining.

PART 3 EXECUTION

3.1 INSTALLATION

Do not install building construction materials that show visual evidence of biological growth.

Examine surfaces to receive directly attached acoustical units for unevenness, irregularities, and dampness that would affect quality and execution of the work. Rid areas, where acoustical units will be cemented, of oils, form residue, or other materials that reduce bonding capabilities of the adhesive. Complete and dry interior finish work such as plastering, concrete, and terrazzo work before installation. Complete and approve mechanical, electrical, and other work above the ceiling line prior to the start of acoustical ceiling installation. Provide acoustical work complete with necessary fastenings, clips, and other accessories required for a complete installation. Do not expose mechanical fastenings in the finished work. Lay out hangers for each individual room or space. Provide hangers to support framing around beams, ducts, columns, grilles, and other penetrations through ceilings. Keep main runners and carrying channels clear of abutting walls and partitions. Provide at least two main runners for each ceiling span. Wherever required to bypass an object with the hanger wires, install a subsuspension system so that all hanger wires will be plumb.

3.1.1 Suspension System

Install suspension system in accordance with ASTM C636/C636M and as specified herein. Do not suspend hanger wires or other loads from underside of steel decking.

3.1.1.1 Plumb Hangers

Install hangers plumb and not pressing against insulation covering ducts and pipes. Where lighting fixtures are supported from the suspended ceiling system, provide hangers at a minimum of four hangers per fixture and located not more than 6 inch from each corner of each fixture.

3.1.1.2 Splayed Hangers

Splay (slope or slant) hangers around obstructions, offsetting the resulting horizontal force by bracing, countersplaying, or other acceptable means.

3.1.2 Wall Molding

Provide wall molding where ceilings abut vertical surfaces. Miter corners where wall moldings intersect or install corner caps. Secure wall molding not more than 3 inch from ends of each length and not more than 16 inch on centers between end fastenings. Provide wall molding springs at each acoustical unit in semi-exposed or concealed systems.

3.1.3 Acoustical Units

Install acoustical units in accordance with the approved installation instructions of the manufacturer. Ensure that edges of acoustical units are in close contact with metal supports, with each other, and in true alignment. Arrange acoustical units so that units less than one-half width are minimized. Hold units in exposed-grid system in place with manufacturer's standard hold-down clips, if units weigh less than 1 psf or if required for fire resistance rating.

3.1.4 Acoustical Sealant

Seal all joints around pipes, ducts or electrical outlets penetrating the ceiling. Apply a continuous ribbon of acoustical sealant on vertical web of wall or edge moldings.

3.1.5 Adhesive Application

Wipe back of tile to remove accumulated dust. Daub acoustical units on back side with four equal daubs of adhesive. Apply daubs near corners of tiles. Ensure that contact area of each daub is at least 2 inch diameter in final position. Press units into place, aligning joints and abutting units tight and uniform without differences in joint widths.

**<AM#0003>**3.1.6 FRP Ceiling Panel Installation

Install FRP ceiling panels in accordance with manufacturer’s written installation instructions and approved submittals. Install panels flat, true, and neatly aligned with surrounding ceiling conditions. Coordinate panel layout with lights, diffusers, sprinkler heads, access panels, and other ceiling penetrations.

Provide required trim, moldings, sealant, and accessories at panel edges, joints, penetrations, and transitions. Seal penetrations and perimeter conditions as required to provide a cleanable, moisture-resistant installation.

**</AM#0003>**3.2 CLEANING

Following installation, clean dirty or discolored surfaces of acoustical units and leave them free from defects. Remove units that are damaged or improperly installed and provide new units as directed.

-- End of Section --

SECTION 11 40 00

FOODSERVICE EQUIPMENT

**AMENDMENT 0003**

PART 1 GENERAL

1.1 EQUIPMENT

Equipment, with the exception of "buy-out" or standard catalogue items, shall be fabricated in a plant bearing the name of a recognized foodservice equipment fabricator. This fabricating firm shall have been in business at least five years, with a suitable organization to design, engineer, manufacturer, deliver and install the equipment. Said installation shall be accordance with local union conditions when applicable. Such firms shall be able to refer to other successful installations of similar operating conditions. Further, the fabricator shall be able to UL classify and list the items that they fabricated. Under no circumstances shall the Contractor sublet any portion of the fabricated equipment to any sub-contractor without written approval. All fabricated food service equipment with inter-wiring and/or prewired equipment and/or refrigeration shall be manufactured by a fabricator that can UL list (or other applicable AHJ listing) and/or classify their own work.

1.2 CODES, LAWS, AND STANDARDS

1.2.1 General Requirements

1. Manufacture and install equipment in conformance with the Williams-Steiger Occupational Safety and Health Act of 1970, or other Local/National safety and health regulations as applicable.

2. Except as modified by governing codes and by the Contract Documents, comply with the applicable provisions and recommendations of the following:

   a. National Fire Protection Association (NFPA).

   b. NFPA 96 Installation of equipment for removal of smoke and grease laden vapors from commercial cooking equipment, current edition.

   c. NFPA 17 Dry chemical extinguishing systems, current edition.

   d. NFPA 17A Wet chemical extinguishing systems, current edition.

   e. NFPA 70 National Electric Code.

   f. National Sanitation Foundation (NSF).

   g. Underwriter's Laboratories, Inc. (UL), including but not limited to UL 300.

   h. National Electric Manufacturers Association (NEMA).

   i. American Gas Association (AGA).

   j. American Society for Mechanical Engineers for Steam Equipment.

k. National Fuel Gas Code (NFGC).

l. Texas Department of State Health Services (DSHS).

3. All electrically operated and/or heated equipment, fabricated or otherwise, shall conform to the latest standards of the National Electric Manufacturer's Association and the Underwriter's Laboratories, Inc., where applicable standards have been set up by that agency, or otherwise, such as to be acceptable to authorities having jurisdiction.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Shop Drawings; G

Shop drawings, samples and brochures must be submitted at the same time, in one complete submittal, within sufficient time not to delay work on the project and / or not over 15 days after the Contractor has been awarded a contract by the Government. Partial submittals will not be accepted.

Rough-in Drawings, and/or Mechanical Connection Drawings

1. Contractor is to provide Government (1) blueprint and (1) reproducible (drawings to be sepia or translucent) set of shop drawing prints for review and comment by Government. The one (1) reproducible print with comments noted will be returned for correction. Continue resubmitting as noted above until final approval by the Government is achieved. Upon final approval submit prints as required per Government's requirements and one (1) CADD disk of approved prints to the Government for distribution. Distribution to include but not be limited to the Contractor, PA / E, Government's Inspector, Government's Representative, the Manufacturer, the Contractor, the plumber and electrical contractors.

2. Contractor to prepare rough-in drawings locating all equipment (new, existing or as provided by Government) shown on the contract documents. The rough-in requirement drawing included in these documents are provided as an instrument of service and are not to be used for construction and/or reproductions. Provide drawings, only if primary manufacturers are not used, in 1/4" = 1'-0" scale on sheets the same size as the contract documents, showing, with vertical and horizontal dimensions, the required rough-ins (including sleeves and conduits) for electric, gas, water, steam, sanitary waste, refrigeration, ventilation, condensation drain I lines, air and exhaust connection and wood backing for wall mounted fixtures and equipment. Show details, sections and characteristics for slab depressions and/or other features and/or installation including data for all services in each area. Locations of equipment shall allow for traps, switches, and/or

other final connection requirements. All drawings shall include floor plans showing equipment as per the contract documents, elevations, details and sections as may be required-only required if not utilizing primary specified manufacturer. Provide this document if not using the primary specified manufacturer then provide the above plans showing only the items that have changed and their respective requirements.

3. Provide complete plans with dimensions showing locations and elevations of all plumbing, electrical and mechanical rough-ins if not using the primary specified manufacturer and item. Use same symbols, connection numbers, and dimensioning system as indicated in Contract Documents (scale shall be 1/4" = 1'-0"). Provide the above plans showing only the items that have changed and their respective requirements.

4. In the event rough-ins have been accomplished before the award of the contract, the Food Service Equipment Contractor shall check the existing facility and furnish all, approved equipment to suit building conditions and utilities. No extra charges shall be allowed for utility changes to fit equipment during installation and connection.

5. Provide complete plans and details showing locations and elevations of all depressions, bases, curtain walls and hoods and any critical wall dimensions. Use same dimensioning system as indicated in Contract Documents. (Scale shall be (6) six 1/4 inch = (304) 1'-0").

6. Plumbing, electrical and mechanical rough-ins all shown on the same sheet will not be accepted.

7. Prior to fabrication, Contractor shall submit fabrication shop drawings to architect for approval by the Government. Shop drawings showing plan and elevations shall be (19) 3/4 inch = (304) 1'-0" scale, sections shall be (38) 1 1/2 inch = (304) 1'-0" scale covering all fabricated items. Drawings are to show location of equipment to be coordinated with each item such as boosters mounted to underside of dishtable, garbage disposers under sink compartments. The verbiage 'By Others' is not acceptable and should be defined by trade.

8. Fabrication details must identify all metal gauges, hardware, trim, electrical parts, special fitting and other components by manufacturer's name and model number.

9. Foodservice Submittal Documents are to be signed by the Contractor to indicate they have been reviewed and coordinated with submittals by electrical, plumbing, mechanical, millwork or other trades, and meet all contract requirements. Foodservice Submittal Documents, which are not stamped and approved by the Contractor will be returned to as "NOT REVIEWED". The Contractor will be required to resubmit after review, as stated above.

   Checking of rough-in drawings, shop drawing, details and equipment by Government is for design concept only and does not relieve the Contractor of responsibility for compliance with design drawings, details and specifications, verification of utilities with equipment requirements for conformity and location and

verification of all dimensions of equipment, building conditions or reasonable adjustments due to deviations.

Drawings shall be prepared on the Foodservice Equipment Contractor's sheets and by their employees. Drawings of any part thereof created by photograph, paste-up, or other methods using the drawing(s) and / or details is a violation of federal copyright laws and will be returned for re-submittal. Contractor will assume responsibility for the proper locations and sizing of sleeves, conduits, and depressions for the various equipment requirements. Contractor is responsible for making multiple field inspections to verify the rough-in locations prior to the pouring of concrete, the closing of walls, etc. Contractor shall compensate other trades for any relocation of rough-ins.

Mailing and Distribution

All transparencies and/or prints shall be delivered in a mailing tube. Folded transparencies and/or prints shall be returned for re-submittal. After checking, supply the specified number of distribution prints for record purposes. All CADD drawings shall be on CD with all drawings formatted as a *.dwg or *.dfx file.

SD-03 Product Data

Equipment List; G

Submit for approval, within 15 days after notification of the Government's award of contract, an itemized list of equipment to be furnished under this contract, to include manufacturer's name and model number, along with all necessary and/or required options and/or components, for each piece of equipment necessary only if not using primary manufacturer and if prior approval for a substitute has been let.

Brochures

Provide Government, for approval, two (2) complete brochures for review showing each piece of standard manufactured equipment, only if primary manufacturer(s) are not used, complete with all details and/or descriptions of the manufacturer's specifications. Contractors will return one (1) brochure (set) with comments noted for further action. Continue submitting until final approval from Government is achieved. After approval provide six (6) record copies in a three ring binder with such details and specifications clearly numbered with the item number as per the food service equipment plans. Record copy brochures, shall be delivered at the demonstration and start-up, are to be bound in booklet form, in three ring binders, and shall include the following:

a. A separate data sheet for each component or item of equipment indicating item number, description, quantity, manufacturer, model number, finishes, modifications, options and utility requirements.

b. Catalog specification sheet and/or manufacturer's specifications and drawings complete including accessories. Arrange booklets so those items are in numeric order in accord with the contract documents with each page numbered in relation to that item. Further, include with each specification sheet and/or drawing a

copy of the warranty information, operations manual and service information; as well as, a completed contractor's and the food service equipment contractor's guarantee and warranty.

Provide Government, for approval, one (1) complete bound set of operators manuals and maintenance instructions containing complete description, wiring diagrams, operating data and other information pertaining to the proper operation and up-keep for the specified items of mechanical equipment having motors or other moving parts. Continue submitting until final approval from Government is achieved. After approval provide six (6) record copies in a three ring binder clearly numbered with the item number as per the food service equipment plans. Include names, addresses and telephone numbers of authorized service agencies for all items with mechanical equipment as well as information of local representative.

SD-04 Samples

Provide all samples of materials requested by the Government for test purposes or comparisons. Samples used for testing shall not be used on the work without the written approval of the Government; G

SD-10 Operation and Maintenance Data

Provide the Government, for approval, one (1) complete bound set of operators manuals and maintenance instructions containing complete description, wiring diagrams, operating data and other information pertaining to the proper operation and up-keep for the specified items of mechanical equipment having motors or other moving parts.

Include names, addresses and telephone numbers of authorized service agencies for all items with mechanical equipment as well as information of local representative.

## 1.4 REFERENCES

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

ASTM INTERNATIONAL (ASTM)

| | |
|---|---|
| ASTM A36/A36M | (2019) Standard Specification for Carbon Structural Steel |
| ASTM A123/A123M | (2017) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products |
| ASTM A167 | (2011) Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip |
| ASTM B19 | (2020) Standard Specification for Cartridge Brass Sheet, Strip, Plate, Bar, |

| | |
|---|---|
| | and Disks |
| ASTM B36/B36M | (2018) Standard Specification for Brass Plate, Sheet, Strip, and Rolled Bar |
| ASTM B152/B152M | (2019) Standard Specification for Copper Sheet, Strip, Plate, and Rolled Bar |
| ASTM E84 | (2023) Standard Test Method for Surface Burning Characteristics of Building Materials |

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

| | |
|---|---|
| NFPA 17 | (2021) Standard for Dry Chemical Extinguishing Systems |
| NFPA 17A | (2021) Standard for Wet Chemical Extinguishing Systems |
| NFPA 70 | (2023) National Electrical Code |
| NFPA 96 | (2021) Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations |

UNDERWRITERS LABORATORIES (UL)

| | |
|---|---|
| UL 300 | Commercial Cooking Controls |
| UL 710 | (2012; Reprint Feb 2021) UL Standard for Safety Exhaust Hoods for Commercial Cooking Equipment |

## PART 2 PRODUCTS

### 2.1 PREFABRICATED EQUIPMENT

Items and/or component parts of any item referred to by manufacturer's name and model number shall be furnished complete with all standard equipment of the manufacturer used as a basis of design and specification standards plus all extras and/or modifications hereinafter specified and/or required.

Similar type items and/or similar type components shall be the product by the same manufacturer to facilitate maintenance, convenience and reduce the Government's spare parts inventory.

Modifications to standard equipment specified shall be made by the original manufacturer, when required.

### 2.2 CONSTRUCTION

#### 2.2.1 General

The materials, components and techniques describe the construction of items of the Food Service Equipment.

Deviation and extra refinements peculiar to any one item will be described and/or indicated.

It is required that all custom/fabricated items in these plans and specifications, other than by manufacturer name and model number, will be constructed of 300 series stainless steel and be manufactured by a fabricator that can UL list and/or classify their own products.

All exposed surfaces of equipment shall be free of bolts, screws and rivets. Wherever these fasteners are used they shall be an approved type constructed of stainless steel.

All tops, sink bowls, drain boards and troughs to be sound deadened. Use NSF approved gray latex sound deadener for brush or spray application; use tacky tape for work top application between top and hat channel reinforcing.

2.2.2 Table and Countertops

All tops are to be fabricated with 14 gauge, 300 series stainless steel one piece construction with all seams and corners welded. All intersections of three (3) or planes shall be coved. Tops to be free of all deflection, reinforced with (101) 4 inch by (25) 1 inch inverted 14 gauge galvanized iron channels with 1 inch flanges, stud welded to underside of tops. Two (2) channels running lengthwise under tops up to (762) 30 inches wide (tops over 30 inches wide, channels spaced maximum of 18 inches on center). One (1) channel running front to rear at legs and/or not more than 6'-0" on center. All intersections of channel reinforcing shall be fully welded and sealed.

Tops with open edges shall have edges formed in accordance with Details, unless otherwise specified in the itemized specifications. All open corners of edges welded in bullnose roll.

Where the tops are adjacent to walls, columns, equipment, enclosures, etc., they shall have a splash. The standard splash shall be in accordance with Details, unless otherwise specified.

Where holes are punched through top to accommodate equipment, said holes shall be ferruled and provided with a rubber grommet.

Ends adjacent to similar equipment shall have common end post.

Bases shall be open type construction, (41) 1 5/8 inch O.D. stainless steel tubular legs, fitted with stainless steel bullet type, adjustable feet and enclosed conical gussets unless otherwise specified. Cross bracing shall be (41) 1 5/8 inch O.D. stainless steel tubular members fully welded to legs as required. Where undershelves are provided they shall be constructed of 16 gauge stainless steel, fully welded to tubular legs.

When legs are furnished with stainless steel flanged feet, they shall be sealed and secured to the finished floor with stainless steel threaded anchor bolts. Anchor bolts to be set 3 inches into finished slab and extended to minimum height above finished floor as required for securing equipment. Equipment to be fastened down with stainless steel lock washers and nuts. Flange feet to be set in a bed of FDA approved clear silicone sealant prior to securing to finished floor. Providing a bead of sealant after securing of feet is not acceptable.

When cross bracing are furnished with stainless steel flanged feet, they shall be sealed and secured to the finished wall and/or stainless steel cabinet bases with stainless steel lock washers and nuts. Flange feet to

be set in a bed of FDA approved clear silicone sealant prior to securing to finished wall and/or equipment. Providing a bead of sealant after securing of feet is not acceptable.

2.2.3 Table with Baker Top

Top to be constructed of 3 inch thick maple hard wood with 4 inch by 1 inch stainless steel channel sub frame connected to base.

Table base, cross bracings, undershelves, splashes, etc., shall be provided as hereinbefore noted under paragraph Table and Counter Tops, and hereinafter specified.

Top to be constructed of 1 1/2 inch thick white anti-bacteria cutting surface with 4 inch by 1 inch stainless steel channel sub frame connected to base. Top to be removable for cleaning.

Table base, cross bracings, undershelves, splashes. etc. shall be provided as hereinbefore noted under paragraph Table And Counter Tops, and hereinafter specified.

2.2.4 Enclosed Bases

1. Closed base fixtures shall have rigid welded frame enclosed on all sides except where shelves and/or doors are required. Cabinet body shall be constructed of 16 gauge stainless steel.

2. Tops shall be cross-braced with 1-1/2 inch by 1-1/2 inch by 1/8 inch galvanized angles spaced at 2'-0" O.C. maximum, reinforced with 14 gauge galvanized 1 inch by 4 inch by 1 inch channels wherever necessary for rigidity.

3. Leg channels shall be 1 inch by 4 inch by 14 gauge galvanized channels spaced 4'-0" O.C. maximum, on bottom, to receive legs.

4. Closed base fixtures shall be mounted on casters, stainless steel adjustable counter legs, as indicated on plans and/or item specifications.

5. Shelf supports shall be continuous 1-1/2 inch x 1-1/2 inch x 1/8 inch galvanized angles welded to frame. There shall be no exposed galvanized steel channels or supports.

6. Utility chases shall be 18 gauge stainless steel with removable access or service panels.

7. Partitions shall be 18 gauge stainless steel.

8. Exterior panels shall be FRP plastic laminate when a part of millwork, or stainless steel with vertical grain as specified in item specifications.

9. Non-exposed panels adjacent to walls or closed base fixtures shall be 20 gauge galvanized steel.

10. Interior shelf units shall be 16 gauge stainless steel, edges turned up (50) 2 inch at sides and rear, down (38) 1-1/2 inch at front and where shelves butt together, corners to be welded. Shelf to be fixed and constructed in accordance with Detail DET-3E, 3F (removable (609) 2'-0"

max. sections to be provided when specified for ease of removal and cleaning).

11. Compressor compartments shall have removable louvered panels with 2 inch by 3/4 inch by 18 gauge stainless steel double channel perimeter frames, 1/2 inch x No. 16 flat stainless steel expanded metal guards, 14 gauge galvanized steel compressor mounting channels, enclosure panels.

12. Recessed areas shall be lined with 18 gauge stainless steel.

13. Plastic laminated panels shall have a 3/4 inch thick exterior plywood base veneered on all exposed sides and edges with plastic applied or laminated in strict accordance with manufacturer's recommendations. Plastic laminated panels shall be without joints and grain and pattern material, color, pattern and/or texture shall be as approved by the Government.

14. Trim shall be 18 gauge stainless steel with vertical grain.

15. Stainless steel and brass trim shall have flush welded joints. Control panel recesses, valve handle recesses and individual control knob recesses shall be 18 gauge stainless steel. Depth must be sufficient to prevent control from protruding past face of body panel.

16. Weld to framing members of counter. Provide 3-1/2 inch square 12 gauge galvanized steel top plate welded on legs that are bolted onto equipment. Secure with four (4) 1/4-20 stainless steel bolts.

17. Cashier's stations shall have 18 gauge stainless steel liners, cash drawer liners and 14 gauge stainless steel 30 degrees sloping foot rest with 10 inch wide level tops.

2.2.5 Cold Pans

1. Interior shall be 16 gauge stainless steel one (1) piece construction with all corners coved on a 3/4" radius pitched to a 1" stainless steel drain fitting welded to the shell. Pipe drain line to bottom of cabinet.

2. Exposed exteriors shall be 18 gauge stainless steel, concealed exteriors shall be 18 gauge galvanized steel.

3. Entire pan shall be insulated with 2" thick urethane foam. Provide a non-toxic high-impact plastic breaker strip around the entire opening to prevent condensation.

4. Refrigerated cold pan coils shall be 1/2" O.D., type K copper tube with wrought copper fittings and silver soldered joints. Space runs of coil at 1-1/2" O.C. parallel to the long axis of the cold pan bottom and sides and solder in place. Runs equally spaced at 4" O.C. securing the coils to the pan. After the coils are secured to the pan, cover the entire bottom and sides with thermal mastic and apply waterproof covering.

2.2.6 Cooler / Freezer Assemblies

Wall, ceiling and floor section insulation shall be 4 inches thick rigid urethane. Urethane foam to have a thermal conductivity (K factor) of not

more than 0.118 BTU/hr./sq. ft. per degrees Fahrenheit/inch: and an overall coefficient of heat transfer (U factor) of not more than 0.029 "R" factor shall be 34. Urethane foam when fabricated in panels shall be supplied with a fire hazard classification according to ASTM E84 as performed by Factory Mutual Insurance System test procedure. Panel cores shall have a flame spread rating of 25 or less and a smoke density of no greater than 450. Every panel shall bear a certifying Factory Mutual label.

2.2.6.1 Sectional Assemblies

Size / shapes indicated on drawings: 9'-0" overall height unless otherwise specified. Door locations shall be exactly as shown, size as specified.

2.2.6.2 Panel Skin Material / Finish

0.040 inch stucco-embossed aluminum interior and exposed exterior panel surfaces, 22 gauge galvanized concealed panel surfaces, unless otherwise specified.

2.2.6.3 Integral Floor Panels

Sandwich type panels, same construction as walls/ceilings surface, with 14 gauge stainless steel interior floor surface, sealed watertight and coved at all wall lines.

Field-apply 1/4 inch thick hard-alloy aluminum tread plate No. 6061-T6, with all joints caulked.

Shop install 3/4 inch marine grade plywood sub floor below the metal skin with all surfaces sealed watertight and all joints and/or seams caulked.

Treat exterior panel surfaces for concrete exposure.

Sloping interior floor ramp at entrance doors. Unless otherwise specified.

2.2.6.4 "Floorless" Assemblies (Cooler / Freezer)

Provide and install prefabricated mounting floor screed for perimeter and partition walls when specified. Anchor floor screed to finished slab as recommended by manufacturer. Floor screed shall be level and square. Provide and install prefabricated curbs for perimeter and partition walls when specified. Anchor curb to slab recess as recommended by manufacturer. Curb shall be provided.

Provide and install approved vapor barrier.

Provide and install two layers 2 inch thick slab Urethane unless otherwise specified, stagger each layer, and seal with an approved mastic.

Provide a concrete slab over insulation with adequate reinforcing to receive specified finish floor and setting materials.

Provide and install floor finish to match kitchen floor, coved base 5-inches high at wall lines, in setting bed, as specified.

1. Provide 120 volt thermostatically controlled defrosters that shall be around the entire perimeter of the door, doorframe and sill.

2. Doors shall have three (3) chrome plated self-closing, cam-lift hinges,

stops, hand latches with inside safety releases (panic hardware) and dead bolt locks.

3. Electric system shall be watertight installation with non-metallic conduit, fittings, junction boxes and face plates.

4. Reinforce prefabricated wall panels to rigidly support the door assemblies. Doors to be standard 36" wide x 78" high unless otherwise specified. Interior door finishes in multiple compartment assemblies shall be same material as adjacent wall panels.

5. All hinged doors shall have 36" high x 1/8" thick hard alloy aluminum tread plates at exterior and interior unless otherwise specified.

6. Special size sections shall be constructed if changes in building dimensions, columns, or other physical obstructions will not permit standard size panel sections to be assembled as indicated on plans.

7. Provide enclosed / gasketed surface-mounted light fixtures with extended service lamps unless otherwise specified, in quantity and arrangement shown on drawings. Light fixtures to be vapor-proof. Lighting to provide a minimum of twenty 50 foot candles of light at any point inside 30" above floor.

2.2.6.5 Light Fixtures

Wired to interior and exterior compartments, 3-way press switch per compartment, mounted in "FS" boxes with covers and pilot lights. Compartments with multiple entrances. Provide 4-way switches. All wiring conduit to be run on exterior of compartments.

1. Provide sectional removable closure panel at exposed top front and sides of box as required, of same material as exterior panel finish, complete with removable access panel. Panels to extend from top of box to finished ceiling. Panels to be solid faced, unless otherwise specified and shown on drawings as louvered.

2. Provide sleeves through ceiling and walls for refrigerant lines, electric sleeves and drain line, seal the balance of opening with urethane and sealant.

3. Ceiling panels where the coils are located shall be reinforced. Coils shall be located where shown on the foodservice drawings.

4. 4-1/2" diameter chrome plated, flush-mounted dial thermometer that shall be capable of calibration. All thermometers furnished with sufficient capillary tubing to extend from exterior front of the assembly to a mounting position of the sensor bulb and glycerin container within evaporator return air-stream with tubing clipped to panel.

5. Assembly shall be N.S.F constructed and U.L. rated and carry certifying labels.

6. Provide in freezer assembly a heated pressure relief port. Install pressure relief port in a wall panel away from the direct air stream flowing from the coils.

7. The manufacturer shall provide a ten year panel warranty for the cooler

and freezer sections to be free from defects in material and workmanship under normal use and service and shall be obligated to repair or replace F.O.B., any section which proves to be defective within that period for the date of original shipment. This warranty shall not include labor and freight. This warranty shall not apply to equipment, which in the consultant's opinion, has been subjected to misuse, misapplied, or improperly installed.

8. When the dimensions of an insulated room are such that a single span ceiling panel is not applicable, it must be supported using an interior or exterior beam or must be supported by all thread rods secured to the building structure. Regardless of which method is used, all beams and "Ch" channels shall be aluminum. Wood and steel structures, which cause added maintenance requirements, shall not be acceptable. Contractor shall be responsible for the complete installation of the walk-in box structure, unless otherwise noted on contract drawings.

2.2.7 Cooler / Freezer Compartments

1. Condensing units shall be semi-hermetic air-cooled condensing units with rigid structural bases, dual receivers. OSHA metal fan guards / shrouds with venturi openings waterproof electrical system, exhaustible fusible plugs, internal inherent motor protection, liquid line shut off valves, oil pressure safety switches, crank-case heaters, pressure oil separators on low temperature units.

2. Cooler evaporating coils shall be low profile U.L. / N.S.F. as manufactured, with in-line fans, cross-fin staggered copper tubing/aluminum fin coils, aluminum case, permanently lubricated motors with thermal overload protection, waterproof electrical system pre-wired to single connection and slotted channel hangers. Coils are to be designed to operate not above 34 degrees.

3. Freezer evaporating coils shall be low profile U.L. / N.S.F. as manufactured with in-line fans, cross-fin staggered copper tubing/aluminum fin coils, aluminum case, heavy duty motors with thermal overload protection, electric defrosting system, per-wired waterproof electric system and slotted channel hangers. Coils are to be designed to operate from plus 30 to minus 20 degrees temperature.

4. Refrigerant shall be type 404A in low temperature and Type R-404A in high and medium temperature systems or better.

5. Mounting racks shall be galvanized steel angle frames with galvanized steel floor plates. Secure in place with anchors. Rack to be wall mounted above cooler on exterior building wall, roof mounted or located on grade with a security cover over compressors and an approved locking device.

6. Control panel housing shall be NEMA-4 enclosures.

7. Freezer control panel shall be pre-wired assembly with magnetic starters, relays, condensing unit circuit breakers, coil circuit breakers, dual pressure controls, liquid line pressure gauges, suction line pressure gauges and timer.

8. Cooler control panels shall be pre-wired assembly with magnetic starters, condensing suction line pressure gauges, liquid line pressure gauges and timer.

9. Freezer timers shall be time activated, pressure terminated type with 36 to 110 pounds adjustable range, 40 amp rated switches, heavy duty self starting motors, and 1 to 6 cycle per day defrost frequency range.

10. Cooler timers shall be time activated, time terminated type with adjustable 1 to 6 cycle per day, adjustable 4 to 100 minutes defrost duration, 40 amp switches and heavy duty synchronous industrial type motors.

11. Refrigerant circuits shall have liquid line site glasses, suction line site glasses, liquid line vibration eliminators, suction line vibration eliminators, filter dryers, automatic expansion valves, room thermostats interlocked with liquid line solenoid valves and heat exchangers.

12. Refrigerant lines shall be type ACR copper tubing with wrought copper fittings assembled by silver soldering joints. Silver soldering or silver brazing shall be done in presence of nitrogen (oil pumped) in tubing to prevent oxidation and scale formation. Refrigerant systems shall be evacuated three (3) times to a pressure of 500 microns maximum and flushed between each evacuation with refrigerant.

13. Refrigerant line supports shall be hanger rods (size variable), hinged pope hangers or support channels. Grade lines to compressors and install suction line trap adjacent to coil. Adjacent lines shall be parallel and straight with plumb vertical runs.

14. Coil drains shall be (19) 3/4" I.P.S. copper. Route and pitch (12) 1/2" per foot to external drain and secure to wall with (19) 3/4" I.P.S. cast brass or wrought copper hangers. Provide electric heaters on freezer drains. Drain lines shall be neatly insulated with (19) 3/4" thick, UL listed material. In addition, insulated drain lines shall be provided with cover of same material as compartment finish, secured to compartment walls. Drain lines shall not interfere with shelving within the compartment and shall be held to the minimum distance required to exit to an exterior drain.

15. Refrigeration line insulation shall be (38) 1-1/2" thick pipe insulation sealed with adhesive foam insulation. Tape fittings to sufficient thickness to prevent condensation.

16. The entire system shall be cleaned and dehydrated by maintaining a vacuum of 500 microns, or lower, for a minimum period of five (5) hours. The vacuum pump used shall itself be capable of developing a vacuum of 50 microns with its refrigerant and oil shall be added and each system shall be tested for performance.

2.2.8 Undercounter Refrigerators / Freezers

1. Refrigerators/freezers shall be all metal construction with no wood. Outer shell to be constructed with 18 gauge stainless steel and be fully welded to form a vapor proof seal. Inner shell to be no less than 20 gauge stainless steel with coved corners pitched to a (25) 1" stainless steel drain fitting welded to the shell. Drain should be located as close as possible to the blower coil.

2. Entire compartment shall be insulated with 2" thick approved urethane insulation on all sides, top and bottom. Provide a non-toxic,

high-impact plastic breaker strip around the entire cabinet opening perimeter. Provide the same heaters in freezer doors. A vinyl magnetic gasket shall be installed around the full perimeter of cabinet opening for a positive seal. Flush mount a 2-1/2" diameter dial thermometer in face of cabinet.

3. Interior shelving to be stainless steel wire shelves mounted on adjustable clips providing four point support. Shelves shall be removable for cleaning. Provide one (1) bottom shelf and one (1) intermediate shelf, unless otherwise specified.

4. Doors shall be fabricated 1-1/2" thick with approved foam urethane insulation. Doors shall be 18 gauge stainless steel double pan type construction with flat sides for edge mounted hardware secured to internal tapping strips in door body. Provide each door with self-closing cam lift hinges. Door(s) to actuate an incandescent shatter-proof light. Light to be mounted so as not to interfere with storage space.

5. Drawers, if specified, shall be mounted on stainless steel self-closing roller bearing tracks with positive stops. A vinyl magnetic gasket is to be provided around entire perimeter of drawer front for positive seal. Drawer fronts to be 18 gauge stainless steel double pan construction with urethane insulation. Provide condensate proof heating wires in cabinet mullion and the entire perimeter of drawer opening.

6. Refrigeration system shall be properly sized to maintain refrigerated food products at 38 degrees to 40 degrees Fahrenheit and frozen food at 0 degrees Fahrenheit.

7. Where undercounter refrigerators are specified and top is to have opening to receive stainless steel pans, the openings shall be die stamped. Top shall be provided with 18 gauge stainless steel double pan removable cover with urethane insulation. Cover to be furnished with gasket, stainless steel lift handle and lid cover bracket assembly.

2.2.9 Undercounter Refrigeration Systems

1. Evaporator coils for fabricated undercounter refrigerator/freezers shall be blower type coils and be installed for accessibility and replacement.

2. All temperature controls, expansion valves, sight glass and solenoid valves are to be installed at the time of manufacturing and mounted for easy adjustment and service.

3. Refrigeration circuits shall have automatic expansion valves, dual high-low pressure switches, high pressure line sight glass and line vibration eliminators.

4. Evaporator coils shall have the condensate drain line routed to and furnished with a condensate evaporator. Provide wall mounting bracket if required.

5. Each condensing unit shall have a separate control switch with pilot light and an engraved phenolic plastic identification sign.

6. Refrigeration lines are to be Type ACR copper with cast fittings

assembled by silver soldering joints. Silver soldering or silver brazing shall be done in presence of nitrogen (oil pumped) in tubing to prevent oxidation and scale formation. Refrigeration system shall be evacuated three (3) times to a pressure of 500 microns maximum and flushed between each evacuation with refrigerant. Refrigeration lines shall be insulated.

7. Refrigeration systems shall operate on Freon 404A in high and medium temperature and Type 404A in low temperature applications.

8. On remote refrigeration systems, all refrigeration piping is to be pre-piped at the time of manufacturing and routed to one (1) central location ready for a one (1) point hookup.

2.2.10 Dishtables and Sink Section Tops

1. Tops, trough, sinks, back and end splashes shall be 14 gauge stainless steel, integral all welded construction. Tops shall be reinforced with 1" x 4" x 1" inverted 14 gauge stainless steel channels. Edges shall be constructed 3h high. Back and endsplashes at walls, 10" high, 3" return on 45 degrees, 1" turn down at wall. Top shall slope to dishmachine, sinks, troughs, cones, and drainers a minimum of 1/4" per foot with backsplashes and table edges remaining level. Where table top attach to dishmachine, turn down into machine and anchor securely, using only stainless steel fasteners. Front edge and rear splash at dishmachine to be watertight and welded closed. All sinks, disposer cones, sumps, troughs, or chutes shall be integrally welded with top to give one-piece appearance.

2. Bases shall be open type construction, 1-5/8" O.D. stainless steel tubular legs, fitted with stainless steel bullet type, adjustable feet and enclosed conical gussets. Crossbracing shall be 1-5/8" O.D. stainless steel tubular members welded to legs as required.

3. When legs are furnished with stainless steel flanged feet, they shall be sealed and secured to the finished floor with stainless steel threaded anchor bolts. Anchor bolts to be set 3h into finished slab and extended to minimum height above finished floor as required for securing equipment. Equipment to be fastened down with stainless steel lock washers and nuts. Flange feet to be set in a bed of FDA approved clear silicone sealant prior to securing to finished floor. Providing a bead of sealant after securing of feet is not acceptable.

4. When crossbracing is furnished with stainless steel flanged feet, they shall be sealed and secured to the finished wall and/or stainless steel cabinet bases with stainless steel lock washers and nuts. Flange feet to be set in a bed of FDA approved clear silicone sealant prior to securing to finished wall and/or equipment. Providing a bead of sealant after securing of feet is not acceptable.

2.2.11 Doors and Removable Panels

1. Metal doors shall have 18 gauge stainless steel exteriors and interiors. Form 3/4" X 90 degree edges on all sides and weld corners. Rear panels must slip inside front panels and form double pan assembly with tight joints. Doors and panels to be easily removable without tools. All doors to be provided with locking hardware with stainless steel face.

2. Insulation between panels shall be 3/4" rigid fiberglass. Secure to both panels where hardware or other screw fastenings are required.

3. Metal doors shall have 12 gauge steel tap-in plates welded to inside of panels where hardware or other screw fastenings are required.

4. Sliding door tracks: Secure with 1/4" stainless steel bolts. Sliding door roller assemblies. Sliding and hinged door pulls to be full grip, stainless steel.

5. Hinged doors to be hung on two (2) stainless steel lift-off type hinges. Doors in kitchen area fitted with full grip stainless steel pulls; door in servery area fitted with fabricated integral full grip stainless steel pulls. Doors to be furnished with flush mounted, concealed type, magnetic catch. For doors measuring more than 24" wide, furnish additional catch at bottom of doors.

6. Louvered doors shall be constructed same as door except center section shall be provided with 18 gauge stainless steel fabricated louvers tack welded flush with door surface.

7. Removable panels shall be constructed same as door.

2.2.12 Drainboards

1. Bodies shall be 14 gauge stainless steel with all horizontal and vertical corners coved on a 3/4" radius with junction forming a one quarter hemispherical cove.

2. Bottom of drain board shall slope 1/4" per foot to sink tubs.

3. Rims of freestanding drain boards shall match sink rims and form straight horizontal edges.

4. Front edges of rims of freestanding drain boards shall be 3" deep at highest point.

5. Exposed corner edges of rims shall be rounded on a 3" radius.

6. Rear and end splash of freestanding drain boards adjacent to walls or closed fixture shall be 44" above floor at rear and sloped to front at 45 degrees as shown in details.

7. Drain boards over 30" long shall have open bases. Bases shall be integral part of free standing sink bases.

2.2.13 Sinks

1. Construct sinks of 14 gauge stainless steel forming corners with a 3/4" radius, both horizontal and vertical. Sink sizes established on the drawings shall be inside measurements.

2. Provide double wall partitions between sink compartments with 3/4" radius corners, 3/4" radius top edge, integrally welded in place, ground smooth and polished. Fronts, bottoms and backs of multiple sinks shall be one piece with no overlapping joints and/or open crevices. The bottom of each sink shall be creased to the center and fitted with a lever operated rotary waste drain with strainer plate, chrome plated tail piece and over flow pipe. The rotary waste drains

shall be set into a 1/2" deep recess assuring complete draining. Over flows shall be fitted in the back of the sink to maintain a constant water level 1" below the sinks top edge.

3. Where sinks occur in tables, sinks are to be integrally welded and polished as above.

4. Provide all required holes for faucets, vacuum breakers, chemical supply lines, etc.

2.2.14 Sinks (Drop-In Type)

Construct sinks of 14 gauge stainless steel forming corners with a 3/4" radius, both horizontal and vertical and 1-1/2h wide perimeter flange. Sink sizes established on the drawings shall be inside measurements.

2.2.15 Drawers

1. Drawer liners shall be 18 gauge stainless steel; 20″ x 20″ x 5″ deep removable insert pan for tool drawers; 20″ x 20″ x 10″ deep for bread drawers. Pans to be easily removable without removing frame or un-tracking drawer.

2. Supporting drawer frame shall be 14 gauge stainless steel welded channel. Drawer faces to be 18 gauge stainless steel double wall construction fully welded with insulation between. Face to be welded to drawer supporting frame. Drawers furnished in kitchen area to be fitted with full grip, stainless steel pulls; drawers furnished in servery area to be fitted with fabricated integral full grip, stainless steel pulls.

3. All drawers shall be provided with adjustable replaceable rubber stops.

4. Drawers are to be enclosed in 16 gauge stainless steel housing under open base tables to make them vermin proof.

5. Drawer slides shall be 14 gauge stainless steel slides mounted on 14 gauge stainless steel supporting channel frame fitted with stainless steel ball bearing wheels. Slides to be of a self-closing type sufficient length to allow drawer liner to be removed without removing slides. Drawer shall support a minimum of 150 pounds capacity at fully opened position.

6. Drawer shall have keyed, locking hardware, stainless steel faced.

7. Anti-Bacteria, NSF approved cutting board to be 18" x 24" with 4" x 1" handle slot. Cutting board to be mounted on 14 gauge stainless steel channels.

2.2.16 Drainer Pans

1. Drainer pans shall be constructed of 14 gauge stainless steel welded integral with tops. Drainer pans shall be a recessed integral part of top with cove corner bodies that slope to drains.

2. Drainer with disposer.

3. Drainer with removable strainer for pot and pan sinks without disposer.

4. Drainer with removable strainer for counter tops and drop in.

5. Drainer with removable strainer secured with tamper-proof fasteners.

6. Drainer pan recess fitted with strainers located below each glass filler, urn faucet, beverage dispenser, ice dispenser or draft beer spigot.

7. Drip pan strainers shall be heavy duty stainless steel drip plates with three (3) 3/4" wide louvers x 90% total strainer length, two (2) finishing rings in each section, 1" X 90 degree angle edges, and welded corners.

8. Drip pan strainer shall be constructed in equal length, removable sections.

2.2.17 Electrical

1. Electrical conductors shall be run in rigid conduit to a junction box on exterior of fixture and have minimum 12" pigtail.

2. Flexible conduit shall not be used except for motor connections.

3. Motors shall have a flexible conduit vibration section, at least 12" long and not over 24" long, with a ground wire running through the conduit.

4. Wiring in prefabricated and / or manufactured equipment shall be U.L. approved construction by the equipment manufacturer.

5. Wiring in custom built equipment, areas, locations or compartments where temperature may exceed 150 degrees F shall be of Type A1 moisture proof range and appliance lead wire with nickel conductors, with an approved insulation and braided cover.

6. Wiring in custom built equipment, areas, locations or compartments that will be exposed to moisture or high humidity shall be Type THW-75C machine wool wire with copper conductors and thermoplastic insulation. All internal wiring in custom- built equipment shall be terminated in one (1) junction box that is accessible for connection and service. All wiring shall be permanently marked by color coding. A permanent wiring diagram shall be attached to each piece of equipment.

7. Conductors connected together shall have crimp connectors including splash caps and insulators.

8. Conductors of multi-wire branch circuits shall have two (2) wire circuits with one (1) black and one (1) white: three (3) wire circuits with one (1) black, one (1) white and one (1) blue.

9. Neutral conductors shall be white.

10. Grounding conductors shall be green.

11. Electrically operated portable equipment shall have a cord and plug.

12. Service cords shall be Type SJO with grounding conductor securely fastened to body or frame of equipment.

13. Plugs shall be grounding type with service cord grounding conductor connected to grounding blade.

14. Receptacle grounding contacts must be clearly labeled with instructions for electrician to connect this terminal or contact to branch circuit grounding conductor.

15. Electric motors shall have control switches for starters.

16. Electric motors and electric heated equipment directly connected to the building electric system shall have a positive disconnect that will open all conductors and meet NEMA standard KS-1-1957 for Type H.D. switches.

17. Combination starters and disconnects installed in a single NEMA enclosure shall have the same type components as individual starters, switch, fused switches and breakers.

18. Starters, transformers and disconnects shall have NEMA enclosures in dry areas and watertight NEMA 4 or 5 cast enclosures in wet areas.

19. Each light fixture or group of light fixtures in the same system shall have double pole press switch.

20. All equipment specified or detailed where LED light fixtures are specified shall have ballasts included. All LED lighting fixtures furnished as part of the food service equipment contract shall include LED tubes with safety coating to prevent shattering.

21. Recessed receptacles and switches with pilot lights shall be stainless steel finish, specified with stainless steel faceplates.

22. Two (2) or more receptacles of the same voltage in the same equipment shall be pre-wired to a common junction box for one (1) final connection, providing total l load does not exceed 30 amps. All pre-wiring shall be done in rigid conduit with all wires color coded and tagged.

23. When counters are specified to be pre-wired to circuit breaker panel(s), provide breaker panel(s), or approved equal, sized as required to meet the equipment loads. Each panel shall be mounted within counter cabinet body behind hinged stainless steel door as located and shown on plan. Panel(s) to have individual breakers as required and main breaker; all utilities to be on separate breakers. All wires shall be tagged, numbered, color coded, run through approved conduit and located in cabinet utility chase. All breakers shall be labeled and unit shall be supplied wiring schematics. For counters requiring delivery in sections for re-assembly in field, each section of counter shall be pre-wired and wire ends supplied with snap-lock type connectors ready for reconnection in field. Providing rolls of wiring with counter is unacceptable. Counter shall be complete, ready for one (1) final connection to each circuit breaker panel by Division 26.

2.2.18 Hanger Assemblies

1. Framing members for hoods, hoist or other equipment with live load of 500 pounds or weighing over 500 pounds shall be 2" X 2" X 1/4" steel angles spaced at 36" O.C. maximum.

2. Hangers for piping, refrigerant lines and beverage dispenser conduit shall be 1/2" diameter hanger rods, brackets, beam clamps, conduit clamps for each pipe or line and fasteners.

3. Horizontal runs of two or more pipes or lines shall have trapeze hanger and/or surface mounting assemblies spaced at 60" O.C. for lines smaller than 3/4" O.D., 72" O.C. for lines 3/4" to 1 1/2" O.D. for lines 1 5/8" O.D. or larger.

4. Horizontal and vertical runs adjacent to building walls shall have surface mounted assemblies with same spacing and trapeze assembly.

2.2.19 Elevated Shelves

1. Shelves shall be constructed of 14 gauge stainless steel, as applicable.

2. Shelves shall be level and plumb, under-braced same as top hereinbefore specified when exceeding 4" in length.

2.2.20 Trough / Disposer Installation

1. Fit end(s) of trough with one (1) chrome plated water inlet, with gate valve control. Minimum connection to unit 1/2". Additional water inlets shall be provided as shown on drawings and as specified in the itemized specifications.

2. Each sump, cone or sink with disposer mounted in bottom shall be fitted with a water inlet as specified above, located so as to direct waste into disposer with a minimum of splash.

3. All connections shall be made in accordance with manufacture recommendations (Contractor shall show schematics on rough-in drawings).

4. Entire trough/sump combination shall be integral with top to give a one-piece appearance; designed to transfer waste into disposer without accumulation or restriction. Trough/sump to be provided with integral stainless steel silver-saver adjacent to disposer entrance. Silver-saver to be furnished with drain.

5. Furnish 14 gauge stainless steel, flush, removable disposer cover with perimeter edge turned down 1/2" at sump/cone.

2.2.21 Galvanized Channel Base Frames

1. 12 gauge galvanized channels to be fully welded in sections with cross bracing no more than 30" on center to support equipment. Channel frames to be fitted to fabricator’s equipment in shop the delivered and set in place in field by the Contractor. All sections to be bolted together fully welded and anchored to floor slab with stainless steel bolts prior to filling with concrete. Silicone all joints.

2. Galvanized channel frames to be filled with concrete by General Contractor.

3. Upon installation of equipment, Contractor to secure and silicone equipment base to channel frame.

2.2.22 Pass-Thru Trim

Where pass-thru refrigerators, freezers, and/or hot food cabinets are installed through the wall, Contractor shall trim both sides of opening, full perimeter, with trim matching the finish of the units installed. Trim to have a continuous appearance, secured with concealed type fasteners. When units are furnished with 6 inch high stainless steel legs, Contractor shall provide a removable kick plate (toe base) to match finish of units, unless otherwise specified. Trim shall be fully sealed to wall. Exposed fasteners are not acceptable.

2.2.23 Booster Heaters

Booster heaters to be furnished complete with water pressure/temperature relief valve, water pressure regulating valve, low water protection, shock absorber, water treatment system, adjustable thermostat set to provide required supply of 185 degrees Farenheit hot water at dishmachine spray nozzles, and two (2) temperature/pressure indicating thermometers (one located on the incoming water line to the booster and one on the outgoing line to the dishmachine). Contractor shall verify all above items have been installed and in a location to provide ease of access to all controls, valves, stops etc., without moving heater and/or other equipment.

2.2.24 Disposers

Disposer to be furnished complete with line strainers, chrome plated vacuum breaker and flow control valves (15GPM of water flow into base of disposer; 10 GPM water flow into end of trough). Provide 14 gauge stainless steel cover plates for trough at cone or sink, and 14 gauge stainless steel control panel mounting bracket. Unit shall be located so that the body and/or legs are positioned a minimum of 2 inches back from the front edge of the table.

2.2.25 Fire Protection Systems

Provide as shown and described on contract documents.

2.2.26 Soda/Juice Systems:

Soda/ice/juice dispensers are to be furnished as described in contract documents.

2.2.27 Beverage Conduit and Raceway

1. Acceptable manufacturer: Conduit

2. All beverage raceways to be size to accept multiple beverage runs for soda.

3. Raceway to be constructed of #14 and #16 gauge stainless steel with removable cover.

4. Size and routing as per design drawings. Contractor is to verify all routing and coordinate with all trades as to routing of raceway and/or conduit.

5. All conduit to be minimum of 6 inch O.D. tubing. See drawings for size and material.

6. Contractor is to provide shop drawings indicating all starting and ending points with access and pull points indicated on drawing and a note as to the content of raceway or conduit shown.

7. Unless specified otherwise.

2.2.28 Utility Distribution System

Stainless steel, self-contained Utility Distribution System (UDS) of size and shape as shown on the contract drawings, and further provided as hereinafter specified under "Itemized Specifications". The system shall be completely pre-wired and pre-piped to a single connection point for electrical, gas, cold water, hot water, steam supply and condensate return as required by the food service equipment specified. All plumbing and electrical services shall include a minimum of 25% over capacity for future changes in food equipment.

2.2.29 Code Compliance

The UDS shall be U.L. listed under the category "Commercial Appliance Outlet Center" and manufactured in accordance with the National Electrical Code (NEC), National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA) pamphlet number 96 & 54, Uniform Plumbing Code (UPC), American Society of Mechanical Engineers (ASME), National Sanitation Foundation (NSF), and Occupational Safety and Health Administration (OSHA) using only U.L. listed, Bureau of Mines rated, AGA certified and CGA certified components.

2.2.30 Government Vendor Supplied Items

Contractor to fully coordinate all Government furnished items, verify utility requirements and indicate on shop drawings and utility rough-ins, as required.

2.3 WORKMANSHIP

1. Entire procedure, including materials, workmanship, details, fabrication and fastening methods shall comply with applicable standards.

2. Workmanship and finishes shall be in accordance with best practices of the trade. Only skilled workers shall be employed in the fabrication and erection of the work of this section.

3. Work shall be provided complete in every detail and the finished work shall be strong, rigid, neat in appearance and free from defects as may be determined by the Government.

2.4 WELDING

1. Joints in stainless steel shall be electrically welded using stainless steel electrodes. All welds shall be free of pits and flaws. Acetylene welding or silver soldering will not be acceptable.

2. Joints in galvanized material shall be electrically welded using electrodes designed to weld galvanized metal. All welds shall be free of pits and flaws.

3. Acetylene welding will not be acceptable. Materials spot welded

together shall have welds equally spaced in straight parallel or perpendicular lines. Spot welding procedure or technique is to be in strict accordance with recommendations of material and/or welding machine manufacturer.

## 2.5 FINISHING

1. Joints in stainless steel that have been welded shall be ground smooth and polished to a No. 4 finish. The grain shall be blended into the grain of surrounding surfaces.

2. Joints in galvanized material that have been welded shall be thoroughly cleaned and finished with one coat of zinc-rich paint (70% minimum). Galvanized steel shall be washed with mineral spirits, primed, then spray painted with two (2) coats of of color selected by the Government. Allow drying time, per manufacturer, between coat of paint and primer.

3. Powder coated items shall have a fifteen year warranty against chipping, cracking, fading, scratching and/or damage due to temperature. Colors to be selected by Government. Finish and materials to be approved for foodservice use by all governing agencies.

## 2.6 MATERIALS

### 2.6.1 Hardware

Hardware used in the construction of custom-built equipment shall be standard product of an approved hardware manufacturer and/or as approved by the Government. Hardware shall be heavy duty chrome plated brass (walk-in door hardware shall be or approved equal) or stainless steel where specified. All locks specified on equipment shall be of the same manufacturer, keyed alike unless otherwise requested by the Government.

### 2.6.2 Stainless Steel Components

1. Flat sheets shall be type 304 with no. 3 finish, in accordance with ASTM A167-70 standard. Materials shall be new, of prime quality, full gauge thickness. Stainless steel shall be type 304, 18-8 series, with a content of from 17% to 19% chrome, 7% to 10% nickel and a maximum carbon content of 0.09. Exposed surface shall be interpreted to include all inside surfaces exposed to view when item is open.

2. Structural shapes shall be type 304 with no.3 finish on all exposed surfaces.

3. Hardware and fittings shall be the standard product of the manufacturer named as a standard.

4. Tubes shall be type 304, ornamental grade, with no. 4 finish, 16 gauge minimum, seamless drawn.

### 2.6.3 Galvanized Steel Components

1. Flat sheets shall be type 1, class D, in accordance with FF-QQ-S-775D standard.

2. Structural shapes shall be galvanized by the hot dip process in accordance with ASTM A123/A123M-69 standards.

3. Tubes shall be welded steel, structural grade, with hot dipped galvanized finish applied after fabrication.

4. Pipes shall be type S, grade B, schedule 40, in accordance with ASTM-A-53-69 standard.

2.6.4 Brass Components

1. Flat sheets shall be 70% copper and 30% zinc alloy in accordance with ASTM B36/B36M, ASTM B19, alloy 260 half-hard finish.

2. Brass tops are to be B & S gauge as specified.

3. Structural sheets are to be B & S 18 gauge and seamless.

4. Brass flat surfaces and structural shapes are to have a mirror finish.

5. Welds are to be restored to a mirror finish and shall blend into the surface of the surrounding surfaces.

2.6.5 Copper Components

Flat sheets shall be hard copper ASTM B152/B152M, type ETP, 48 ounces per square foot.

2.6.6 Structural Steel Shapes

1. Angles, channels, rods and bars used as framing members shall be extruded shapes that are uniform in cross-section, ductile in quality and free from hard spots, runs, checks or other defects.

2. Structural shapes shall conform to ASTM A36/A36M-70 standard.

3. Bent or formed sheet metal will not be acceptable as a substitute for structural materials, unless prior approval in writing is obtained from the Government.

4. Where brakes are specified, they shall be adjustable, cam acting, side lever with positive brake shoe on the wheel tread.

2.6.7 Insulation

1. Fiberglass batts shall be blanket insulation.

2. Plastic foam board insulation shall be urethane or approved substitute.

3. Insulation thickness indicated shall be foamed in place or constructed from multiple layers of board insulation of batts with staggered joints and perpendicular seams.

2.6.8 Wood

1. Lumber shall be free from knots, pitchy seams or other imperfections, thoroughly air-seasoned and Kiln dried. Cover all unexposed surfaces with two coats of odorless waterproof coating.

2. Plywood shall be marine grade or exterior APA grade with closed grain and of thickness specified.

3. Exposed wood surfaces to be Birch, interiors to be Cypress, Spruce or Northern White Pine. Frame casings and jambs to be clear Douglas fir.

2.6.9 Fiberglass (FRP)

1. Fiberglass Reinforced Polyester (FRP) shall be molded with permanent color, minimum thickness, 1/8 inch, glass content 33% minimum, hardness at least 55, flexural strength of 30,000 PSI minimum, tensile strength 25,000 PSI. All FRP parts shall be by manufacturer and color as selected by the Government.

2. Where finished FRP parts are used in conjunction with casters or other metallic parts which impart concentrated stress at specific points, these points shall be reinforced with stainless steel battens, bars or other required shapes.

3. Fire ratings shall be as specified by the Government.

2.6.10 Plastic Laminating

1. Plastic laminated panels shall be constructed of 3/4 inch thick marine grade plywood veneered on all exposed surfaces with plastic laminate of pattern and color as selected by Government. Seal all unexposed sides with 1/8 inch thick plastic laminate.

2. Plastic and finish type shall be pressure laminated to plywood with mastic recommended by plastic manufacturer.

3. No joints shall be permitted when standard sheet size will permit panels to be constructed without joints.

4. Grain on upright surfaces shall run vertical. All inside corners to be sealed with approved sealer as per above.

2.6.11 Casters

1. Casters on prefabricated equipment shall be the equipment manufacturer's standard product as specified under the itemized equipment list.

2. Casters on custom-built equipment shall be N.S.F. non-marking polyurethane or approved substitute or as specified under itemized specifications.

3. Casters shall have wheel sizes indicated.

4. Standard duty (S.D.) casters shall be 5-inch non marking polyurethane swivel plate casters.

5. Heavy duty (H.D.) casters shall be 5-inch non marking plate casters.

6. Secure plate casters with four (4) 1/4-20 stainless steel bolts, stainless steel lock washers, and stainless steel nuts.

2.6.12 Faucets, Spray Units, and Accessories

1. All faucets spray units and accessories shall be chrome plated, heavy-duty brass, equipped with removable seats and aerators. One (1)

faucet shall be provided for each sink bowl unless otherwise shown on drawings and noted in the itemized specifications.

a. Backsplash mounted faucet with 12 inch swing faucet and 1/2 inch inlet.
b. Top or deck mounted faucet with 10 inch swing spout and 1/2 inch inlet.
c. Backsplash mounted faucet with 12 inch swing spout and 3/4 inch inlet.
d. Backsplash mounted pre-rinse/faucet assembly with 12 inch swing spout and 1/2 inch inlet (vegetable prep sinks).
e. Top or deck mounted faucet with 10 inch swing spout and 1/2 inch inlet (servery sinks only).

2. All units to be complete with check valves.

a. Vertical with 1/2 inch inlet.
b. Horizontal with 1/2 inch inlet.
c. Vertical with 3/4 inch inlet.
d. Horizontal with 3/4 inch inlet.

3. Pre-rinse assembly (deck mounted) consisting of pre-rinse unit modified with hose, backflow preventer (for continuous pressure), wall bracket (or when required), brush attachment and mixing valve complete with check valves.

4. Pre-rinse assembly (table mounted) consisting of pre-rinse unit modified with hose, hook outlet, backflow preventer (for continuous pressure), brush attachment and mixing valve complete with check valves.

5. Fill faucet assembly (wall mounted).

6. Fill faucet assembly (serving counter) modified with flexible stainless steel hose, built-in flange and mixing valve complete with check valves.

7. Cart washer spray unit (wall mounted) complete with check valves.

8. Hose reel assembly with 35 foot 0 inch hose (unless otherwise specified), stainless steel control box (when specified), vacuum breaker, mixing valve (when specified), shut-off valve (when specified) complete with check valves.

9. Vacuum breakers shall be mounted neatly above tabletop or backsplash as required. Provide with 1/2 inch inlets.

2.6.13 Sink Drains

1. Sink drains shall be a minimum of 2 inch IPS, or as specified, complete with rear-connected overflow for each sink bowl and 4 inch long chrome plated tailpiece. Interconnect multiple same size drains with chrome plated continuous waste assembly, where two (2) or more drains are mounted immediately adjacent to each other.

2. All drains units shall be quick opening stainless steel rotary drain with stainless steel twist handle assembly (unless otherwise specified) with overflow assembly. Furnish overflow assembly in accordance with sink depth as required.

3. Where specified furnish stainless steel box pattern waste with

stainless steel basket and cover for floor troughs.

2.6.14 Quick-Disconnect Assemblies

1. Each of the following gas hose kits shall consist of stainless steel braided hose with extruded coating, quick disconnect fitting, two (2) full flow swivel link connectors, one (1) 90 degree street elbow (when required), one (1) AGA certified gas ball valve, one (1) surelink restraining cable and all necessary hardware.

2. Each of the following steam hose kits shall consist of stainless steel braided hose with extruded coating, quick disconnect fitting, two (2) full flow swivel link connectors, one (1) 90 degree street elbow (when required), one (1) steam ball valve, one (1) surelink restraining cable and all necessary hardware.

3. Each of the following water hose kits shall consist of stainless steel braided hose with extruded coating, quick disconnect fitting, two (2) full flow swivel link connectors, one (1) 90 degree street elbow (when required), one (1) Surelink restraining cable and all necessary hardware.

4. Each of the following flexible coiled water hose kits are for use with coffee and tea makers and similar applications requiring smaller diameter hoses for cold water connections only not to exceed 70 degrees.

5. Contractor to field verify hose length required for each application to insure hose does not rest on floor and equipment can be moved for cleaning.

PART 3 EXECUTION

3.1 UTILITIES, DELIVERY, STORAGE, AND SPECIAL HANDLING

1. Contractor shall provide and pay for the temporary power and light, openings and storage space to permit scheduled delivery of equipment. See Division 01 Section "Temporary Facilities and Controls" for further clarification.

2. The Contractor shall verify door openings, passages and conditions at the building.

3. Foodservice equipment to be delivered in factory-fabricated containers designed to protect equipment and finish until final installation. Make arrangements to receive equipment at project site, or to hold in secure warehouse until delivery can be made to job site.

4. Store foodservice equipment in original containers, and in location to prove adequate protection to equipment while not interfering with other construction operations.

5. Handle foodservice equipment carefully to avoid damage to component enclosures and finish. Do not install damaged foodservice equipment; return damaged components to equipment manufacturer and replace as required.

3.2 CONDITIONS AND PREPARATION

1. Verify all pertinent dimensions of the building and examine conditions

affecting proper execution of this section. Evaluate access to various areas for moving in of equipment and coordinate with Contractor.

2. Verify water pressure requirements and coordinate required reducing valve with Plumbing Contractor.

3. Inspect flooring and raised concrete bases, wall finishes; verify existence of required mechanical and electrical rough-ins; check painting, ceiling installation and all kitchen equipment.

4. Coordinate with project superintendent for the proper sequence for installation of equipment and wall finish.

5. Sweep clean all floor areas and tops of raised concrete bases before setting equipment in place; remove any spillage or foreign matter.

3.3 PLACEMENT

1. Do all fitting and fastening necessary to install fixed items or sub-items in permanent position as shown on plans.

2. Place all portable items or sub-items which do not require plumbing or electrical services as shown on plans or as directed by 3PM DESIGN / Project Architect.

3.4 ERECTION

1. Work shall be erected plumb, square and unwrapped by experienced personnel.

2. Protect all metal surfaces in contact with masonry, concrete and/or dissimilar metals with and acceptable nonabsorbent tape and/or gasket material.

3. Work shall be erected in correct horizontal and vertical alignment at the locations shown on the drawings.

4. Frames shall be anchored in place with sufficient anchorage to withstand live load with no apparent movement or tendency to fail.

5. Installation screws and fasteners shall be installed carefully to avoid scratching and/or damaging adjacent surfaces and/or fastener heads and shall be stainless steel.

6. At completion of erection work, finished surfaces shall be free of hammer and tool marks, scratches, blemishes, rust and stains.

7. Equipment shall be suitably protected, by Contractor during installation to prevent damage by other trades.

8. Provide general and/or seismic restraining devices in areas as per local codes.

3.5 CLEARANCE

1. Edges of splashes on open base fixtures that are adjacent to walls shall have a 3 inch cleaning clearance or be sealed, seal bead not to exceed 3/8 inch, against wall.

2. Edges of splashes on closed base fixtures that are adjacent to wall or other solid fixtures higher than the splash shall form tight hairline joints. Seal joints with transparent silicone sealant. All excess sealant to be cleaned out to a smooth radius fillet.

3.6 FIELD JOINTS

1. Field joints in stainless steel and/or brass tops shall be welded or fused and finished as specified herein.

2. Body joints shall be draw type with hairline joints. Provide angle bracing on each side of body joint, (9) 3/8 inch stainless steel diameter draw bolts, lock washer and lock nuts.

3.7 UTILITY SERVICE CONNECTIONS

1. Plumbing, electrical and mechanical furnished by the Contractor shall be limited to that which is built-in or is an integral part of the equipment itself.

2. Final utility installation and connections shall be by related trades.

3. Provide restraining devices with mobile cooking equipment as required.

3.8 CONTRACTOR COOPERATION

1. Cooperate with and render all necessary assistance to other Contractors concerned with roughing-in and final connection of utility services for this contract.

2. After final utility connections are made, thoroughly clean, sanitize, polish and inspect the proper function of all items.

3. Report malfunctioning, incomplete or missing items, Government furnished equipment or components to the Government.

3.9 COOORDINATION

1. It shall be the responsibility of Contractor to keep up to date with progress made in the field and installation of all necessary utility rough-ins required to accommodate all equipment specified, as shown on drawings and to make as many visits to the job site as is necessary to check and assure all rough-ins are being properly installed to accommodate this equipment.

3.10 RESERVATIONS AND CONDITIONS

1. All equipment shall be received at the building fully protected. It will be the responsibility of the Contractor to protect the equipment until completely installed and accepted.

2. Contractor shall do all things and furnish all material necessary to carry out the full intent and meaning of these specifications.

3. Contractor is to be pro-active in their involvement with the project, shall monitor work in progress and coordinate their work as required to meet all schedule dates.

3.11 ACCEPTANCE

1. Government will inspect the completed work connected with this section for compliance to the Contract Documents.

2. Prior to acceptance of the work of this Section, Contractor shall clean, sanitize, polish and treat all stainless steel, cast iron, enamel porcelain and other type surfaces in accordance with manufacturer's recommendations and/or procedures.

3. Prior to acceptance of this Section, Contractor shall clean and retouch al painted surfaces, powder-coated surfaces that have been damaged must be re-finished by an established powder-coating firm.

3.12 TESTING, DEMONSTRATING, AND INSTRUCTING

1. Contractor shall provide and maintain protective covering for finished surfaces and other parts of equipment and/or cooler/freezer assemblies subject to damage during and after installation.

2. Clean, test, adjust, calibrate by a factory authorized service agency all foodservice equipment and fixtures to make ready for operation when the facility is turned over to the Government.

3. After the above is complete, all items furnished under this Contract shall be operated and thoroughly tested to insure proper safe operation. The Government and the Contractor shall be notified of this testing and is to be provided with a copy of the service agencies' report.

4. When the food service equipment has been cleaned and tested and is operating properly, the Contractor shall arrange to have equipment furnished under this section of the contract demonstrated, pursuant to the availability of the Government and it's representatives, by an authorized representatives who are to instruct the Government's designated personnel in the use, care and maintenance of the equipment.

5. The Contractor shall be responsible for scheduling the demonstration meeting. Each manufacturer's representative shall be present at this meeting:

   a. Demonstrate to and instruct the Government's designated personnel as to the operation, use, care, cleaning and maintenance of all items of equipment and respond to all questions and concerns by written response.

   b. Provide the Government's designated representative with the name, address and telephone number of a designee of each manufacturer and state which designee shall be responsible to quickly respond to warranty work 24 hours a day, 365 days a year. This is to be direct contact. The Government may contact such warranty representatives designee directly, and such designee may respond without voiding any responsibility or warranties of the manufacturer and the Contractor. Service charges for this warranty representative, no matter what the resolution of the problem may be, shall be the responsibility of the manufacturer, and the Contractor. In any event, the Contractor shall be responsible to immediately pay upon invoice, charges by the warranty representative in order to keep the warranty

representative responsive.

c. Attendance at the one demonstration meeting is required of all manufacturers representatives providing equipment under this contract, if for any reason an additional meeting must be scheduled the Contractor will be responsible for all additional fees and costs incurred.

3.13 MISCELLANEOUS REQUIREMENTS

1. Uniform Quality

a. Custom built items must be constructed by the same fabricator to insure uniform quality and appearance.

b. Similar type items of manufacture and / or prefabricated equipment must be the product of the same manufacturer.

2. Identification Plates:

a. Each piece of equipment must have a suitable nameplate supplied by the manufacturer that is to include the name of the manufacturer, the electrical and / or utility demands.

b. Each switch and / or control device shall have an approved nameplate indicating its function or purpose such as display shelf lights, frost plate compressor and plate warmer.

c. Indicator dials and other standard components of prefabricated equipment will be considered acceptable identification of their physical location clearly indicating the warmers and/or other equipment items that they control.

d. All nameplates must be non-corrosive metal with engraved letters or have acid etched, phenolic and / or painted letters.

3. Foodservice Equipment Notes:

a. In each item of equipment hereinafter specified under the 'Itemized Specifications', these specifications shall identify each respective item by name, model number, accessories, required utilities, brochure data sheets, as well as list various component parts and warranty requirements provided for same.

b. These items and their component parts shall be of material (mounted where applicable) constructed and furnished in strict accordance to that described in the General Specifications for these items and integrally constructed where applicable. It shall be intended that where buy-out (prefabricated) items are specified, same shall be definitely furnished with all the accessories as normally furnished by manufacturer for these items. Also in strict accordance with current manufacturer's engineering data sheet for each respective item.

c. All cooking equipment shall have stainless steel exterior (unless otherwise specified).

d. All gas fired equipment to have rear gas connects where applicable.

e. Provide devices at all rear casters of mobile cooking line equipment located below exhaust hoods to keep the equipment in its place after moving and for cleaning the floor.

3.14 ITEMS

Furnish and set in place per manufacturer's specifications and the following:

DIVISION 11
ITEM #1: CAN WASHER (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide all necessary accessories

DIVISION 11
ITEM #2: SPARE NUMBER

DIVISION 11
ITEM #3: HOSE REEL (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. 50 foot retractable hose
2. Verify plumbing plan for hot and cold water connection

DIVISION 11
ITEM #4: SINK, MOP (MILCON)

Quantity: One (1) - Not In This Contract Section, Specified By Mechanical Engineer, Provided By Plumbing Division 22.

DIVISION 11
ITEM #5: RACK, DUNNAGE (O&M)

Quantity: Nine (9)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Open Grid Mat Dunnage Rack

DIVISION 11
ITEM #6: SHELVING, PLASTIC LOUVER (O&M)

Quantity: Three (3)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions
2. Provide heavy duty casters and locks
3. Provide four tiers high shelving, 74 inch high post

DIVISION 11
ITEM #7: SHELF, UTILITY, WALL MOUNT <AM#0003>(MILCON)</AM#0003>

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #8: MOP RACK (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide 6 feet long

DIVISION 11
ITEM #9: SHELVING, PLASTIC LOUVER (O&M)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions
2. Provide heavy duty casters and locks
3. Provide four tiers high shelving, 74 inch high post

DIVISION 11
ITEM #10: SHELVING, PLASTIC LOUVER (O&M)

Quantity: Three (3)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions
2. Provide heavy duty casters and locks
3. Provide four tiers high shelving, 74 inch high post

DIVISION 11
ITEM #11: EYE WASH (MILCON)

Quantity: Two (2) - Not In This Contract Section, Specified By Mechanical Engineer, Provided By Plumbing Division 22.

DIVISION 11
ITEM #12: RACK, DUNNAGE (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #13: POT RACK, WALL TYPE (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #14: DISPOSER (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Group 6 control panel
2. Provide pre rinse spray with a 1.07 GPM spray valve

DIVISION 11
ITEM #15: SINK, HAND PEDESTAL BASE (MILCON)

Quantity: Twenty (20)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Electronic faucet
2. Provide side splashes as needed
3. Provide front skirt to protect low voltage wiring

DIVISION 11
ITEM #16: WAREWASH POT & PAN SCRUBBER POWER WASH (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Size and shape per plan
2. Provide a 1.07GPM Spray Valve
3. Heavy duty pump pot washer with jets to push water to wash pots and water heater

DIVISION 11
ITEM #17: WAREWASHER, RACK CONVEYOR (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Drain water tempering kit
2. Water hammer kit
3. Tall unit

4. Single point connection

DIVISION 11
ITEM #17-A: BOOSTER HEATER & FILTER (MILCON)

Quantity: Two (2)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide stainless steel body and base
2. Verify dish machine horse power to size the booster

DIVISION 11
ITEM #18: STAINLESS STEEL CORNER GUARDS (MILCON)

Quantity: One-Lot (1-LOT)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No:

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions
2. Coordinate with GC and Architect plan

DIVISION 11
ITEM #19: UTILITY CART (O&M)

Quantity: Three (3)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Minimum 1000 lbs. capacity
2. Provide lockable casters

DIVISION 11
ITEM #20: SHELVING, PLASTIC LOUVER (O&M)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions
2. Provide heavy duty casters and locks
3. Provide four tiers high shelving, 74 inch high post

DIVISION 11
ITEM #21: WAREWASHER, POT & PAN SCRUBBER POWER WASH (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Size and shape per plan
2. Provide a 1.07GPM Spray Valve
3. Heavy duty pump pot washer with jets to push water to wash pots and water heater

DIVISION 11
ITEM #22: UTENSIL POT & PAN WASHER, DOOR TYPE, (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Single point electrical connection with mounted circuit breakers
2. Electric tank heat
3. Shock arrestor and pressure reducing valve kit
4. Stainless steel frame, legs and enclosure panels
5. Drain water tempering kit
6. Prewash temperature control
7. Automatic fill and automatic shut-down

DIVISION 11
ITEM #22-A: BOOSTER HEATER & FILTER (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide stainless steel body and base
2. Verify dish machine horse power to size the booster

DIVISION 11
ITEM #23: UTILITY CART (O&M)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Minimum 1000 lbs. capacity
2. Provide lockable casters

DIVISION 23
ITEM #24: CONDENSATE HOOD (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. See exhaust hood drawings for details

ITEM #25: SPARE NUMBER

DIVISION 23
ITEM #26: CONDENSATE HOOD (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. See exhaust hood drawings for details

DIVISION 11
ITEM #27: SOILED DISHTABLE <AM#0003>(MILCON)</AM#0003>

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11

ITEM #28: CLEAN DISHTABLE <AM#0003>(MILCON)</AM#0003>

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #29: DOLLY, FOUR WHEEL (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide heavy-duty stainless body and base

DIVISION 11
ITEM #30: DOLLY, DISHRACK (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide heavy-duty stainless body and base

DIVISION 11
ITEM #31: DOLLY, DISHRACK (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide heavy-duty stainless body and base

DIVISION 11
ITEM #32: DISPENSER, SELF-LEVELING PLATE, UNHEATED (O&M)

Quantity: Six (6)

<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Verify plate size and capacity

DIVISION 23
ITEM #33: CONDENSATE HOOD (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verify room dimensions
2. See exhaust hood drawings for details

DIVISION 11
ITEM #34: SOILED DISH TABLE (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

ITEM #35: SPARE NUMBER

DIVISION 11
ITEM #36: SHELVING, PLASTIC LOUVER (O&M)

Quantity: Eight (8)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions
2. Provide heavy duty casters and locks
3. Provide four tiers high shelving, 74 inch high post

ITEM #37: SPARE NUMBER

DIVISION 23-13
ITEM #38: REFRIGERATOR, REACH-IN (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Door(s) hinged as shown on plans

ITEM #39: SPARE NUMBER

DIVISION 21-23
ITEM #40: EXHAUST HOOD W/ FIRE SUPPRESSION (MILCON)

Quantity: Three (3)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Assembly to match plan
2. 18 Gauge type 304 stainless steel, including any exposed back
3. External welded construction in accordance with the latest edition of NFPA 96 and UL 710 Standard. All welds to be ground and polished
4. U.L. Classified, removable, stainless steel grease extractor type chambers
5. Stainless steel, removable grease can(s)
6. Sloped grease trough, full length below filters to grease can(s)
7. Hangers, supports and miscellaneous accessories as required for installation
8. Air space at wall(s) to accommodate requirements of the latest edition of NFPA 96 clearance to combustibles
9. All welded duct collar(s)
10. Pre piping for hood fire suppression system
11. Final connections to hood duct collar(s) by the Mechanical Division
12. Hood construction and components to be UL and NSF listed
13. Mounting height of bottom edge of hood to be 6 feet 6 inches above finished floor (minimum and normal) to 7 feet 0 inches above finished floor (maximum)
14. Incandescent light fixtures and bulbs recessed, U.L. listed for use in commercial cooking hoods, NSF approved
15. Verify and coordinate all dimensions and duct requirements and locations with site conditions and Mechanical Division
16. See ventilation drawing sheet for general size and location of duct(s)
17. If not installed against the finished ceiling, provide matching stainless steel closure panels above hood to finished ceiling, to conceal duct(s) and hood fire suppression system piping; verify height. If

finished ceiling is more than 24 inches above the top of the hood(s), or ceiling is open type ceiling, verify requirement for closure panels with the Government

DIVISION 21-23
ITEM #40A: FIRE SUPPRESSION SYSTEM **<AM#0003>**(MILCON)**</AM#0003>**

Quantity: **<AM#0003>**~~Three (3)~~One (1)**</AM#0003>**
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No.: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Surface appliance nozzles, hood and duct protection nozzles in Exhaust Hoods, Item 40
2. Manual pull station and micro switches with two sets of normally open and two sets of normally closed contact points
3. All exposed pipe and fittings to be chrome plated or stainless steel
4. Six month and twelve month inspections, servicing, and replacement of components as per NFPA 96, latest edition
5. All components and labor necessary for completely installed system in accordance with manufacturer's listings and instructions, U.L. Standard 300, UL Standard 1254, NFPA 17A, NFPA 96, and all applicable local codes, standards, and regulations
6. Components inside exhaust hood to be installed at hood manufacturer's shop during fabrication
7. Provide with automatic mechanical gas shut off valves for equipment below exhaust hood. Coordinate sizes and installation with Plumbing Division
8. Six month and twelve month inspections, servicing, and replacement of components as per NFPA 96
9. Electrical Division to provide shunt trip breakers at main power panel, or disconnects, as designated by the Electrical Engineer; interconnected with micro switch at fire system control panel, for all electricity in and under exhaust hood. Shunt trips/disconnects to accomplish shut off of electricity in event of fire system activation

DIVISION 21-23
ITEM #40B: CONTROL PANEL, HOOD, WATER WASH (MILCON)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Verify location per the exhaust hood drawings

DIVISION 11
ITEM #41: KETTLE, STEAM JACKETED (MILCON)

Quantity: Three (3)

<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Steam control kit and trap assembly
2. 2 inch tangent draw-off valve
3. Counterbalanced hinged cover
4. Contractor to verify incoming steam pressure, and coordinate with the kettle manufacturer for proper operation
5. Contractor to coordinate installation of kettle to ensure that draw-off and pour pattern discharges into trough as much as possible
6. Verify altitude and type of gas
7. Gas pressure regulating valve with built-in vent limiting device
8. One (1) (C-1/2", D-3/4", E-1" or F-1-1/4")-48 inch long commercial use A.G.A. and approved poly coated flexible stainless steel gas hose assembly 48-inch long, with fittings and on both ends, quick disconnect assembly on one end, and with installation/ restraining kit. Install the restraining device and provide instructions and coordination for the Plumbing Division's use in installing the hose components
9. Provide double pantry pot filler with lead free vacuum breaker

DIVISION 11-13
ITEM #42: FREEZER, REACH-IN (O&M)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Door(s) hinged as shown on plans

ITEM #43: SPARE NUMBER

ITEM #44: SPARE NUMBER

DIVISION 11
ITEM #45: FLOOR TROUGH ANTI SPLASH W/ S/S FLOOR PIT (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide anti splash

2. Item 41 to be placed over S/S pan for easy drainage to floor trough. (See detail)
3. S/S floor pit to be from end of wall to end of wall length of cooking equipment

DIVISION 11
ITEM #46: S/S WALL FLASHING (MILCON)

Quantity: One-Lot (1-LOT)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Shape and size per plan
2. To be behind the exhaust hood to floor
3. From floor to underside of hood and length of hood plus 15 inch extended hood

DIVISION 13
ITEM #47: EQUIPMENT STAND (O&M)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Mobile lockable casters

DIVISION 11
ITEM #48: GRIDDLE, GAS (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Verify altitude and type of gas
2. Gas pressure regulating valve with built-in vent limiting device
3. Mount on Item # 47
4. One (1) (C-1/2", D-3/4", E-1" or F-1-1/4") -48 commercial use A.G.A. and approved poly coated flexible stainless steel gas hose assembly 48 inch long, with fittings and on both ends, quick disconnect assembly on one end, and with installation/ restraining kit. Install the restraining device and provide instructions and coordination for the Plumbing Division's use in installing the hose components.

DIVISION 11
ITEM #49: FILLER, POT (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide 42 inches long pot filler
2. Provide handles wrist

DIVISION 11
ITEM #50: FLOOR TROUGH W/ S/S FLOOR PAN <AM#0003>(MILCON)</AM#0003>

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Shape and size per plan
2. See detail drawings
3. Cooking equipment to be set on the stainless steel pan

DIVISION 11
ITEM #51: WORK TABLE W/ SINK (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide deck mounted faucet and rotary drain
2. Shape and size per plan

DIVISION 11
ITEM #52: POT RACK, TABLE MOUNT (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Shape and size per plan
2. Coordinate with worktable

ITEM #53: SPARE NUMBER

DIVISION 11
ITEM #54: DOUBLE DECK CONVECTION OVEN(MILCON)

Quantity: Three (3)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Verify altitude and type of gas
2. Gas pressure regulating valve with built-in vent limiting device
3. Furnish with two (2) carts total
4. Side heat shield for control compartment. (When adjacent to heat producing equipment.)
5. Furnish one (1) water filter assembly, for installation by the Plumbing Division. Coordinate installation location to assure easy access for cartridge replacement and servicing, and in compliance with codes
6. One (1) C-1/2", D-3/4", E-1" or F-1-1/4") -48 commercial use A.G.A. and code approved poly coated flexible stainless steel gas hose assembly 48 inch long, with fittings and on both ends, quick disconnect assembly on one end, and with installation/ restraining kit. Install the restraining device and provide instructions and coordination for the Plumbing Division's use in installing the hose components
7. Provide casters

DIVISION 11
ITEM #55: S/S WALL FLASHING (MILCON)

Quantity: One-Lot (1-LOT)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions
2. See detail drawing for shape and size
3. From floor to underside of hood and length of hood plus 15 inch extended hood

ITEM #56: SPARE NUMBER

ITEM #57: SPARE NUMBER

DIVISION 11
ITEM #58: GRIDDLE, GAS (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Verify altitude and type of gas
2. Gas pressure regulating valve with built-in vent limiting device
3. Mount on Item # 61
4. One (1) #HG-4 (C-1/2", D-3/4", E-1" or F-1-1/4")-48 commercial use A.G.A. and code approved poly coated flexible stainless steel gas hose assembly 48 inch long, with fittings and on both ends, quick disconnect assembly on one end, and with installation/ restraining kit. Install the restraining device and provide instructions and coordination for the Plumbing Division's use in installing the hose components

ITEM #59: SPARE NUMBER

DIVISION 11
ITEM #60: FILTER, SYSTEM (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide water filter per manufacture recommendation

DIVISION 13
ITEM #61: EQUIPMENT STAND (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide casters lockable

DIVISION 11
ITEM #62: FILLER, POT (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the

following:

1. Provide handles wrist
2. Provide 48 inches long

DIVISION 21-23
ITEM #63: EXHAUST HOOD W/ FIRE SUPPRESSION (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Assembly to match plan
2. 18 Gauge type 304 stainless steel, including any exposed back
3. External welded construction in accordance with the latest edition of NFPA 96. All welds to be ground and polished
4. U.L. Classified, removable, stainless steel grease extractor type chambers
5. Stainless steel, removable grease can(s)
6. Sloped grease trough, full length below filters to grease can(s)
7. Hangers, supports and miscellaneous accessories as required for installation
8. Air space at wall(s) to accommodate requirements of the latest edition of NFPA 96 clearance to combustibles
9. All welded duct collar(s)
10. Pre piping for hood fire suppression system
11. Final connections to hood duct collar(s) by the Mechanical Division
12. Hood construction and components to be UL and NSF listed
13. Mounting height of bottom edge of hood to be 6 foot 6 inches above finished floor (minimum and normal) to 7 foot 0 inches above finished floor (maximum)
14. Incandescent light fixtures and bulbs recessed, U.L. listed for use in commercial cooking hoods, NSF approved
15. Verify and coordinate all dimensions and duct requirements and locations with site conditions and Mechanical Division
16. See ventilation drawing sheet for general size and location of duct(s)
17. If not installed against the finished ceiling, provide matching stainless steel closure panels above hood to finished ceiling, to conceal duct(s) and hood fire suppression system piping; verify height. If finished ceiling is more than 24 inches above the top of the hood(s), or ceiling is open type ceiling, verify requirement for closure panels with the Government

DIVISION 23
ITEM #63A: FIRE SUPPRESSION SYSTEM <AM#0003>(MILCON)</AM#0003>

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No.: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Surface appliance nozzles, hood and duct protection nozzles in Exhaust Hoods
2. Manual pull station and micro-switches with two sets of normally open and two sets of normally closed contact points
3. All exposed pipe and fittings to be chrome plated or stainless steel
4. Six month and twelve month inspections, servicing, and replacement of components as per NFPA 96, latest edition
5. All components and labor necessary for completely installed system in accordance with manufacturer's listings and instructions, U.L. Standard 300, UL Standard 1254, NFPA 17A, NFPA 96, and all applicable local codes, standards, and regulations
6. Components inside exhaust hood to be installed at hood manufacturer's shop during fabrication
7. Provide with automatic mechanical gas shut off valves for equipment below exhaust hood. Coordinate sizes and installation with Plumbing Division
8. Six month and twelve month inspections, servicing, and replacement of components as per NFPA 96
9. Electrical Division to provide shunt trip breakers at main power panel, or disconnects, as designated by the Electrical Engineer; interconnected with micro switch at fire system control panel, for all electricity in and under exhaust hood. Shunt trips/disconnects to accomplish shut off of electricity in event of fire system activation

DIVISION 23
ITEM #63B: CONTROL PANEL, HOOD, WATER WASH CONTROL (MILCON)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Verify location per exhaust hood plan and drawingsn

DIVISION 11
ITEM #64: UTILITY CART (O&M)

Quantity: Two (2)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Minimum 1000 lbs. capacity
2. Provide lockable casters

DIVISION 11
ITEM #65: RACK, TRAY (O&M)

Quantity: Four (4)

<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide Universal angle rack
2. Heavy duty casters

ITEM #66: SPARE NUMBER

ITEM #67: SPARE NUMBER

DIVISION 11
ITEM #68: EXHAUST HOOD W/ FIRE SUPPRESSION (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Assembly to match plan
2. 18 Gauge type 304 stainless steel, including any exposed back
3. External welded construction in accordance with the latest edition of NFPA 96. All welds to be ground and polished
4. U.L. Classified, removable, stainless steel grease extractor type chambers
5. Stainless steel, removable grease can(s)
6. Sloped grease trough, full length below filters to grease can(s)
7. Hangers, supports and miscellaneous accessories as required for installation
8. Air space at wall(s) to accommodate requirements of the latest edition of NFPA 96 clearance to combustibles
9. All welded duct collar(s)
10. Pre piping for hood fire suppression system
11. Final connections to hood duct collar(s) by the Mechanical Division
12. Hood construction and components to be UL and NSF listed
13. Mounting height of bottom edge of hood to be 6 foot 6 inches above finished floor (minimum and normal) to 7 foot 0 inches above finished floor (maximum)
14. Incandescent light fixtures and bulbs, U.L. listed for use in commercial cooking hoods, NSF approved
15. Verify and coordinate all dimensions, and duct requirements and locations with site conditions and Mechanical Division
16. See ventilation drawing sheet for general size and location of duct(s)
17. If not installed against the finished ceiling, provide matching stainless steel closure panels above hood to finished ceiling, to conceal duct(s) and hood fire suppression system piping; verify height. If finished ceiling is more than 24 inches above the top of the hood(s), or ceiling is open type ceiling, verify requirement for closure panels with Government

DIVISION 21-23
ITEM #68A: FIRE SUPPRESSION SYSTEM **<AM#0003>**(MILCON)**</AM#0003>**

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No.: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Surface appliance nozzles, hood and duct protection nozzles in Exhaust Hoods
2. Manual pull station and micro switches with two sets of normally open and two sets of normally closed contact points
3. All exposed pipe and fittings to be chrome plated or stainless steel
4. Six month and twelve month inspections, servicing, and replacement of components as per NFPA 96, latest edition
5. All components and labor necessary for completely installed system in accordance with manufacturer's listings and instructions, U.L. Standard 300, UL Standard 1254, NFPA 17A, NFPA 96, and all applicable local codes, standards, and regulations
6. Components inside exhaust hood to be installed at hood manufacturer's shop during fabrication
7. Provide with automatic mechanical gas shut off valves for equipment below exhaust hood. Coordinate sizes and installation with Plumbing Division
8. Six month and twelve month inspections, servicing, and replacement of components as per NFPA 96.
9. Electrical Division to provide shunt trip breakers at main power panel, or disconnects, as designated by the Electrical Engineer; interconnected with micro switch at fire system control panel, for all electricity in and under exhaust hood. Shunt trips/disconnects to accomplish shut off of electricity in event of fire system activation

DIVISION 11
ITEM #68B: CONTROL PANEL, HOOD, WATER WASH (MILCON)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. See plan for location and details
2. See exhaust hood drawing

DIVISION 11
ITEM #69: COMBINATION OVEN/STEAMER DOUBLE DECK BOILERLESS STACKABLE (MILCON)

Quantity: Six (6)
**<AM#0003>**~~Type:~~
~~Model No.:~~

</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Verify altitude and type of gas
2. Gas pressure regulating valve with built-in vent limiting device
3. Provide trolley
4. Side heat shield for control compartment. (When adjacent to heat producing equipment.)
5. Furnish one (1) water filter assembly, for installation by the Plumbing Division. Coordinate installation location to assure easy access for cartridge replacement and servicing, and in compliance with codes
6. One (1) (C-1/2", D-3/4", E-1" or F-1-1/4") -48 commercial use A.G.A. and code approved poly coated flexible stainless steel gas hose assembly 48 inch long, with fittings and on both ends, quick disconnect assembly on one end, and with installation/ restraining kit. Install the restraining device and provide instructions and coordination for the Plumbing Division's use in installing the hose components
7. Provide fully automatic cleaning system - with optional single dose dispensing

ITEM #70: SPARE NUMBER

DIVISION 11
ITEM #71: S/S WALL FLASHING (MILCON)

Quantity: One-Lot (1-LOT)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions
2. From floor to underside of exhaust hood and length of hood
3. From floor to underside of hood and length of hood plus 15 inch extended hood

DIVISION 11
ITEM #72: FLOOR TROUGH ANTI SPLASH W/ S/S FLOOR PIT (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide anti splash floor trough
2. Item 73 & 76 to be placed over S/S pan for easy drainage to floor trough (See detail)
3. S/S floor pit to be from end of wall to end of wall length of cooking equipment

DIVISION 11
ITEM #73: TILT SKILLET (MILCON)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Verify altitude and type of gas
2. Gas pressure regulating valve with built-in vent limiting device
3. Electronic spark ignition
4. Hot and cold water fill faucet with 60" hose and mounting bracket
5. Pan carrier
6. Contractor to coordinate installation of tilting fry pan to ensure that pour pattern discharges into trough as much as possible
7. Manual tilt
8. One (1) (C-1/2", D-3/4", E-1" or F-1-1/4")-48 commercial use A.G.A. and code approved poly coated flexible stainless steel gas hose assembly 48 inch long, with fittings and on both ends, quick disconnect assembly on one end, and with installation/ restraining kit. Install the restraining device and provide instructions and coordination for the Plumbing Division's use in installing the hose components

DIVISION 11
ITEM #74: FILLER, KETTLE, & POT (MILCON)

Quantity: Three (3)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide 48 inches long heavy duty filler

DIVISION 11
ITEM #75: S/S WALL FLASHING (MILCON)

Quantity: One-Lot (1-LOT)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions.
2. From floor to under side of exhaust hood to be length of hood.
3. Heavy duty stainless steel and gauge

DIVISION 11
ITEM #76: KETTLE, STEAM JACKETED (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Steam control kit and trap assembly
2. 2 inch tangent draw-off valve
3. Counterbalanced hinged cover
4. Contractor to verify incoming steam pressure, and coordinate with the kettle manufacturer for proper operation
5. Contractor to coordinate installation of kettle to ensure that draw-off and pour pattern discharges into trough as much as possible
6. Verify altitude and type of gas
7. Gas pressure regulating valve with built-in vent limiting device
8. One (1) (C-1/2", D-3/4", E-1" or F-1-1/4") -48 commercial use A.G.A. and code approved poly coated flexible stainless steel gas hose assembly 48 inch long, with fittings and on both ends, quick disconnect assembly on one end, and with installation/restraining kit. Install the restraining device and provide instructions and coordination for the Plumbing Division's use in installing the hose components

DIVISION 23
ITEM #77: EXHAUST HOOD W/ FIRE SUPPRESSION (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Assembly to match plan
2. 18 Gauge type 304 stainless steel, including any exposed back
3. External welded construction in accordance with the latest edition of NFPA 96. All welds to be ground and polished
4. U.L. Classified, removable, stainless steel grease extractor type chambers
5. Stainless steel, removable grease can(s)
6. Sloped grease trough, full length below filters to grease can(s)
7. Hangers, supports and miscellaneous accessories as required for installation
8. Air space at wall(s) to accommodate requirements of the latest edition of NFPA 96 clearance to combustibles
9. All welded duct collar(s)
10. Pre piping for hood fire suppression system
11. Final connections to hood duct collar(s) by the Mechanical Division
12. Hood construction and components to be UL and NSF listed
13. Mounting height of bottom edge of hood to be 6 foot 6 inches above finished floor (minimum and normal) to 7 foot 0 inches above finished floor (maximum)
14. Incandescent light fixtures and bulbs, U.L. listed for use in

commercial cooking hoods, NSF approved
15. Verify and coordinate all dimensions, and duct requirements and locations with site conditions and Mechanical Division
16. See ventilation drawing sheet for general size and location of duct(s)
17. If not installed against the finished ceiling, provide matching stainless steel closure panels above hood to finished ceiling, to conceal duct(s) and hood fire suppression system piping; verify height. If finished ceiling is more than 24 inch above the top of the hood(s), or ceiling is open type ceiling, verify requirement for closure panels with Govermnent

DIVISION 23
ITEM #77A: FIRE SUPPRESSION (MILCON)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No.: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Surface appliance nozzles, hood and duct protection nozzles in Exhaust Hoods
2. Manual pull station and micro switches with two sets of normally open and two sets of normally closed contact points
3. All exposed pipe and fittings to be chrome plated or stainless steel
4. Six month and twelve month inspections, servicing, and replacement of components as per NFPA 96, latest edition
5. All components and labor necessary for completely installed system in accordance with manufacturer's listings and instructions, U.L. Standard 300, UL Standard 1254, NFPA 17A, NFPA 96, and all applicable local codes, standards, and regulations
6. Components inside exhaust hood to be installed at hood manufacturer's shop during fabrication
7. Provide with automatic mechanical gas shut off valves for equipment below exhaust hood. Coordinate sizes and installation with Plumbing Division
8. Six month and twelve month inspections, servicing, and replacement of components as per NFPA 96
9. Electrical Division to provide shunt trip breakers at main power panel, or disconnects, as designated by the Electrical Engineer; interconnected with micro switch at fire system control panel, for all electricity in and under exhaust hood. Shunt trips/disconnects to accomplish shut off of electricity in event of fire system activation

DIVISION 23
ITEM #77B: CONTROL PANEL HOOD (MILCON)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. See exhaust hood drawing for location and power requirement

ITEM #78: SPARE NUMBER

DIVISION 11
ITEM #79: SHELF, WALL MOUNT (MILCON)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #80: TWO COMPARTMENT SINK, SCULLERY (MILCON)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Splash mounted faucet and rotary drains
2. Stainless steel under shelves
3. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #81: CAN OPENER (MILCON)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. See plan for shape
2. Provide heavy duty opener

DIVISION 11
ITEM #82: EQUIPMENT STAND (O&M)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #83: CAN CRUSHER (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide manual can crusher
2. Bolt to table top

DIVISION 11
ITEM #84: SLICER, FOOD (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide with heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

DIVISION 11
ITEM #85: EQUIPMENT STAND (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions
2. Provide heavy duty lockable casters

DIVISION 11
ITEM #86: TWO COMPARTMENT SINK, SCULLERY (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Splash mounted faucet and rotary drains
2. Stainless steel under shelves
3. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #87: SHELF, WALL MOUNT (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

ITEM #88: SPARE NUMBER

DIVISION 11
ITEM #89: ICE MACHINE W/O BIN (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide 500 pounds ice maker
2. Provide cube ice

DIVISION 11
ITEM #90: BIN, ICE DISPENSING WITH TRANSPORT (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide with transport cart and tools
2. Ice storage 1350 pounds

DIVISION 11
ITEM #91: FILTER SYSTEM (MILCON)

Quantity: One (1)

<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide ice water filter
2. Verify ice machine size

ITEM #92: SPARE NUMBER

ITEM #93: SPARE NUMBER

ITEM #94: SPARE NUMBER

DIVISION 11
ITEM #95: FLOOR TROUGH (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Shape and size per plan with grate stainless steel

DIVISION 11
ITEM #96: TWO COMPARTMENT SINK, SCULLERY (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Splash mounted faucet and rotary drains
2. Stainless steel undershelves
3. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #97: SHELF, WALL MOUNT (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the

following:

1. Shape and size per plan

ITEM #98: SPARE NUMBER

ITEM #99: SPARE NUMBER

ITEM #100: SPARE NUMBER

ITEM #101: SPARE NUMBER

DIVISION 13
ITEM #102: REFRIGERATOR, REACH-IN (O&M)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Door(s) hinged as shown on plans

DIVISION 11
ITEM #103: SINK, SCULLERY (MILCON)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Splash mounted faucet and rotary drain
2. Stainless steel under shelves
3. Length, width and configuration per plan and verified room dimensions
4. Provide drawer

DIVISION 11
ITEM #104: WALL SHELF **<AM#0003>**(MILCON)**</AM#0003>**

Quantity: Two (2)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the

following:

1. Length, width and configuration per plan and verified room dimensions

ITEM #105: DESK (O&M)

Quantity: One (1)

ITEM #106: DESK (O&M)

Quantity: One (1)

ITEM #107: SPARE NUMBER

ITEM #108: SPARE NUMBER

DIVISION 11
ITEM #109: WORK, TABLE (O&M)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #110: RECEIVING SCALE (O&M)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide dial scale
2. Provide receiving scale
3. Provide a 100 pounds scale

ITEM #111: SPARE NUMBER

ITEM #112: SPARE NUMBER

ITEM #113: SPARE NUMBER

DIVISION 11
ITEM #114: SHELVING, PLASTIC, LOUVRE OVERHEAD TRACK STORAGE (MILCON)

Quantity: One-Lot (1-LOT)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions
3. Provide heavy duty casters and locks
4. Provide four tiers high shelving, 74" high post

DIVISION 11
ITEM #115: RACK, DUNNAGE (O&M)

Quantity: One-Lot (1-LOT)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #116: RACK, CAN (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide heavy duty can rack with caster lockable

DIVISION 11
ITEM #117: SHELVING, PLASTIC, LOUVRE (O&M)

Quantity: One-Lot (1-LOT)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions

ITEM #118: SPARE NUMBER

ITEM #119: SPARE NUMBER

DIVISION 23-13
ITEM #120: WALK-IN COOLER/FREEZER COMBI (MILCON)

Quantity: One (1) Assembly
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Walk-in cooler to be prefabricated of modular design and construction
2. Panels to be interchangeable, with U.L. Labeled, CFC free urethane insulation sandwiched between interior and exterior metal surfaces, with an overall thickness of 4 inches. Edges of panels to be high-density urethane "tongue and groove", with cam-lock assemblies, set-in-place at time of fabrication. The access ports are to be on the interior, for inside assembly of the walk-in, and shall be covered with "snap caps". Interior and exterior finishes are to be manufacturer's standard gage stucco embossed aluminum. No wood will be permitted in any panels or doors
3. 42" x 78" entrance door and frame. Door to be hinged as shown on plans. The door to be flush type, constructed and insulated in the same manner as the wall panels, and finished inside and out, to match adjacent walls. Door and door section to be equipped with the following:

a. Magnetic gasket, hydraulic piston driven door closer and cam lift hinges. Hardware to have provisions for locking and a safety release to prevent entrapment of personnel within the box
b. Provide door section with an incandescent type vapor-proof light with clear globe and heavy-duty 100-watt clear bulb, pilot light switch and conduit between switch box and outlet box. All conduit and wiring to be concealed, where possible
c. Door to have vinyl strip curtains OR Air Shield
d. Unheated pressure relief port (air-vent)
e. Audio-visual alarm to be included in door section, with remote sensor and adjustable alarm points to indicate the temperature inside, and sound an alarm when the temperature is unsatisfactory. The alarm shall have a mute switch to silence the audible alarm and a reset button to reset the alarm once the temperature conditions are satisfactory
f. Provide panic buttom inside walk-in cooler and freezer. Provide motion sensor
4. Extra vapor-proof light fixture(s), with clear globe(s) and heavy duty 100 watt clear bulb(s), low temperature use fluorescent light fixture(s), with heavy-duty tubes, for field installation by the Electrical Division. All light fixtures to be U.L. Listed for use inside walk-in cooler or freezer. All conduit and wiring is to be concealed, where possible
5. Matching finish trim strips, from floor to ceiling, at all exposed vertical edges, corners, and joints to building wall(s). Contractor to verify dimensions
6. Matching finish closure panels from top of walk-in to finished ceiling, on exposed sides. Contractor to verify dimensions

7. Walk-in to be installed 9" deep building floor recess. Installing Contractor to verify levelness of recess/floor, and provide sand and shims as necessary for a completely level walk-in floor. Approximately 1/4" thick finished floor materials to be specified by the Architect, and provided and installed by General Contractor
8. Unit and all components to be N.S.F. Approved, U.L. and U.L. Classified with a flame spread of 25 or less, and meet the April 1, 1998 requirements of N.S.F. Standard #7
9. For any installation requiring additional ceiling support, provide self-supporting ceiling structural framework over the top of the walk-in compartment(s), and supported by the walk-in walls
10. Verify all dimensions with building conditions for proper fit. Provide maximum size possible to fit available space, using standard panels

DIVISION 11
ITEM #121: SHELVING, PLASTIC, LOUVRE (O&M)

Quantity: One-Lot (1-LOT)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions
3. Provide heavy duty casters and locks
4. Provide four tiers high shelving, 74" high post

ITEM #122: SPARE NUMBER

ITEM #123: SPARE NUMBER

ITEM #124: SPARE NUMBER

DIVISION 11
ITEM #125: SHELVING, PLASTIC, LOUVRE (O&M)

Quantity: One-Lot (1-LOT)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions
3. Provide heavy duty casters and locks
4. Provide four tiers high shelving, 74" high post

DIVISION 23-13

ITEM #126: REFRIGERATION RACK SYSTEM (MILCON)

Quantity: One (1) Assembly
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions
3. Water cooler system
4. See drawing KA216 Refrigeration Rack for specification

DIVISION 23-13
ITEM 126A: COIL, COOK (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No.: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions

DIVISION 23-13
ITEM 126B: COIL, REFRIGERATOR (MILCON)

Quantity: One (1) Assembly
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No.: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions

DIVISION 23-13
ITEM 126C: COIL, REFRIGERATOR (MILCON)

Quantity: Two (2) Assembly
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No.: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set

2. Length, width and configuration per plan and verified room dimensions

DIVISION 23-13
ITEM 126D: COIL & HEATER, FREEZER (MILCON)

Quantity: Three (3) Assembly
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No.: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions

DIVISION 23-13
ITEM 126E: DRAIN LINE HEAT TAPE, COIL THAW (MILCON)

Quantity: One (1) Assembly
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No.: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions

ITEM #127: SPARE NUMBER

DIVISION 11
ITEM #128: SHELVING, PLASTIC, LOUVRE (O&M)

Quantity: One-Lot (1-LOT)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions
3. Provide heavy duty casters and locks
4. Provide four tiers high shelving, 74" high post

DIVISION 11
ITEM #129: RACK, TRAY (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~

</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide universal rack
2. Provide heady duty lockable castor

DIVISION 11
ITEM #130: SHELVING, PLASTIC, LOUVRE (O&M)

Quantity: One-Lot (1-LOT)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions
3. Provide heavy duty casters and locks
4. Provide four tiers high shelving, 74" high post

DIVISION 11
ITEM #131: SHELVING, PLASTIC, LOUVRE (O&M)

Quantity: One-Lot (1-LOT)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions
3. Provide heavy duty casters and locks
4. Provide four tiers high shelving, 74" high post

ITEM #132: SPARE NUMBER

ITEM #133: SPARE NUMBER

DIVISION 11
ITEM #134: SHELVING, SODA (O&M)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Coordinate with provider

DIVISION 11
ITEM #135: RACK, TRAY (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide universal rack
2. Provide lockable casters

DIVISION 11
ITEM #136: SHELVING, PLASTIC, LOUVRE (O&M)

Quantity: One-Lot (1-LOT)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions
3. Provide heavy duty casters and locks
4. Provide four tiers high shelving, 74" high post

DIVISION 11
ITEM #137: SHELVING, PLASTIC, LOUVRE (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions
3. Provide heavy duty casters and locks
4. Provide four tiers high shelving, 74" high post

DIVISION 11
ITEM #138: RACK, DUNNAGE (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~

</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide heavy duty rack 1,000 pounds

DIVISION 11
ITEM #139: SALAD DRYER (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

DIVISION 11
ITEM #140: PEELER, POTATO, VEGETABLE (MILCON)
Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide heavy duty peeler
2. Provide all necessary accessories

ITEM #141: SPARE NUMBER

ITEM #142: SPARE NUMBER

ITEM #143: SPARE NUMBER

ITEM #144: SPARE NUMBER

DIVISION 11
ITEM #145: WORK TABLE (O&M)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Verify shape and size per plan

DIVISION 11
ITEM #146: INGREDIENT BIN (O&M)

Quantity: Three (3)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide 20-gauge stainless steel
2. Provide 27 gallons

DIVISION 11
ITEM #147: FOOD PROCESSOR (O&M)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Provide with 6-pack plates

ITEM #148: SPARE NUMBER

DIVISION 11
ITEM #149: WORK TABLE (O&M)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #150: POT RACK, CEILING (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions
2. Ceiling mounted

DIVISION 11
ITEM #151: FOOD CUTTER (MILCON)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Provide accessories

DIVISION 11
ITEM #152: SHELF, WALL MOUNT **<AM#0003>**(MILCON)**</AM#0003>**

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #153: INGREDIENT BIN (O&M)

Quantity: Three (3)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide 20-gauge stainless steel
2. Provide 27 gallons

DIVISION 11
ITEM #154: FOOD PROCESSOR (O&M)

Quantity: One (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~

</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Provide with 6-pack plates

DIVISION 11
ITEM #155: MIXER, FLOOR (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Standard attachments
2. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

DIVISION 11
ITEM #156: SLICER, FOOD (O&M)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide with heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

DIVISION 11
ITEM #157: EQUIPMENT STAND (O&M)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions
2. Provide heavy duty lockable casters

DIVISION 11
ITEM #158: SINK, SCULLERY (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Splash mounted faucet and rotary drains
2. Stainless steel under shelves
3. Length, width and configuration per plan and verified room dimensions

ITEM #159: SPARE NUMBER

DIVISION 11
ITEM #160: TENDERIZER (O&M)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Provide accessories

DIVISION 11
ITEM #161: TWO COMPARTMENT SINK, SCULLERY (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Splash mounted faucet and rotary drains
2. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #162: DISPOSER, GARBAGE (MILCON)

Quantity: One (1)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide with pre-rinse spray with Wall Backing with a 1.07 GPM

2. Provide Group 6

ITEM #163: SPARE NUMBER

ITEM #164: SPARE NUMBER

ITEM #165: SPARE NUMBER

ITEM #166: SPARE NUMBER

DIVISION 11
ITEM #167: PLATE DISPENSER (O&M)

Quantity: Seventeen (17)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

ITEM #168: BLAST CHILLER/SHOCK FREEZER (O&M)

Quantity: ONE (1)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

ITEM #169: SPARE NUMBER

DIVISION 11
ITEM #170: PREP TABLE W/ SINK (MILCON)

Quantity: Two (2)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Splash mounted faucet and rotary drain

2. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #171: PASS-THRU HEATED CABINET (MILCON)

Quantity: Three (3)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provided with heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Doors hinged as shown on plans
3. Provide kick plate at the serving line and in the kitchen side

DIVISION 11
ITEM #172: TRAY SLIDE (MILCON)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #173: FOOD WARMER (MILCON)

Quantity: Eight (8)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place as manufacturer's specifications and the following:

1. Overhead mounted in the sneeze guard

DIVISION 11-13
ITEM #174: REFRIGERATOR, REACH-IN (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with

Electrical Division
2. Door(s) hinged as shown on plans

DIVISION 11-13
ITEM #175: PASS-THRU REFRIGERATOR (MILCON)

Quantity: Two (2)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Door(s) hinged as shown on plans
3. Provide kick plate at the serving line and in the kitchen side

DIVISION 11
ITEM #176: DROP-IN, HOT WELLS (MILCON)

Quantity: Eight (8)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**<A/M#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide with hot water connection
2. See plan and size

DIVISION 11
ITEM #177: SNEEZE GUARD, SELF SERVE (MILCON)

Quantity: Four (4)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide vertical food shield
2. Provide with Stainless steel top

DIVISION 11
ITEM #178: DROP-IN, COLD PAN (MILCON)

Quantity: Four (4)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

DIVISION 11
ITEM #179: SNEEZE GUARD, SELF SERVE (MILCON)

Quantity: Four (4)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide vertical food shield
2. Provide with Stainless steel top

ITEM #180: SPARE NUMBER

DIVISION 11
ITEM #181: DROP-IN BREAD DISPENSER W/ COVERS (MILCON)

Quantity: Eight (8)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide spring loaded tubes to hold bread

DIVISION 11
ITEM #182: DISPENSER, SELF-LEVELING PLATE (O&M)

Quantity: Four (4)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide adjustable tubes to hold plate sizes

DIVISION 11
ITEM #183: WARMER, DRAWER TYPE ON CASTERS (O&M)

Quantity: Four (4)
**<AM#0003>**~~Type:~~
~~Model No.:~~

</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

DIVISION 11
ITEM #184: TOASTER, CONVEYOR (O&M)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

DIVISION 11
ITEM #185: DISPENSER, BOWL (O&M)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide with size
2. Provide spring loaded tubes to hold bowl

DIVISION 11
ITEM #186: DROP-IN, SOUP WELLS (MILCON)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide a 4 quart size to hold soup

DIVISION 11
ITEM #187: DISPENSER, BOWL (O&M)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~

</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide with spring loaded to hold soup rack

ITEM #188: SPARE NUMBER

DIVISION 11
ITEM #189: CABINET, COOK & HOLD, UNDER COUNTER (MILCON)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

DIVISION 11
ITEM #190: SNEEZE GUARD, SELF SERVE (MILCON)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide vertical food shield
2. Provide with Stainless steel top

DIVISION 11
ITEM #191: SNEEZE GUARD, SELF SERVE (MILCON)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide vertical food shield
2. Provide with Stainless steel top

DIVISION 11
ITEM #192: DROP-IN, COLD PAN (MILCON)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

DIVISION 11
ITEM #193: CUP AND GLASS DISPENSER (O&M)

Quantity: Twelve (12)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide rack dispenser

ITEM #194: SPARE NUMBER

ITEM #195: SPARE NUMBER

DIVISION 11
ITEM #196: TROUGH & DRAIN W/ HOSE (MILCON)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. See plan for shape and size for trough
2. Provide water hose

DIVISION 11
ITEM #197: FILLER GLASS (MILCON)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. See plan for shape and size

2. Water filler to fill water glass

DIVISION 11
ITEM #198: CUP AND GLASS DISPENSER (O&M)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Verify tray/rack size with Goverment/operator
2. Provide mobile rack

DIVISION 11
ITEM #199: BEVERAGE DISPENSER (O&M)

Quantity: Eight (8)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

DIVISION 11
ITEM #200: FILTER, SCALE INHIBITOR (O&M)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide water filter connect to filler

DIVISION 11
ITEM #201: MILK DISPENSER <AM#0003>~~(FUTURE)~~ (O&M) <AM#0003>

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide electrical power for milk cooler

DIVISION 11
ITEM #202: STAINLESS STEEL COUNTER (MILCON)

Quantity: Four (4)
SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide removable under counter shelf over the floor sinks for cleaning
2. L-Shape serving counter to be 14Ga 304 Stainless

ITEM #203: SPARE NUMBER

ITEM #204: SPARE NUMBER

ITEM #205: SPARE NUMBER

DIVISION 11
ITEM #206: COFFEE MAKER **<AM#0003>**~~(FUTURE)~~(O&M)**</AM#0003>**

Quantity: Four (4)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division

DIVISION 11
ITEM #207: FILTER, SCALE INHIBITOR (O&M)

Quantity: Four (4)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide water filter connect to filler

ITEM #208: SPARE NUMBER

ITEM #209: SPARE NUMBER

DIVISION 11
ITEM #210: REFRIGERATOR, REACH-IN (MILCON)

Quantity: Three (3)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Door(s) hinged as shown on plans

ITEM #211: SPARE NUMBER

DIVISION 11-13
ITEM #212: PASS-THRU REFRIGERATOR (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Door(s) hinged as shown on plans
3. Provide kick plate at the serving line and in the kitchen side

DIVISION 11-13
ITEM #213: PASS-THRU HEATED CABINET (MILCON)

Quantity: Three (3)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provided with heavy-duty cord and plug assembly. Coordinate NEMA configuration with Electrical Division
2. Doors hinged as shown on plans
3. Provide kick plate at the serving line and in the kitchen side

ITEM #214: SPARE NUMBER

DIVISION 11
ITEM #215: PREP TABLE W/ SINK (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide Splash mounted faucet and rotary drain
2. Length, width and configuration per plan and verified room dimensions

ITEM #216: SPARE NUMBER

ITEM #217: SPARE NUMBER

DIVISION 11
ITEM #218: SHELVING PLASTIC, UNIT (O&M)

Quantity: Six (6)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide complete set
2. Length, width and configuration per plan and verified room dimensions

ITEM #219: SPARE NUMBER

DIVISION 11
ITEM #220: 'L' SHAPED DISHTABLE (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide stainless steel undershelves
2. Length, width and configuration per plan and verified room dimensions

DIVISION 11
ITEM #221: DISPENSER, SELF LEVELING (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide spring loaded rack dispenser

ITEM #222: SPARE NUMBER

DIVISION 11
ITEM #223: WORK TABLE (O&M)

Quantity: Two (2)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Length, width and configuration per plan and verified room dimensions

ITEM #224: SPARE NUMBER

ITEM #225: SPARE NUMBER

DIVISION 11
ITEM #226: TRASH CAN (O&M)

Quantity: One-Lot (1-LOT) - Not In This Contract Section, Provided by the Government

DIVISION 11
ITEM #227: DISPENSER, SELF-LEVELING (O&M)

Quantity: Two (2)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide spring loaded rack dispenser

ITEM #228: SPARE NUMBER

DIVISION 11
ITEM #229: DISPENSER, SELF-LEVELING (O&M)

Quantity: Four (4)
**<AM#0003>**~~Type:~~
~~Model No.:~~

</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide spring loaded rack dispenser

DIVISION 13
ITEM #230: PASS-THROUGH WINDOW (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Part of Item 234

ITEM #231: SPARE NUMBER

DIVISION 11
ITEM #232: DISPOSER (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide with pre-rinse spray with WB with a 1.07 GPM
2. Coordinate with Item 234

DIVISION 11
ITEM #233: PLATE & CUP HOLDER (O&M)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide spring loaded glass rack

ITEM #234: TRAY ACCUMULATOR (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~

</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

System shall be mounted on floor, and shall be size and shape per drawings. Overall size shall be 56 inches wide by 16 foot by 7.5 inches long with 88 tray holding capacity. Main housing shall be 18 inches wide by 14 feet by 11.5 inches long.

System shall consist of a series of rotating removable tray carriers, with insert, hanger and UHMW self-lubricating glide cantilevered from a 1/8 inch steel trac, attached to a concealed closed path drive system. Sides of housing to be removable for access to all drive components.

A. CONSTRUCTION

1. Main housing to be constructed of stainless steel C channel framing with exterior of 16 Ga., #300 stainless steel, with #4 finish.

2. All enclosure panels to be 18 gauge stainless steel.

3. Provide removable stainless steel full length drip gutter on cafeteria side.

B. TRAY CARRIERS AND HANGERS

1. Tray carriers shall be 4-tier with buff colored molded ABS plastic insert on bottom tiers, and shall be one piece construction, easily removable, and fit into any conveyor dish machine.

2. Tray hangers shall be ladder type with 3-1/4 inch O.C. rungs, with special lock out device for field adjustment of tray carrier sections.

3. Tray carriers shall be 1/4" chrome plated steel wire; hangers shall be 3/8" chrome plated steel wire with a 1-7/8" UHMW spacer wheel mounted on lower end.

C. TRAY CARRIER INSERTS

1. Tray carrier inserts shall be interchangeable and attach to any carrier tier without the use of tools.

2. Buff colored molded plastic inserts shall be designed to hold trays or individual dishware or hollowware without trays on the bottom tier only.

3. Provide rounded lip on all sides and slotted holes in rear of inserts designed to contain and direct spillage to stainless steel drain table.

D. DRIVE SYSTEM

1. Drive system shall consist of a motor, drive chain, axle and sprockets driving a steel conveyor chain rotating within a concealed, one piece milled UHMW inner channel and attached to individual tray hangers with UHMW glides riding on a 1/8" steel trac.

2. Provide 2" chain take up, sprocket adjustment and approximately 3% chain stretch allowance utilizing special offset links.

E. MOTOR AND CONTROLS

1. Provide a 1 hp 120 vdc motor with variable speed drive and permanently lubricated bearings.

2. Provide gasketed stainless steel control panel (10in. W. x 15in. H. x 6in. D.) with SCR (silicone controlled rectifier) solid state control with infinite speed dial located inside cabinet and hour meter visible externally.

3. Provide remote STOP/START station (6.75in. W. x 4in. H. x 4in. D.) mounted under dishtable.

F. LIMIT SWITCH

1. Provide infrared, polarized retroreflective beam type limit switch, self-contained and fully gasketed with stainless steel mounting brackets.

G. DISHTABLE

1. Provide integral dishtable, 14 gage, #169 stainless steel as shown on drawing.

2. Provide 24" PVC rollers, as shown on drawing.

3. Drain in table underneath rollers for cleanability

H. OPTIONS AND ACCESSORIES

1. Provide 13-1/2" wide x 14 ft. 11.5 in. long, stainless steel base.

2. Sight and sound barrier at tray drop-off area, including (2) 4' long fluorescent light fixtures.

3. Tray Drop table with drain, 15'-0" long with sill and window trim.

4. Mobile Soak Sink, model SSOO, with 5" locking casters.

I. FACTORY SUPERVISION/START-UP

1. Provide supervision of assembly and start-up by factory authorized technician to assure proper installation and operation prior to use.

DIVISION 11
ITEM #235: DOLLY, DISHRACK (O&M)

Quantity: Four (4)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide stackable dish racks for cup and bowls

DIVISION 11

ITEM #236: DOLLY, DISHRACK (O&M)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide stackable dish racks for cup and bowls

DIVISION 11
ITEM #237: FOUR WHEEL DOLLY (O&M)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide stackable dish racks for cup and bowls

DIVISION 11
ITEM #238: SHELVING, PLASTIC (O&M)

Quantity: Four (4)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Heavy duty casters and locks
2. Provide complete set
3. Length, width and configuration per plan and verified room dimensions

ITEM #239: SPARE NUMBER

ITEM #240: SPARE NUMBER

DIVISION 23
ITEM #241: CONDENSATE HOOD (MILCON)

Quantity: Two (2)
<AM#0003>~~Type:~~
~~Model No.:~~
</AM#0003>SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. See exhaust hood drawing for shape and size

DIVISION 11
ITEM #242: WAREWASHER, RACK SYSTEM (MILCON)

Quantity: Two (2)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Single point electrical connection with mounted circuit breakers
2. Electric tank heat
3. Shock arrestor and pressure reducing valve kit
4. Stainless steel frame, legs and enclosure panels
5. Common vent duct connection. Vent hood on both ends
6. Drain water tempering kit
7. Prewash temperature control
8. Integral 58.5 KW electric booster heater
9. Automatic fill and automatic shut-down
10. Common drain and plumbing connections
11. Contractor to verify direction of operation with plan, site conditions, and adjacent equipment
12. Electric blower dryer

ITEM #243: SPARE NUMBER

ITEM #244: SPARE NUMBER

DIVISION 11
ITEM #245: TRAY AND SILVER DISPENSER (O&M)

Quantity: Eight (8)
**<AM#0003>**~~Type:~~
~~Model No.:~~
**</AM#0003>**SID No: T076

Furnish and set in place per manufacturer's specifications and the following:

1. Provide with perimeter bumper
2. Provide rack dolly

-- End of Section --

# SECTION 11 81 29

# HORIZONTAL FALL PROTECTION

## 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 within the text by the basic designation only.

AMERICAN SOCIETY OF SAFETY PROFESSIONALS

| | |
|---|---|
| ANSI/ASSP Z359.1 | (2024) Fall Protection Code |
| ANSI/ASSP z359.6 | (2024) Specifications and Design Requirements for Active Fall Protections Systems |

ASTM INTERNATIONAL (ASTM)

| | |
|---|---|
| ASTM A666 | (2023) Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate and Flat Bar |
| ASTM B221 | (2021) Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes |

### 1.2 DEFINITIONS

a. Fall Protection Horizontal Cable Systems.

(1) Rooftop cable. (DBI-SALA RoofSafe Anchor and Cable System)

(2) 8mm Cable. (DBI-SALA 8 mm PHLL Permanent Horizontal Lifeline System)

b. Fall Protection Horizontal Rail Systems:

(1) Rail system. (DBI-SALA Unirail System)

(2) Rooftop rail. (DBI-SALA RoofSafe Rail System)

(3) Overhead Track. (DBI-SALA Glyde-Saf HD Rail System)

### 1.3 RELATED SECTIONS

a. Section 07 50 00 - Membrane Roofing.

b. Section 07 62 00 - Sheet Metal Flashing and Trim.

c. Section 07 71 13 - Manufactured Copings.

d. Section 07 72 13 - Manufactured Curbs.

e. Section 07 91 23 - Backer Rods0 - Joint Sealants.

1.4 ADMINISTRATIVE REQUIREMENTS

1.4.1 Pre-Installation Meetings

Convene minimum two weeks prior to starting work of this section.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Fabrication Drawings; G

SD-03 Product Data

Manufacturer's Data; G

SD-07 Certificates

Installer's Certificate; G

Product Certificate; G

Qualifications Statement; G

SD-08 Manufacturer's Instructions

Systems Manual; G

SD-11 Closeout Submittals

Warranty; G

Delegated-Design Submittal: For fall protectin system, influding analysis data signed and sealed by the qualified professional engineer responsible for theyr preparation.

1.6 QUALITY ASSURANCE

1.6.1 Regulatory Requirements

Coordination: Coordinate the installation of horizontal fall protection system with structural supports and finish materials.

Installer's Certification: Furnish proof of installer's current certification approval by manufacturer in the form of the installer's current certificate issued by the manufacture.

Manufacturer's data and product information indicating the sizes, descriptions, capacities, test certifications, and other descriptive data showing in sufficient detail that the product complies with the contract

requirements.

Fabrication Drawings: For fabrication showing the complete fall protection system. Layout drawings of each system in relation to the supporting structure indicating the locations of properly labeled components.

Systems Manual:

a. Maintenance Procedures: Including parts list and maintenance requirements for all equipment.

b. Operation Procedures: Indicating proper use of equipment for safe operation of the systems.

c. Manufacturer's catalog data indicating the sizes, descriptions, capacities, test certifications, and other descriptive data showing sufficient detail that the product complies with the contract requirements.

1.6.2 Qualifications

Manufacturer Qualifications: Minimum 25-year experience manufacturing similar products.

Installer Qualifications: Minimum 2-year experience installing similar products, authorized, trained, and certified by manufacturer

Engineer for Delegated Design: Licensed in the jurisdiction and with a minimum of two years engineering fall protection systems.

1.7 DELIVERY, STORAGE, AND HANDLING

Deliver materials in manufacturer's original unopened packaging. Store materials in original protective packaging. Prevent soiling, physical damage, or moisture.

1.8 PROJECT/SITE CONDITIONS

1.8.1 Environmental Requirements

Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8.2 Existing Conditions

If required, coordinate layout and installation of framing and reinforcements for the fall protection system fixings and substrates.

1.9 SEQUENCING

Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.10 WARRANTY

Manufacturer's 10-year minimum corrosion resistance and product warranty.

PART 2 PRODUCTS

2.1 MANUFACTURED UNITS

2.1.1 Fall Protection Cable Systems; Force Management Roof Anchor and Cable

2.1.1.1 Design Requirements

Basis of Design: Rooftop horizontal cable fall protection system for rooftop maintenance including end anchors, intermediate cable supports, variable cable supports, traveler and corner cable supports as required.

a. Maximum span of 50 feet (15 m) between anchors and provides continuous hands free access for the user of the roof fall protection system.

b. Allow for multiple users, based on required system calculations.

c. Simultaneous Users: Up to 4 per sub span based on system design.

d. System shall not be used as a tieback anchor for facade maintenance.

2.1.1.2 Performance Requirements

a. Delegated Design: Engage a qualified professional engineer.

b. Structural Performance: Fall protection systems shall withstand the effects of loads and stresses within limits and under conditions required by:

(1) ANSI/ASSP z359.6

(2) Allow for multiple users, based on required system calculations.

(3) Simultaneous Users: Up to 4 per sub span based on system design.

(4) System capable of spanning 50 feet (15 m) between intermediate supports.

(5) Allowable Force on Structure: 1,686 lbs. (7.5 kN) maximum.

2.1.1.3 Components

a. Cable: 7x7, 5/16-inch (8 mm) 316 Stainless Steel Wire, Breaking Strength 8,542 lbs. (38 kN) minimum.

b. End Anchorage Connector: 316 Stainless Steel, electro-polished and Lot Numbered.

c. Tensioner: 180 lbs. (0.8 kN) 316 Stainless Steel.

d. Dampener: 180 lbs. (0.8 kN) 316 Stainless Steel with thermal cyclic loading.

e. Intermediate Guide: 316 Stainless Steel, electro-polished.

f. 90 and 45 Degree Corners: 316 Stainless Steel, electro-polished. Other angles are achieved using Variable Guide, spot welded.

g. Variable Guide: 316 Stainless Steel, electro-polished, spot welded.

h. Swage Toggles: 316 Stainless Steel, electro-polished.

i. Detachable Traveller: 8 mm. ASTM A747/A747M Precipitation Hardening Stainless Steel Casting, electro-polished and numbered. Double Locking for installation and removal, compatible D-ring for use with Snaphook in accordance to ANSI/ASSP Z359.1.

j. Finish type for modular end, corner, and intermediate anchors:

(1) Anchorage Baseplates: Anodized aluminum plates designed and tested to be used with modular end, corner and intermediate anchors.

(2) Anodized for standing seam roofs

(3) PVC coated for PVC roofs.

(4) Bitumen for built up roofs.

(5) All membrane for single ply flashed roofs.

2.1.1.4 Materials

a. Primary Cable Assembly Components: Stainless steel, ASTM A666, Type 316.

2.1.1.5 Fabricated Supports

a. Carbon steel with corrosion resistant finish. Steel Plates, Shapes.

b. Bars: ASTM A36 Steel Tubing: ASTM A500, cold formed.

c. Welding rods and bare electrodes: Select according to AWS specifications or metal alloy welded.

2.1.1.6 Connectors

Comply with:

a. ANSI/ASSP Z359.1

2.1.1.7 Fabrication

a. Fabricate anchoring devices as recommended by the manufacturer to provide adequate support for intended use.

b. Shop fabricate required anchorage posts using structural steel with material test certificates for full material traceability.

2.1.1.7.1 Welding

a. AWS structural specification D1.1 by certified welders.

b. Fabricate joints in a manner to discourage water accumulation.

2.1.1.7.2 Swaging

a. Swage cable in-line with the anchor point.

b. Pull Test all Swages as per Manufacturer required specification.

2.1.1.7.3 Fasteners

a. Toggle Fixings: Bolt lengths 6-inch (150 mm) x4, 12-inch (300 mm) x4, 20 inch (500 mm) x4, Steel, Zinc Coated, includes cup washer, toggle foot and PVC alignment tube.

b. Concrete Fixings: lengths 6-inch (150 mm) x4, 12-inch (300 mm) x4, 20 inch (500 mm) x4, Steel, Zinc Coated, includes cup washer, Wedge Anchor foot and PVC alignment tube.

c. Clamps: Non-penetrative clamping system. May be fitted to a variety of standing seam roof systems.

d. Rivets: Aluminum, 0.30-inch (7.7 mm) diameter, bulb type, ASTM B221. Single Rivet-shear Strength = 1528.70 lbf (6.8 kN) / Tensile Strength = 1124.04 lbf (5 kN) / Grip 0.04 to 0.37-inch (1 to 9.5 mm) range.

2.1.1.7.4 Finishes

a. Stainless Steel: Electropolished for corrosion resistance.

2.1.1.7.5 Accessories

a. Signage: Signs and system identification tags.

b. Flashing: Comply with requirements of Section 07 60 00 - FLASHING AND SHEET METAL

c. Sealant: Comply with requirements of Section 07 91 00 - JOINT SEALANTS

2.1.2 Fall protection Cable Systems; Rigid Anchor and Cable

2.1.2.1 Design Requirements

Horizontal cable fall protection system, including end anchors, energy absorbers, intermediate cable supports, and travelers as required.

a. Allow users to walk uninterrupted the entire length of the system and provide secure anchorage to arrest a fall. System to allow freedom of movement along the cable as it passes by intermediate anchors.

b. System application below that provide protection for up to a maximum of 4 users per span subject to confirmation through engineering software.

(1) floor (low tension typical)

(2) raised floor/rigid post mount (low tension typical)

(3) wall level (low tension typical)

(4) overhead (high tension typical)

c. Provides continuous hands-free access for the user of the fall protection system.

d. Maximum span requirements dependent on system application and number of

users:

(1) Single span systems to have a maximum span length up to 200 feet (60 m) for single user or 100 feet (30 m) for multi-users.

(2) Multi-span systems to have a maximum span length up to 150 feet (45 m) for single user or 100 feet (30 m) for multi-users.

(3) Rooftop systems to have a maximum span length up to 50 feet (15 m) for single and multi-users.

e. Maximum allowable force on end anchors be controlled by Energy Absorption Systems that would be limited to:

(1) Low Tension Systems: 2,500 lbs. (11 kN) - 5,000 lbs. design load (22kN)

(2) High Tension systems: 4,270 lbs. (19 kN) - 8,540 lbs. design load (38kN)

2.1.2.2 Performance Requirements

a. Delegated Design: Engage a qualified professional engineer, to design fall protection system.

b. Structural Performance: Fall protection systems shall withstand the effects of loads and stresses within limits and under conditions required by:

(1) ANSI/ASSP z359.6

(2) Allow for multiple users, based on required system calculations.

2.1.2.3 Components

Cable type:

a 1x19, 5/16 inch (8 mm) 316 Stainless Steel Wire, Breaking Strength 10,600 lbs. (47 kN).

b. 7x7, 5/16 inch (8 mm) 316 Stainless Steel Wire, Breaking Strength 8,700 lbs. (38.7 kN).

Structural End Anchors:

a. Straight Eye: 316 Stainless Steel secured by a single anchor, electro-polished, part and batch numbered with equal to or greater than 10,000 lbs. (45 kN) minimum breaking strength.

b. Multifix Anchor secured by multiple anchors: 316 Stainless Steel, electropolished, pat and batch numbered with equal to or greater than 10,000 lbs. (45 kN) minimum breaking strength.

Cable End Connections:

a. Energy Absorbers:

(1) Inline Force Management Energy Absorber 316 Stainless Steel, electropolished. Includes built in thermal cyclic loading and

rotation capabilities to increase or decrease systems tension.

(a) Peak force options:

1. 2,500 lbs. (11kN)

2. 4,270 lbs. (19kN)

(b) Peak system tension options:

1. 180 lbs. (0.8kN)

2. 1,124 lbs. (5kN)

b. Includes end stopper

Dampeners:

a. 180 lbs. (.8 kN) with built in thermal cyclic loading.

b. 1,125 lbs. (5 kN) with built in thermal cyclic loading

Swage Connections:

a. Hex Swage Toggle with 8,540 lbs. (38 kN) minimum breaking strength

b. Hex Swage Toggle with Shoulder for End Stop with 8,540 lbs. (38 kN) minimum breaking strength.

c. Hex Swage Tensioner with 180 lbs. (.8 kN) pretension indicator and 8,540 lbs. (38 kN) minimum breaking strength

d. Hex Swage Tensioner with 1,125 lbs. (5 kN) pretension indicator with 8,540 lbs. (38 kN) minimum breaking strength

Travelers:

a. Dual Locking Detachable Traveler includes permanent D-ring and 5,000 lbs. (22.2 kN) minimum breaking strength.

b. Dual Locking Detachable Rolling Traveler with wheels includes permanent D-ring and 5,000 lbs. (22.2 kN) minimum breaking strength.

c. Non-Removable Overhead Traveler with 316 SS wheels and 5,000 lbs. (22.2 kN) minimum breaking strength.

System Identification Tag with the following:

a. Installation Date, Installer Name, Contact Information

b. Minimum Ground Clearance required

c. Maximum number of users on system

d. Maximum number of users per span

e. Next Service Date

f. Serial number

g. Maximum arresting force of Lanyards and or SRL's to be used on system

h. Maximum length of PPE to be used.

i. Radio Frequency Identification Tag mounting location

Fabricated Supports:

a. Carbon steel with corrosion resistant finish. Steel Plates, Shapes.

b. Bars: ASTM A36 Steel Tubing: ASTM A500, cold formed.

c. Welding rods and bare electrodes: Select according to AWS specifications or metal alloy welded.

Materials:

a. Primary cable assembly components: Stainless steel, ASTM A666, Type 316.

b. Aluminum: 6061 aluminum alloy.

c. Aluminum: 6082 aluminum alloy.

Connectors: Comply with the following:

a. ASSP/ANSI Z359.1

2.1.2.4 Fabrication

a. Fabricate anchoring devices as recommended by the manufacturer to provide adequate support for intended use.

b. Shop fabricate required anchorage posts using structural steel with material test certificates for full material traceability.

c. Welding: AWS structural specification D1.1 by certified welders.

d. Fabricate joints in a manner to discourage water accumulation.

e. Swaging:

(1) Swage cable in-line with the anchor point.

(2) Pull Test all Swages as per Manufacturer required specification.

f. Finishes:

(1) Stainless Steel: Electropolished for corrosion resistance.

(2) Structural Steel: Zinc Galvanized for corrosion resistance.

(3) Aluminum: Anodized.

(4) Aluminum: Powder coated.

g. Fasteners:

(1) End Anchor Brackets: Minimum Grade A4-70 M16 or 5/8 inch

Fasteners should be used to mount End Anchor Brackets to structure at a recommended torque of 37 ft-lbs. (50 Nm) Mounting must support at least twice the load values stated in the manufacture's technical report.

(2) Intermediate Brackets: Minimum Grade A4-70 M12 or 1/2-inch Fasteners should be used to mount Intermediate Brackets to structure at a recommended torque of 37 ft-lbs. (50 Nm). Mounting must support a bracket load of 5,400 lbf (24 kN) perpendicular to the lifeline.

(3) Corner Brackets: Minimum Grade A4-70 M12 (or 1/2 in) Fasteners should be used to mount Corner Bracket to structure at a recommended torque of 44 ft-lbf (50 Nm). Mounting must support bracket load of 8,550 lbf (38 kN) in the plane of the lifeline and a load of 5,400; bf (24 kN) perpendicular to the lifeline. 45 and 90 degrees Corner Brackets are available for internal or external corners on 0.8 kN or 5 kN tensioned systems.

h. Accessories:

(1) End stopper.

(2) Signage: Signs and system identification tags.

(3) Flashing: Comply with requirements of Section 07 62 00 - Sheet Metal Flashing and Trim "Sheet Metal Flashing and Trim."

(4) Flashing: Comply with requirements of Section 07 71 13 - Manufactured Copings "Roof Specialties."

(5) Flashing: Comply with requirements of Section 07 72 13 - Manufactured Curbs "Roof Accessories."

(7) Sealant: Comply with requirements of Section 07 91 23 - Backer Rods "Joint Sealants."

## PART 3 EXECUTION

### 3.1 EXAMINATION

Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of fall protection equipment.

Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

Coordinate location of fall protection equipment indicated to be attached to structural substrate or surface of roofing system and furnish anchoring devices with templates and diagrams.

### 3.3 INSTALLATION

Only manufacturer or Certified Installers authorized in writing by system manufacturer may make installation/repairs to this equipment. If horizontal lifeline system has been subject to fall force or inspection

reveals an unsafe or defective condition, remove the system from service and the manufacturer or a Certified Installer regarding replacement or repair.

Install according to approved shop drawings and manufacturer's instructions. Coordinate with work of other trades.

Install anchorage and fasteners in accordance with manufacturer's recommendations to obtain the allowable working loads published in the product literature and in accordance with this specification.

Exposed work shall be true to line and level with accurate angles, surfaces and with straight square edges. Coordinate anchorage system with supporting structure.

Do not load or stress system until materials and fasteners are properly installed and ready for service.

## 3.4 FIELD QUALITY CONTROL

### 3.4.1 Inspection

Provide manufacturer's certified installer to inspect installed fall protection system. Ensure that system components operate as specified.

## 3.5 ADJUSTING AND CLEANING

Adjust fall protection components to function smoothly and safely.

Clean the systems metal components with a soft brush, warm water, and a mild soap solution if needed after initial installation.

Ensure all components are thoroughly rinsed with clean water after cleaning.

## 3.6 CLOSEOUT ACTIVITIES

### 3.6.1 Demonstration

Demonstrate operation of system to Owner's personnel.

a. Briefly describe function, operation, and maintenance of each component.

### 3.6.2 Training

Train Owner's personnel on operation and maintenance of system.

a. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.

b. Provide minimum of two hours of training.

c. Provide training at the lifeline installation site.

d. Training to take place at the completion of the installation.

Do not use until trained in the use of the system

-- End of Section --

# SECTION 31 00 00

# EARTHWORK

**AMENDMENT 0003**
**AMENDMENT 0002**

## 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 within the text by the basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

| | |
|---|---|
| AASHTO T 180 | (2017) Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop |

AMERICAN WATER WORKS ASSOCIATION (AWWA)

| | |
|---|---|
| AWWA C600 | (2017) Installation of Ductile-Iron Mains and Their Appurtenances |

ASTM INTERNATIONAL (ASTM)

| | |
|---|---|
| ASTM C131/C131M | (2020) Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine |
| ASTM C136/C136M | (2019) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates |
| ASTM D698 | (2012; E 2014; E 2015) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.)) |
| ASTM D1140 | (2017) Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing |
| ASTM D1556/D1556M | (2015; E 2016) Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method |
| ASTM D1557 | (2012; E 2015) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2700 kN-m/m3) |
| ASTM D2167 | (2015) Density and Unit Weight of Soil in |

| | |
|---|---|
| | Place by the Rubber Balloon Method |
| ASTM D2487 | (2017; E 2020) Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) |
| ASTM D2937 | (2017; E 2017; E 2018) Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method |
| ASTM D4318 | (2017; E 2018) Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils |
| ASTM D4718/D4718M | (2015) Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversize Particles |
| ASTM D6938 | (2017a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth) |

U.S. ARMY CORPS OF ENGINEERS (USACE)

| | |
|---|---|
| EM 385-1-1 | (2014) Safety -- Safety and Health Requirements Manual |

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

| | |
|---|---|
| EPA 600/4-79/020 | (1983) Methods for Chemical Analysis of Water and Wastes |
| EPA SW-846.3-3 | (1999, Third Edition, Update III-A) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods |

## 1.2 DEFINITIONS

### 1.2.1 Satisfactory Materials

Satisfactory materials comprise any materials classified by ASTM D2487 as GW, GP, GM, GC, SW, SP, SM, SC, CL, and CH. Satisfactory materials for grading comprise stones less than 8 inches, except for fill material for foundations, and pavements, which comprise stones less than 3 inches in any dimension.

### 1.2.2 Unsatisfactory Materials

Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory which contains root and other organic matter or frozen material. Notify the Contracting Officer when encountering any contaminated materials.

1.2.3 Cohesionless and Cohesive Materials

Cohesionless materials include materials classified in ASTM D2487 as GW, GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic. Perform testing, required for classifying materials, in accordance with ASTM D4318, ASTM C136/C136M and ASTM D1140.

1.2.4 Degree of Compaction

Degree of compaction required, except as noted in the second sentence, is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D1557 abbreviated as a percent of laboratory maximum density. Since ASTM D1557 applies only to soils that have 30 percent or less by weight of their particles retained on the 3/4 inch sieve, express the degree of compaction for material having more than 30 percent by weight of their particles retained on the 3/4 inch sieve as a percentage of the maximum density in accordance with AASHTO T 180 and corrected with ASTM D4718/D4718M. To maintain the same percentage of coarse material, use the "remove and replace" procedure as described in NOTE 8 of Paragraph 7.2 in AASHTO T 180.

1.2.5 Topsoil

Material suitable for topsoils obtained from offsite areas is defined as: Natural, friable soil representative of productive, well-drained soils in the area, free of subsoil, stumps, rocks larger than one inch diameter, brush, weeds, toxic substances, and other material detrimental to plant growth. Amend topsoil pH range to obtain a pH of 5.5 to 7.

1.2.6 Hard/Unyielding Materials

Hard/Unyielding materials comprise weathered rock, dense consolidated deposits, or conglomerate materials which are not included in the definition of "rock" with stones greater than 3 inch in any dimension or as defined by the pipe manufacturer, whichever is smaller. These materials usually require the use of heavy excavation equipment, ripper teeth, or jack hammers for removal.

1.2.7 Rock

Solid homogeneous interlocking crystalline material with firmly cemented, laminated, or foliated masses or conglomerate deposits, neither of which can be removed without systematic drilling and blasting, drilling and the use of expansion jacks or feather wedges, or the use of backhoe-mounted pneumatic hole punchers or rock breakers; also large boulders, buried masonry, or concrete other than pavement exceeding 1/2 cubic yard in volume. Removal of hard material will not be considered rock excavation because of intermittent drilling and blasting that is performed merely to increase production.

1.2.8 Unstable Material

Unstable materials are too wet to properly support the utility pipe, conduit, or appurtenant structure.

1.2.9 Select Granular Material

1.2.9.1 General Requirements

Select granular material consisting of satisfactory material having a liquid limit not to exceed 35 percent when tested in accordance with ASTM D4318. The plasticity index must not be less than 8 percent nor greater than 18 percent when tested in accordance with ASTM D4318, and not more than 35 percent by weight may be finer than No. 200 sieve when tested in accordance with ASTM D1140.

1.2.10 Initial Backfill Material

Initial backfill consists of select granular material or satisfactory materials free from rocks 3 inches or larger in any dimension or free from rocks of such size as recommended by the pipe manufacturer, whichever is smaller. When the pipe is coated or wrapped for corrosion protection, free the initial backfill material of stones larger than 3 inches in any dimension or as recommended by the pipe manufacturer, whichever is smaller.

1.2.11 Expansive Soils

Expansive soils are defined as soils that have a plasticity index equal to or greater than 15 when tested in accordance with ASTM D4318.

1.2.12 Nonfrost Susceptible (NFS) Material

Nonfrost susceptible material are a uniformly graded washed sand with a maximum particle size of 3 inch and less than 5 percent passing the No. 200 size sieve, and with not more than 3 percent by weight finer than 0.02 mm grain size.

1.2.13 Pile Supported Structure

As used herein, a structure where both the foundation and floor slab are pile supported.

1.3 SYSTEM DESCRIPTION

Subsurface soil boring logs are shown on the drawings. The subsoil investigation report and samples of materials taken from subsurface investigations may be examined at USACE Fort Worth District Office. These data represent the best subsurface information available; however, variations may exist in the subsurface between boring locations.

1.3.1 Classification of Excavation

No consideration will be given to the nature of the materials, and all excavation will be designated as unclassified excavation.

1.3.2 Blasting

Blasting will not be permitted.

1.3.3 Dewatering Work Plan

Submit procedures for accomplishing dewatering work.

## 1.4 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Shoring; G

Dewatering Work Plan; G

SD-03 Product Data

Utilization of Excavated Materials; G

SD-06 Test Reports

Testing

Borrow Site Testing

Within 24 hours of conclusion of physical tests, submit 3 copies of test results, including calibration curves and results of calibration tests.

SD-07 Certificates

Testing

# PART 2 PRODUCTS

## 2.1 REQUIREMENTS FOR OFFSITE SOILS

Test offsite soils brought in for use as backfill for Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethyl Benzene, and Xylene (BTEX) and full Toxicity Characteristic Leaching Procedure (TCLP) including ignitability, corrosivity and reactivity. Provide backfill containing a maximum of 100 parts per million (ppm) of total petroleum hydrocarbons (TPH) and a maximum of 10 ppm of the sum of Benzene, Toluene, Ethyl Benzene, and Xylene (BTEX) and passing the TCPL test. Determine TPH concentrations by using EPA 600/4-79/020 Method 418.1. Determine BTEX concentrations by using EPA SW-846.3-3 Method 5030/8020. Perform TCLP in accordance with EPA SW-846.3-3 Method 1311. Provide Borrow Site Testing for TPH, BTEX and TCLP from a composite sample of material from the borrow site, with at least one test from each borrow site. Do not bring material onsite until tests have been approved by the Contracting Officer. All soils must comply with the requirements of the BSA Soil Management Plan.

## 2.2 BURIED WARNING AND IDENTIFICATION TAPE

Provide metallic core or metallic-faced, acid- and alkali-resistant, polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, 3 inches minimum width, color coded as specified below for the intended utility with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED (intended service) LINE BELOW" or similar wording. Provide

permanent color and printing, unaffected by moisture or soil.

| Warning Tape Color Codes | |
|---|---|
| Red | Electric |
| Yellow | Gas, Oil; Dangerous Materials |
| Orange | Telephone and Other Communications |
| Blue | Water Systems |
| Green | Sewer Systems |

2.2.1 Warning Tape for Metallic Piping

Provide acid and alkali-resistant polyethylene plastic tape conforming to the width, color, and printing requirements specified above, with a minimum thickness of 0.003 inch and a minimum strength of 1500 psi lengthwise, and 1250 psi crosswise, with a maximum 350 percent elongation.

2.2.2 Detectable Warning Tape for Non-Metallic Piping

Provide polyethylene plastic tape conforming to the width, color, and printing requirements specified above, with a minimum thickness of 0.004 inch, and a minimum strength of 1500 psi lengthwise and 1250 psi crosswise. Manufacture tape with integral wires, foil backing, or other means of enabling detection by a metal detector when tape is buried up to 3 feet deep. Encase metallic element of the tape in a protective jacket or provide with other means of corrosion protection.

2.3 DETECTION WIRE FOR NON-METALLIC PIPING

Insulate a single strand, solid copper detection wire with a minimum of 12 AWG.

2.4 CAPILLARY WATER BARRIER

Capillary Water Barrier shall consist of clean, crushed, nonporous rock, crushed gravel, or uncrushed gravel. The maximum particle size shall be 1-1/2 inches and no more than 2 percent by weight shall pass the 3/16 inch size (No. 4) sieve.

2.5 DISPOSAL OF EXCESS MATERIAL

All excess material must be disposed of in accordance with the JBSA Soil Management Plan.

PART 3 EXECUTION

3.1 STRIPPING OF TOPSOIL

Where indicated or directed, strip topsoil to a depth of 4 inches. Spread topsoil on areas already graded and prepared for topsoil, or transported and deposited in stockpiles convenient to areas that are to receive application of the topsoil later, or at locations indicated or specified. Keep topsoil separate from other excavated materials, brush, litter,

objectionable weeds, roots, stones larger than 2 inches in diameter, and other materials that would interfere with planting and maintenance operations. Stockpile in locations indicated any surplus of topsoil from excavations and gradings.

## 3.2 GENERAL EXCAVATION

Perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. Perform the grading in accordance with the typical sections shown and the tolerances specified in paragraph FINISHING. Transport satisfactory excavated materials and place in fill or embankment within the limits of the work. Excavate _<AM#0003>12"</AM#0003> unsatisfactory materials encountered within the limits of the work below grade and replace with satisfactory materials as directed. Include such excavated material and the satisfactory material ordered as replacement in excavation. Dispose surplus satisfactory excavated material not required for fill and unsatisfactory excavated material as specified in paragraph DISPOSITION OF SURPLUS MATERIAL. During construction, perform excavation and fill in a manner and sequence that will provide proper drainage at all times. Excavate material required for fill or embankment in excess of that produced by excavation within the grading limits from other approved areas selected by the Contractor as specified.

### 3.2.1 Ditches, Gutters, and Channel Changes

Finish excavation of ditches, gutters, and channel changes by cutting accurately to the cross sections, grades, and elevations shown on Drawings. Do not excavate ditches and gutters below grades shown. Backfill the excessive open ditch or gutter excavation with satisfactory, thoroughly compacted, material or with suitable stone or cobble to grades shown. Dispose excavated material as shown or as directed, except in no case allow material be deposited a maximum 4 feet from edge of a ditch. Maintain excavations free from detrimental quantities of leaves, brush, sticks, trash, and other debris until final acceptance of the work.

### 3.2.2 Drainage Structures

Make excavations to the lines, grades, and elevations shown, or as directed. Provide trenches and foundation pits of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations as shown. Clean rock or other hard foundation material of loose debris and cut to a firm, level, stepped, or serrated surface. Remove loose disintegrated rock and thin strata. Do not disturb the bottom of the excavation when concrete or masonry is to be placed in an excavated area. Do not excavate to the final grade level until just before the concrete or masonry is to be placed.

### 3.2.3 Drainage

Provide for the collection and disposal of surface and subsurface water encountered during construction. Completely drain construction site during periods of construction to keep soil materials sufficiently dry. Construct storm drainage features (ponds/basins) at the earliest stages of site development, and throughout construction grade the construction area to provide positive surface water runoff away from the construction activity or provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils. When unsuitable working platforms for equipment operation and unsuitable soil support for

subsequent construction features develop, remove unsuitable material and provide new soil material as specified herein. It is the responsibility of the Contractor to assess the soil and ground water conditions presented by the plans and specifications and to employ necessary measures to permit construction to proceed.

### 3.2.4 Dewatering

Control groundwater flowing toward or into excavations to prevent sloughing of excavation slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. Do not permit French drains, sumps, ditches or trenches within 3 feet of the foundation of any structure, except with specific written approval, and after specific contractual provisions for restoration of the foundation area have been made. Take control measures by the time the excavation reaches the water level in order to maintain the integrity of the in situ material. While the excavation is open, maintain the water level continuously, at least 2 feet below the working level. Operate dewatering system continuously until construction work below existing water levels is complete. Submit performance records weekly. Relieve hydrostatic head in previous zones below subgrade elevation in layered soils to prevent uplift.

### 3.2.5 Trench Excavation Requirements

Excavate the trench as recommended by the manufacturer of the pipe to be installed. Slope trench walls below the top of the pipe, or make vertical, and of such width as recommended in the manufacturer's printed installation manual. Provide vertical trench walls where no manufacturer's printed installation manual is available. Shore trench walls, cut back to a stable slope, or provide with equivalent means of protection for employees who may be exposed to moving ground or cave in, as determined by the Contractor’s Safety Engineer or other competent person; refer to USACE publication EM 385-1-1. Excavate trench walls which are cut back to at least the angle of repose of the soil. Give special attention to slopes which may be adversely affected by weather or moisture content. Do not exceed the trench width below the pipe top of 24 inches plus pipe outside diameter (O.D.) for pipes of less than 24 inches inside diameter, and do not exceed 36 inches plus pipe outside diameter for sizes larger than 24 inches inside diameter. Where recommended trench widths are exceeded, provide redesign, stronger pipe, or special installation procedures by the Contractor. The Contractor is responsible for the cost of redesign, stronger pipe, or special installation procedures without any additional cost to the Government.

#### 3.2.5.1 Bottom Preparation

Grade the bottoms of trenches accurately to provide uniform bearing and support for the bottom quadrant of each section of the pipe. Excavate bell holes to the necessary size at each joint or coupling to eliminate point bearing. Remove stones of 3 inch or greater in any dimension, or as recommended by the pipe manufacturer, whichever is smaller, to avoid point bearing.

#### 3.2.5.2 Removal of Unyielding Material

Where overdepth is not indicated and unyielding material is encountered in the bottom of the trench, remove such material 4 inch below the required grade and replaced with suitable materials as provided in paragraph BACKFILLING AND COMPACTION.

#### 3.2.5.3 Removal of Unstable Material

Where unstable material is encountered in the bottom of the trench, remove such material to the depth directed and replace it to the proper grade with select granular material as provided in paragraph BACKFILLING AND COMPACTION. When removal of unstable material is required due to the Contractor's fault or neglect in performing the work, the Contractor is responsible for excavating the resulting material and replacing it without additional cost to the Government.

#### 3.2.5.4 Excavation for Appurtenances

Provide excavation for manholes, catch-basins, inlets, or similar structures of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations as shown. Clean rock or loose debris and cut to a firm surface either level, stepped, or serrated, as shown or as directed. Remove loose disintegrated rock and thin strata. Specify removal of unstable material. When concrete or masonry is to be placed in an excavated area, take special care not to disturb the bottom of the excavation. Do not excavate to the final grade level until just before the concrete or masonry is to be placed.

### 3.2.6 Underground Utilities

The Contractor is responsible for movement of construction machinery and equipment over pipes and utilities during construction. Perform work adjacent to non-Government utilities as indicated in accordance with procedures outlined by utility company. Excavation made with power-driven equipment is not permitted within 2 feet of known Government-owned utility or subsurface construction. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, excavate by hand. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured. Support uncovered lines or other existing work affected by the contract excavation until approval for backfill is granted by the Contracting Officer. Report damage to utility lines or subsurface construction immediately to the Contracting Officer.

### 3.2.7 Structural Excavation

Ensure that footing subgrades have been inspected and approved by the Contracting Officer prior to concrete placement.

## 3.3 SELECTION OF BORROW MATERIAL

Select borrow material to meet the requirements and conditions of the particular fill or embankment for which it is to be used. Obtain borrow material from the borrow areas from approved private sources. Unless otherwise provided in the contract, the Contractor is responsible for obtaining the right to procure material, pay royalties and other charges involved, and bear the expense of developing the sources, including rights-of-way for hauling from the owners. Borrow material from approved sources on Government-controlled land may be obtained without payment of royalties. Unless specifically provided, do not obtain borrow within the limits of the project site without prior written approval. Consider necessary clearing, grubbing, and satisfactory drainage of borrow pits and the disposal of debris thereon related operations to the borrow excavation.

## 3.4 OPENING AND DRAINAGE OF EXCAVATION AND BORROW PITS

Except as otherwise permitted, excavate borrow pits and other excavation areas providing adequate drainage. Transport overburden and other spoil material to designated spoil areas or otherwise dispose of as directed. Provide neatly trimmed and drained borrow pits after the excavation is completed. Ensure that excavation of any area, operation of borrow pits, or dumping of spoil material results in minimum detrimental effects on natural environmental conditions.

## 3.5 SHORING

### 3.5.1 General Requirements

Submit a Shoring and Sheeting plan for approval 15 days prior to starting work. Submit drawings and calculations, certified by a registered professional engineer, describing the methods for shoring and sheeting of excavations. Finish shoring, including sheet piling, and install as necessary to protect workmen, banks, adjacent paving, structures, and utilities. Remove shoring, bracing, and sheeting as excavations are backfilled, in a manner to prevent caving.

### 3.5.2 Geotechnical Engineer

Hire a Professional Geotechnical Engineer to provide inspection of excavations and soil/groundwater conditions throughout construction. The Geotechnical Engineer is responsible for performing pre-construction and periodic site visits throughout construction to assess site conditions. The Geotechnical Engineer is responsible for updating the excavation, sheeting and dewatering plans as construction progresses to reflect changing conditions and submit an updated plan if necessary. Submit a monthly written report, informing the Contractor and Contracting Officer of the status of the plan and an accounting of the Contractor's adherence to the plan addressing any present or potential problems. The Contracting Officer is responsible for arranging meetings with the Geotechnical Engineer at any time throughout the contract duration.

## 3.6 GRADING AREAS

Where indicated, divide work into grading areas within which satisfactory excavated material will be placed in embankments, fills, and required backfills. Do not haul satisfactory material excavated in one grading area to another grading area except when so directed in writing. Place and grade stockpiles of satisfactory and unsatisfactory as specified. Keep stockpiles in a neat and well drained condition, giving due consideration to drainage at all times. Clear, grub, and seal by rubber-tired equipment, the ground surface at stockpile locations; separately stockpile excavated satisfactory and unsatisfactory materials. Protect stockpiles of satisfactory materials from contamination which may destroy the quality and fitness of the stockpiled material. If the Contractor fails to protect the stockpiles, and any material becomes unsatisfactory, remove and replace such material with satisfactory material from approved sources.

## 3.7 FINAL GRADE OF SURFACES TO SUPPORT CONCRETE

Do not excavate to final grade until just before concrete is to be placed. Only use excavation methods that will leave the foundation rock in a solid and unshattered condition. Roughen the level surfaces, and cut the sloped surfaces, as indicated, into rough steps or benches to provide a

satisfactory bond. Protect shales from slaking and all surfaces from erosion resulting from ponding or water flow.

## 3.8 GROUND SURFACE PREPARATION

### 3.8.1 General Requirements

Remove and replace unsatisfactory material with satisfactory materials, as directed by the Contracting Officer, in surfaces to receive fill or in excavated areas. Scarify the surface to a depth of 6 inches before the fill is started. Plow, step, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so that the fill material will bond with the existing material. When subgrades are less than the specified density, break up the ground surface to a minimum depth of 6 inches, pulverizing, and compacting to the specified density. When the subgrade is part fill and part excavation or natural ground, scarify the excavated or natural ground portion to a depth of 12 inches and compact it as specified for the adjacent fill.

### 3.8.2 Frozen Material

Do not place material on surfaces that are muddy, frozen, or contain frost. Finish compaction by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, or other approved equipment well suited to the soil being compacted. Moisten material as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used.

## 3.9 UTILIZATION OF EXCAVATED MATERIALS

Use satisfactory material removed from excavations, insofar as practicable, in the construction of fills, embankments, subgrades, shoulders, bedding (as backfill), and for similar purposes. Submit procedure and location for disposal of unused satisfactory material. Dispose surplus satisfactory excavated material not required for fill and unsatisfactory excavated material as specified in paragraph DISPOSITION OF SURPLUS MATERIAL. Stockpile and use coarse rock from excavations for constructing slopes or embankments adjacent to streams, or sides and bottoms of channels and for protecting against erosion. Do not dispose excavated material to obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.

## 3.10 BURIED TAPE AND DETECTION WIRE

### 3.10.1 Buried Warning and Identification Tape

Provide buried utility lines with utility identification tape. Bury tape 12 inches below finished grade; under pavements and slabs, bury tape 6 inches below top of subgrade.

### 3.10.2 Buried Detection Wire

Bury detection wire directly above non-metallic piping at a distance not to exceed 12 inches above the top of pipe. Extend the wire continuously and unbroken, from manhole to manhole. Terminate the ends of the wire inside the manholes at each end of the pipe, with a minimum of 3 feet of wire, coiled, remaining accessible in each manhole. Furnish insulated wire over its entire length. Install wires at manholes between the top of the corbel

and the frame, and extend up through the chimney seal between the frame and the chimney seal. For force mains, terminate the wire in the valve pit at the pump station end of the pipe.

## 3.11 FILLING, BACKFILLING AND COMPACTION

Place fill and backfill beneath and adjacent to any and all type of structures, in successive horizontal layers of loose material not more than 8 inches in depth, or in loose layers not more than 5 inches in depth when using hand-operated compaction equipment. Compact to at least 90 percent of laboratory maximum density for cohesive materials or 95 percent of laboratory maximum density for cohesionless materials, except as otherwise specified. Perform compaction in such a manner as to prevent wedging action or eccentric loading upon or against the structure. Moisture condition fill and backfill material to within range of +2 or -2 percent of optimum moisture content at the time of compaction.

Prepare ground surface on which backfill is to be placed and provide compaction requirements for backfill materials in conformance with the applicable portions of paragraphs GROUND SURFACE PREPARATION. Finish compaction by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment.

### 3.11.1 Trench Backfill

Backfill trenches to the grade shown. Do not backfill the trench until all specified tests are performed.

#### 3.11.1.1 Replacement of Unyielding Material

Replace unyielding material removed from the bottom of the trench with select granular material or initial backfill material.

#### 3.11.1.2 Replacement of Unstable Material

Replace unstable material removed from the bottom of the trench or excavation with select granular material placed in layers not exceeding 6 inches loose thickness.

#### 3.11.1.3 Bedding and Initial Backfill

Provide bedding of the type and thickness shown. Place initial backfill material and compact it with approved tampers to a height of at least one foot above the utility pipe or conduit. Bring up the backfill evenly on both sides of the pipe for the full length of the pipe. Take care to ensure thorough compaction of the fill under the haunches of the pipe. Except as specified otherwise in the individual piping section, provide bedding for buried piping in accordance with AWWA C600, Type 4, except as specified herein. Compact backfill to top of pipe to 95 percent of ASTM D698 maximum density. Provide plastic piping with bedding to spring line of pipe. Provide materials as follows:

##### 3.11.1.3.1 Class II

Coarse sands and gravels with maximum particle size of 1.5 inch, including various graded sands and gravels containing small percentages of fines, generally granular and noncohesive, either wet or dry. Soil Types GW, GP, SW, and SP are included in this class as specified in ASTM D2487.

3.11.1.3.2 Sand

Clean, coarse-grained sand classified as indicated.

3.11.1.3.3 Gravel and Crushed Stone

Clean, coarsely graded natural gravel, crushed stone or a combination thereof.

3.11.1.3.4 Pea Gravel

Durable particles composed of small, smooth, rounded stones or pebbles and graded within the following limits when tested in accordance with ASTM C136/C136M:

| Sieve | Percent Passing |
|---|---|
| 1/2 inch | 100 |
| 3/8 inch | 85 - 100 |
| No. 4 | 10 - 30 |
| No. 8 | 0 - 10 |
| No. 16 | 0 - 5 |

3.11.1.3.5 Crushed Aggregates

Crushed aggregates consist of durable particles obtained from an approved source and meeting the following requirements:

a. Materials of one product delivered for same construction activity from single source, unless otherwise approved by American Water Project Manager.

b. Non-plastic fines.

c. Los Angeles abrasion test wear not exceeding 45 percent when tested in accordance with ASTM C131/C131M.

d. Crushed aggregate shall have minimum of 90 percent of particles retained on No. 4 sieve with 2 or more crushed faces.

e. Crushed stone: Produced from oversize plant processed stone or gravel, sized by crushing to predominantly angular particles from naturally occurring single source. Uncrushed gravel is not acceptable materials for embedment where crushed stone is shown on applicable utility embedment drawing details.

f. Gradations, as follows:

(1) Percent Passing by Weight for Pipe
(2) Embedment by Ranges of Nominal Pipes Sizes

| Sieve | Pipe > 15" | Pipe 15" - 8" | Pipe < 8" |
|---|---|---|---|
| 1 inch | 95 | 100 | 100 |
| 3/4 inch | 60 - 90 | 90 - 100 | 100 |
| 1/2 inch | 25 - 60 | - | 90 - 100 |
| 3/8 inch | - | 20 - 55 | 40 - 70 |
| No. 4 | 0 - 5 | 0 - 10 | 0 - 15 |
| No. 8 | 0 | 0 - 5 | 0 - 5 |

3.11.1.4 Final Backfill

Fill the remainder of the trench, except for special materials for roadways, railroads and airfields, with satisfactory material. Place backfill material and compact as follows:

3.11.1.4.1 Roadways

Place backfill up to the required elevation as specified. Do not permit water flooding or jetting methods of compaction.

3.11.1.4.2 Sidewalks, Turfed or Seeded Areas and Miscellaneous Areas

Deposit backfill in layers of a maximum of 12 inches loose thickness, and compact it to 85 percent maximum density for cohesive soils and 90 percent maximum density for cohesionless soils. Do not permit compaction by water flooding or jetting. Apply this requirement to all other areas not specifically designated above.

3.11.2 Backfill for Appurtenances

After the manhole, catchbasin, inlet, or similar structure has been constructed, place backfill in such a manner that the structure is not be damaged by the shock of falling earth. Deposit the backfill material, compact it as specified for final backfill, and bring up the backfill evenly on all sides of the structure to prevent eccentric loading and excessive stress.

3.12 SPECIAL REQUIREMENTS

Special requirements for both excavation and backfill relating to the specific utilities are as follows:

3.12.1 Gas Distribution

Excavate trenches to a depth that will provide a minimum 18 inches of cover in rock excavation and a minimum 24 inch of cover in other excavation.

3.12.2 Water Lines

Excavate trenches to a depth that provides a minimum cover of 3 feet from the existing ground surface, or from the indicated finished grade, whichever is lower, to the top of the pipe.

### 3.12.3 Electrical Distribution System

Provide a minimum cover of 24 inches from the finished grade to direct burial cable and conduit or duct line, unless otherwise indicated.

## 3.13 EMBANKMENTS

### 3.13.1 Earth Embankments

Construct earth embankments from satisfactory materials free of organic or frozen material and rocks with any dimension greater than 3 inches. Place the material in successive horizontal layers of loose material not more than 8 inches in depth. Spread each layer uniformly on a soil surface that has been moistened or aerated as necessary, and scarified or otherwise broken up so that the fill will bond with the surface on which it is placed. After spreading, plow, disk, or otherwise break up each layer; moisten or aerate as necessary; thoroughly mix; and compact to at least 90 percent laboratory maximum density for cohesive materials or 95 percent laboratory maximum density for cohesionless materials. Backfill and fill material must be within the range of -2 to +2 percent of optimum moisture.

Compaction requirements for the upper portion of earth embankments forming subgrade for pavements are identical with those requirements specified in paragraph SUBGRADE PREPARATION. Finish compaction by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment.

## 3.14 SUBGRADE PREPARATION

### 3.14.1 Proof Rolling

Finish proof rolling on an exposed subgrade free of surface water (wet conditions resulting from rainfall) which would promote degradation of an otherwise acceptable subgrade. After stripping, proof roll the existing subgrade with six passes of a dump truck loaded with 4 cubic yards of soil. Operate the truck in a systematic manner to ensure the number of passes over all areas, and at speeds between 2-1/2 to 3-1/2 mph. When proof rolling, provide one-half of the passes made with the roller in a direction perpendicular to the other passes. Notify the Contracting Officer a minimum of 3 days prior to proof rolling. Perform proof rolling in the presence of the Contracting Officer. Undercut rutting or pumping of material as directed by the Contracting Officer.

### 3.14.2 Construction

Shape subgrade to line, grade, and cross section, and compact as specified. Include plowing, disking, and any moistening or aerating required to obtain specified compaction for this operation. Remove soft or otherwise unsatisfactory material and replace with satisfactory excavated material or other approved material as directed. Excavate rock encountered in the cut section to a depth of 6 inches below finished grade for the subgrade. Bring up low areas resulting from removal of unsatisfactory material or excavation of rock to required grade with satisfactory materials, and shape the entire subgrade to line, grade, and cross section and compact as specified. After rolling, do not show deviations for the surface of the subgrade for roadways greater than 1/2 inch when tested with a 12-foot straightedge applied both parallel and at right angles to the centerline of the area. Do not vary the elevation of the finish subgrade more than 0.05 foot from the established grade and cross section.

3.14.3 Compaction

Finish compaction by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment. Except for paved areas and railroads, compact each layer of the embankment to at least 90 percent of laboratory maximum density.

3.14.3.1 Subgrade for Pavements

Compact subgrade for pavements to at least 90 percentage laboratory maximum density for the depth below the surface of the pavement shown. When more than one soil classification is present in the subgrade, thoroughly blend, reshape, and compact the top 6 inch of subgrade.

3.14.3.2 Subgrade for Shoulders

Compact subgrade for shoulders to at least 90 percentage laboratory maximum density for the full depth of the shoulder.

3.15 FINISHING

Finish the surface of excavations, embankments, and subgrades to a smooth and compact surface in accordance with the lines, grades, and cross sections or elevations shown. Provide the degree of finish for graded areas within 0.1 foot of the grades and elevations indicated except that the degree of finish for subgrades specified in paragraph SUBGRADE PREPARATION. Finish gutters and ditches in a manner that will result in effective drainage. Finish the surface of areas to be turfed to a smoothness suitable for the application of turfing materials. Repair graded, topsoiled, or backfilled areas prior to acceptance of the work, and re-established grades to the required elevations and slopes.

3.15.1 Subgrade and Embankments

During construction, keep embankments and excavations shaped and drained. Maintain ditches and drains along subgrade to drain effectively at all times. Do not disturb the finished subgrade by traffic or other operation. Protect and maintain the finished subgrade in a satisfactory condition until ballast, subbase, base, or pavement is placed. Do not permit the storage or stockpiling of materials on the finished subgrade. Do not lay subbase, base course, ballast, or pavement until the subgrade has been checked and approved, and in no case place subbase, base, surfacing, pavement, or ballast on a muddy, spongy, or frozen subgrade.

3.15.2 Capillary Water Barrier

Place a capillary water barrier under concrete floor and area-way slabs grade directly on the subgrade and compact with a minimum of two passes of a hand-operated plate-type vibratory compactor.

3.15.3 Grading Around Structures

Construct areas within 5 feet outside of each building and structure line true-to-grade, shape to drain, and maintain free of trash and debris until final inspection has been completed and the work has been accepted.

## 3.16 PLACING TOPSOIL

On areas to receive topsoil, prepare the compacted subgrade soil to a 2 inches depth for bonding of topsoil with subsoil. Spread topsoil evenly to a thickness of 6 inch and grade to the elevations and slopes shown. Do not spread topsoil when frozen or excessively wet or dry. Obtain material required for topsoil in excess of that produced by excavation within the grading limits from offsite areas.

## <AM#0002>3.17 TIRE WASH REMOVAL

Remove tire wash, cap water service and backfill with structural fill.

## </AM#0002>3.18 TESTING

Perform testing by a Corps validated commercial testing laboratory or the Contractor's validated testing facility. Submit qualifications of the Corps validated commercial testing laboratory or the Contractor's validated testing facilities. If the Contractor elects to establish testing facilities, do not permit work requiring testing until the Contractor's facilities have been inspected, Corps validated and approved by the Contracting Officer.

a. Determine field in-place density in accordance with ASTM D1556/D1556M, ASTM D2167, or ASTM D6938. When ASTM D6938 is used, check the calibration curves and adjust using only the sand cone method as described in ASTM D1556/D1556M. ASTM D6938 results in a wet unit weight of soil in determining the moisture content of the soil when using this method.

b. Check the calibration curves furnished with the moisture gauges along with density calibration checks as described in ASTM D6938; check the calibration of both the density and moisture gauges at the beginning of a job on each different type of material encountered and at intervals as directed by the Contracting Officer. ASTM D2937, use the Drive Cylinder Method only for soft, fine-grained, cohesive soils. When test results indicate, as determined by the Contracting Officer, that compaction is not as specified, remove the material, replace and recompact to meet specification requirements.

c. Perform tests on recompacted areas to determine conformance with specification requirements. Appoint a registered professional civil engineer to certify inspections and test results. State that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests. The following number of tests, if performed at the appropriate time, will be the minimum acceptable for each type operation.

### 3.18.1 Fill and Backfill Material Gradation

One test per 500 cubic yards stockpiled or in-place source material. Determine gradation of fill and backfill material in accordance with ASTM C136/C136M.

### 3.18.2 In-Place Densities

a. One test per 2500 square feet, or fraction thereof, of each lift of fill or backfill areas compacted by other than hand-operated machines.

b. One test per 500 square feet, or fraction thereof, of each lift of fill or backfill areas compacted by hand-operated machines.

c. One test per 100 linear feet, or fraction thereof, of each lift of embankment or backfill for roads.

3.18.3 Moisture Contents

In the stockpile, excavation, or borrow areas, perform a minimum of two tests per day per type of material or source of material being placed during stable weather conditions. During unstable weather, perform tests as dictated by local conditions and approved by the Contracting Officer.

3.18.4 Optimum Moisture and Laboratory Maximum Density

Perform tests for each type material or source of material including borrow material to determine the optimum moisture and laboratory maximum density values. One representative test per 500 cubic yards of fill and backfill, or when any change in material occurs which may affect the optimum moisture content or laboratory maximum density.

3.18.5 Tolerance Tests for Subgrades

Perform continuous checks on the degree of finish specified in paragraph SUBGRADE PREPARATION during construction of the subgrades.

3.18.6 Displacement of Sewers

After other required tests have been performed and the trench backfill compacted to 2 feet above the top of the pipe, inspect the pipe to determine whether significant displacement has occurred. Conduct this inspection in the presence of the Contracting Officer. Inspect pipe sizes larger than 36 inches, while inspecting smaller diameter pipe by shining a light or laser between manholes or manhole locations, or by the use of television cameras passed through the pipe. If, in the judgment of the Contracting Officer, the interior of the pipe shows poor alignment or any other defects that would cause improper functioning of the system, replace or repair the defects as directed at no additional cost to the Government.

3.19 DISPOSITION OF SURPLUS MATERIAL

Remove surplus material and excavated unsatisfactory material not required or suitable for filling or backfilling, and brush, refuse, stumps, roots, and timber from Government property and properly disposed of in accordance with all applicable laws and regulations.

-- End of Section --

W9126G26RA028-0003

# LACKLAND AIR FORCE BASE, TEXAS

# AIRMEN TRAINING COMPLEX
# DINING CLASSROOM FACILITY 4

## FOUNDATION AND PAVEMENT DESIGN ANALYSIS

**PREPARED BY**


**U.S. ARMY CORPS OF ENGINEERS**

**FORT WORTH DISTRICT**

**ENGINEERING AND CONSTRUCTION DIVISION**

**GEOTECHNICAL BRANCH**

**CESWF-EC-G**


**AUGUST 2020**

# LACKLAND AIR FORCE BASE, TEXAS
# ATC DINING CLASSROOM FACILITY 4

## FOUNDATION AND PAVEMENT DESIGN ANALYSIS

***CESWF-EC-G provided foundation and pavement design recommendations for this project in a report dated August 2017. The report has been revised to provide recommendations for pavement structures included in the 15% design submittal received on 28 September 2017, exclude recommendations for the geotextile originally provided for the subdrainage system, exclude recommendations for the utility tunnel, and include sheet B102. The report was further amended in January 2018 to incorporate revisions to B102. This report was further amended in June 2018 to incorporate recommended values for LPILE parameters. The report was amended in October 2018 to include recommendations for the utility tunnel and correction to sheet B201. The report was amended in August 2020 to incorporate revisions to B-102 and to include sheets B-103 and B-104.***

**1. <u>General.</u>** The purpose of this report is to provide subsurface information, and foundation and pavement design and construction considerations, guidance, and requirements for the new Airmen Training Complex (ATC) Dining Classroom Facility 4 at Lackland Air Force Base, Texas. The new facility is the fourth of its type to be designed and constructed as part of the Airmen Training Complex (ATC) (Basic Military Training (BMT) Campus) program at Lackland Air Force Base, and the second at the ATC West Campus. The ATC Dining Classroom Facility 4 is anticipated to be three-story structure and will be designed with a maximum total gross area of approximately 106,532 GSF, based on information available at the time of this report. A dining facility, to accommodate 674 trainees, will be situated on the first level, along with food preparation areas, storage rooms, administrative areas, restrooms, and mechanical/electrical/communications rooms. The second and third levels will each accommodate thirteen 120-trainee classrooms (to accommodate up to 1,920 trainees simultaneously in addition to the 674 trainees in the first floor dining facility), as well as restrooms, and mechanical/electrical/communications rooms. It is anticipated that the ATC Dining Classroom Facility 4 will incorporate a structural framing system consisting of steel

columns and beams and a structural steel roof deck. Exterior wall construction is anticipated to include of 7-inch thick insulated precast concrete sandwich panels, and 2-inch thick, insulated pre-finished metal wall panels. The ground level will be structurally supported over a void and crawl space, and will be post-tensioned concrete spanning to concrete grade beams. New rigid pavement structures are anticipated to include all-weather fire/emergency medical vehicle access lanes and concrete aprons in front of trash dumpster pads and loading docks, and mechanical yards. New flexible pavement structures are anticipated to include privately-owned vehicle (POV) parking spaces. Support features include sidewalks, new utilities, landscaping, and site improvements.

An Equipment Building (mechanical/electrical) is anticipated to be constructed as part of the adjoining Airmen Training Complex – Dormitory 7 located immediately to the east of the ATC Dining Classroom Facility 4. Mechanical and electrical utilities will be connected between the Equipment Building and the ATC Dining Classroom Facility 4 (and other ATC West Campus facilities) through a network of tunnels. The bottom of the tunnels (which are approximately 10-foot by 10-foot square conduits) are anticipated to be situated approximately 15 feet below existing grade.

The ATC Dining Classroom Facility 4 project site is located in the northwest central part of Lackland Air Force Base. Specifically, the site is generally bounded to the east by Carswell Avenue, with an open field to the north, south and west of the proposed project area. The nearest street on the north, south and west are Luke Boulevard, Truemper Street, and Springvale Drive, respectively. The project site is an open field that is in part used for physical training/athletic activities (particularly in the eastern part of the site). Apart from a few scattered trees, brush, and utility poles, the site is generally an open, grass-covered area. Topographically, the majority of the ATC Dining Classroom Facility 4 site is very level, generally sloping very slightly from north-northwest to south-southeast. The existing gradient in the area of ATC Dining Classroom Facility 4 is generally less than 1 percent, although localized gradients (e.g., for drainage ditches which cross the site) are larger ($\geq$ 10 percent).

According to a recent survey, existing grades within the proposed ATC Dining Classroom Facility 4 building footprint range from approximately 778 feet to 779 feet National Geodetic Vertical Datum (NGVD). Existing grades across the entire ATC Dining Classroom Facility 4 project site range from approximately 778 feet to 783 feet (NGVD). A finish floor elevation for the ATC Dining Classroom Facility 4 was not known at the time of this report.

**2. Subsurface Investigation.** The U.S. Army Corps of Engineers, Fort Worth District, drilled seven (7) test holes at the ATC Dining Classroom Facility 4 project site between April and May 2017. Specifically, borings 8A4C-1687 through 8A4C-16790, and 10A-1691 through 10A-1693 were drilled at the ATC Dining Classroom Facility 4 project site to determine subsurface conditions and to obtain representative soil and rock samples for laboratory testing. Test hole advancement and sample recovery was performed using 8-inch by 4¼-inch inner hollow stem auger and inner barrel sampler, 6-inch roller bit, a 4-inch gator bit, a nominal 3-inch diameter shelby tube sampler, and 2-inch diameter splitspoon sampler. Samples recovered from selective borings were sealed in airtight containers and taken to the laboratory of TEAM Consultants, Incorporated (Arlington, Texas) for testing. Borings were drilled to total depths ranging from 10.0 feet to 80.6 feet below existing grade.

The field investigation was performed using a Failing 1500 truck-mounted drill rig, a Gus Pech 1300C truck-mounted drill rig, and conventional drilling attachments. Results of the field investigation are shown on the Boring Locations, Sheet B101, and on the Logs of Borings, Sheets, B201 through B202 (Appendix A).

a. Groundwater Conditions. Groundwater conditions were monitored during drilling operations and after an observation periods of up to 24 hours. Static water levels were measured in three of the seven borings drilled at the ATC Dining Classroom Facility 4 project site, specifically, at a depth of 8.6 feet after 90 minutes in 8A4C-1687 and at a depth of 8.7 feet after 24 hours in 8A4C-1689. The depth to groundwater encountered in 8A4C-1688 was not recorded. It should also be noted that some borings were backfilled immediately after drilling was completed and before a static water level could develop.

Tabulated below is the static level measured at the time of the field investigation. It should be noted that groundwater conditions are relative to the time of drilling, annual precipitation, and drainage conditions at the site.

| Boring | Static Level, feet |
|---|---|
| 8A4C-1687 | 8.6 |
| 8A4C-1689 | 8.7 |

b. Dynamic Cone Penetrometer Testing. Dynamic Cone Penetrometer (DCP) testing was performed for pavement design considerations at the ATC Dining Classroom Facility 4 project site in borings 10A-1691, 10A-1692, and 10A-1693. Results of DCP testing are presented in Appendix D and discussed in paragraphs 4 and 5.

c. Soil Resistivity Testing. A soil resistivity test was performed during the geotechnical field investigation at the approximate location of boring 8A4C-1688. The resistivity value measured in the field at this location is 23.94 ohm-cm. Soil resistivity test results are provided in the 'Remarks' column of the aforementioned log of boring (Appendix A).

**3. Subsurface Conditions.**

a. General Geology. Lackland Air Force Base is located on the western edge of San Antonio in south central Texas. Physiographically, the base is situated in the West Gulf Coastal Plains Section of the Coastal Plains physiographic province. The topography is characterized by a gently rolling land surface that slopes southeastward toward the Gulf of Mexico. Local drainage flows into Leon Creek along the eastern boundary of the base.

Primary material underlying Lackland Air Force Base consists of strata belonging to three geologic formations. The Taylor Marl, found only along the northern edge of the base, is Cretaceous in age, and consists of soft to moderately hard, calcareous shale. The southern one-third of the base is underlain by the Navarro Group, Cretaceous in age, and consisting of sandy, silty clay shale. The tertiary age Midway Group underlies the remainder of the base and

consists of glauconitic sands and clays with occasional bentonite in the lower part, and highly plastic montmorillonitic clay shale in the upper part.

Overburden materials have an average thickness of about 20 feet and generally consist of silty, limy clay, overlying chert and limestone gravel. Varying amounts of clay are present in the gravel. Groundwater is usually present in the gravel beds immediately above the primary strata.

Lackland Air Force Base is located within the Balcones fault zone, an area characterized by numerous parallel and en echelon faults, usually downthrown to the south and traceable up to 30 to 40 miles. Faulting and jointing associated with the Balcones are present within the base area.

b. Site Conditions. The ATC Dining Classroom Facility 4 project site is an open field that is in part used for physical training/athletic activities. Apart from a few scattered trees, brush, and utility poles, the site is generally an open, grass-covered area. It is anticipated that any existing surface obstacles to construction will be demolished in conjunction with the new project construction. Topographically, the majority of the ATC Dining Classroom Facility 4 site is very level, generally sloping very slightly from north-northwest to south-southeast. The existing gradient in the area of ATC Dining Classroom Facility 4 is generally less than 1 percent, although localized gradients (e.g., for drainage ditches which cross the site) are larger ($\geq$ 10 percent). According to a recent survey, existing grades within the proposed ATC Dining Classroom Facility 4 building footprint range from approximately 778 feet to 779 feet (NGVD). Existing grades across the entire ATC Dining Classroom Facility 4 project site range from approximately 777 feet to 783 feet (NGVD). A finish floor elevation for the ATC Dining Classroom Facility 4 was not known at the time of this report.

Stratigraphically, the site is characterized by typically high plasticity clay (CH) and clayey and sandy gravel/cobble overburden strata, and by deeper formations of weathered and unweathered clay shale primary. NOTE: Stratigraphic contact depths referenced herein are measured with respect to the original (pre-site construction) existing grades (i.e., the grades

existing at the time of the geotechnical field investigation).

The uppermost overburden stratum typically consists of high plasticity clay (CH). The highly plastic overburden clay is typically very stiff to hard, dry to moist, black to dark brown within the upper 18.6 feet, transitioning to brown, light brown and white (limy) thereafter. The upper, black to dark brown overburden clay is typically slightly sandy and slightly gravelly, while the lower, brown to light brown overburden clay is generally, silty, slightly sandy to sandy, slightly gravelly to gravelly, and slightly limy to limy. It should be noted that sandy and gravelly seams have been noted within the overburden clay. Liquid limits measured from representative samples of the highly plastic clays collected across the ATC Dining Classroom Facility 4 project site range from 31 to 91 percent, plastic limits vary from 13 to 28 percent (with plasticity indices ranging from 18 to 66 percent), and in situ moisture contents vary between 14 and 35 percent. It should be noted that within some borings at depths between approximately 5 and 9 feet the yellow brown to gray clayey soils are described with significant amounts of caliche. These caliched clayey soils are much lower in plasticity than the overlying dark brown to gray and yellow brown clayey soils, and are determined to be of low to medium plasticity. Liquid limits measured from representative samples of the low to medium plasticity caliched clayey soils range from 32 to 65 percent, plastic limits vary from 13 to 19 percent (with plasticity indices ranging from 19 to 46 percent), and in situ moisture contents vary between 13 and 38 percent. It is not known whether the caliche content in clayey soils in this depth range is naturally-occurring or if the caliche is possibly lime that may have been mixed/injected into the subsurface materials previously to mitigate the high shrink-swell soil characteristics.

A stratum of clayey and sandy gravel and cobble is typically present between the high plasticity clay overburden and the underlying clay shale primary. The top of the gravel and cobble stratum was encountered at depths ranging from approximately 4.0 to 11.3 feet below existing grade at the boring location. In borings that penetrated the underlying clay shale primary, the gravel/cobble varies in thickness from approximately 6.2 to 10.0 feet at the

locations of borings drilled within the proposed ATC Dining Classroom Facility 4 building footprint. The gravel/cobble is described as medium dense to very dense, coarse to fine, dry to moist, and brown to yellow brown to light brown to light gray (clay and sand matrix), with caliche noted. Cobbles up to at least 6 inches in diameter have been recovered from the gravel/cobble stratum during USACE Fort Worth District geotechnical subsurface investigations at Lackland Air Force Base. **It should be noted that the gravel/cobble stratum is a known water-bearing stratum at Lackland Air Force Base (as indicated by the water levels measured during and after completion of drilling in the boring noted in Paragraph 2.a., above).** Atterberg limits were not determined for the samples of the clayey and sandy matrix materials of the gravel/cobble stratum (and seams within the high plasticity clay overburden clay) collected across the ATC Dining Classroom Facility 4 project site.

Beneath the overburden materials are formations of weathered and unweathered clay shale primary. The top of the weathered clay shale primary was encountered at depths ranging from 11.2 to 18.6 feet below existing grade at the boring locations. The weathered clay shale is yellow brown and light gray to strong brown, very soft to soft (rock classification), massive, silty, noncalcareous, with blocky structure, scattered arenaceous zones, and limonitic seams. The weathered clay shale is fractured throughout. The fractures are low to high-angle, weakly to well-healed (with calcite or gypsum); slickensides are also noted within some fractures. The clay shale typically becomes less weathered at depths between approximately 56.8 to 61.2 feet below existing grade, with layers of olive to dark gray slightly weathered clay shale interbedded with the yellow brown and gray weathered material. This is considered a transitional zone between the fully weathered clay shale primary and the essentially unweathered (uniformly dark gray) clay shale. This decrease in weathering is reflected by a moderate increase in strength of the clay shale primary materials within this transitional zone. Liquid limits measured from representative samples of the weathered clay shale primary collected at the ATC Dining Classroom Facility 4 project site range from 84 to 95 percent, plastic limits of 25 percent (with plasticity indices ranging from 59 to 70 percent), and in situ

moisture contents vary between 27 and 29 percent. The top of the dark gray, transitional slightly weathered to essentially unweathered (transitional/unweathered) clay shale was encountered at depths ranging from 56.8 to 61.2 feet below existing grade. Liquid limits measured from representative samples of the transitional/unweathered clay shale primary collected at the ATC Dining Classroom Facility 4 project site range from 79 to 93 percent, plastic limits vary from 24 to 28 percent (with plasticity indices ranging from 52 to 66 percent), and in situ moisture contents vary between 24 and 28 percent.

Subsurface conditions representative of the ATC Dining Classroom Facility 4 project site are shown on the logs of borings, Sheets B201 and B202 (Appendix A). The legend on the individual boring logs show overburden materials as classified in the laboratory using procedures presented in ASTM D 2488. It should be noted that the actual interface between material types may be far more gradual or abrupt than presented; therefore, actual subsurface conditions in areas not sampled may differ from those predicted. The nature and extent of variations across the sites may not become evident until construction commences, and the actual construction process may alter subsurface conditions as well. If variations become evident at the time of construction, CESWF-EC-G should be contacted to determine if the recommendations presented in this report need to be reevaluated.

**4. Testing.**

a. Laboratory Testing. Representative soil and rock samples recovered from selective test holes were subjected to laboratory testing for identification, moisture content, grain-size distribution, Atterberg limits, density, strength, and controlled expansion-consolidation. The accumulative test results are tabulated and presented in Appendix C. Results of identification and moisture content testing are shown on the individual boring logs, Appendix A.

Results of laboratory testing performed on samples obtained from the ATC Dining Classroom Facility 4 site are presented graphically in Appendix B as follows: Plasticity characteristics are shown on Plate 1, Plasticity Chart. Moisture content values of representative samples are shown with respect to depth on Plate 2. Atterberg limits test results

are shown with respect to depth on Plate 3. Dry density values of representative undisturbed samples and their corresponding moisture contents are shown with respect to depth on Plate 4. Ultimate compressive strengths of the clay shale primary are shown with respect to depth on Plate 5.

(1) Shear Strength Testing. Shear strength characteristics of the high plasticity clay overburden and clay shale primary were analyzed in the laboratory using one-point unconsolidated-undrained triaxial compression testing, confining the specimens to overburden pressure and then loading to failure. Tabulated below are the ultimate compressive strengths and respective dry densities of the high plasticity clay overburden and clay shale primary specimens. Shear strength test results are also presented in Appendix C at the end of this report.

| Boring | Depth, feet | $\gamma_d$, pcf | $Q_u$, tsf | Material Type |
|---|---|---|---|---|
| 8A4C-1687 | 63.3 | 94.5 | 5.40 | Transitional/Unweathered Shale |
| 8A4C-1687 | 67.2 | 98.3 | 8.97 | Transitional/Unweathered Shale |
| 8A4C-1688 | 61.9 | 96.8 | 9.01 | Transitional/Unweathered Shale |
| 8A4C-1688 | 63.2 | 98.3 | 9.01 | Transitional/Unweathered Shale |
| 8A4C-1688 | 66.6 | 99.9 | 9.69 | Transitional/Unweathered Shale |
| 8A4C-1688 | 79.1 | 101.0 | 14.28 | Transitional/Unweathered Shale |
| 8A4C-1689 | 3.0 | 86.6 | 0.80 | CH Clay Overburden |
| 8A4C-1689 | 9.0 | 117.8 | 1.75 | CL Clay Overburden |
| 8A4C-1689 | 49.6 | 94.3 | 6.53 | Weathered Shale |
| 8A4C-1689 | 65.5 | 101.6 | 9.95 | Transitional/Unweathered Shale |
| 8A4C-1690 | 61.1 | 97.2 | 9.00 | Transitional/Unweathered Shale |
| 8A4C-1690 | 69.6 | 99.5 | 8.85 | Transitional/Unweathered Shale |

(2) Controlled Expansion-Consolidation Testing and Swell Pressure Testing. Controlled expansion-consolidation (CEC) testing was performed on one specimens of high plasticity (CH) clay overburden, one specimen of low plasticity (CL) clay overburden, and two specimens of weathered clay shale primary collected at the ATC Dining Classroom Facility 4 site.

A specimen of high plasticity (CH) clay overburden collected at a depth of 3.0 feet within boring 8A4C-1689 was subjected to controlled expansion-consolidation testing. This

high plasticity clay specimen has a liquid limit of 87 percent, a plastic limit of 23 percent (PI = 64 percent), and natural moisture content of approximately 29 percent. An expansion pressure ($p_{exp}$) of approximately 1.5 tsf was recorded during CEC testing of the low plasticity clay specimen. Based on CEC test results, the low plasticity clay specimen collected at a depth of 3.0 feet within boring 8A4C-1689 has a very high expansion potential ($C_s$ = 0.098; $p_{exp}/p_0$ = 8.0) and a high consolidation potential ($C_c$ = 0.250).

A specimen of low plasticity (CL) clay overburden collected at a depth of 9.0 feet within boring 8A4C-1689 was subjected to controlled expansion-consolidation testing. This low plasticity clay specimen has a liquid limit of 31 percent, a plastic limit of 13 percent (PI = 18 percent), and natural moisture content of approximately 14 percent. An expansion pressure ($p_{exp}$) of approximately 0.3 tsf was recorded during CEC testing of the low plasticity clay specimen. Based on CEC test results, the low plasticity clay specimen collected at a depth of 9.0 feet within boring 8A4C-1689 has a low expansion potential ($C_s$ = 0.016; $p_{exp}/p_0$ = 0.4) and a low consolidation potential ($C_c$ = 0.076). Since the low plasticity clayey soils with caliche as tested in this specimen is uncharacteristically low in terms of their shrink-swell characteristics, it is considered a possibility that these materials may potentially have been treated with lime at some prior time (as evidenced by the lime/caliche nodules). As the overlying soils are not specifically described as fill, however, the prior lime treatment of the soils is limited to speculation.

Controlled expansion-consolidation testing was performed on two specimens of the weathered clay shale primary. A specimen of weathered clay shale primary collected at a depth of 42.7 feet within boring 8A4C-1688 was subjected to controlled expansion-consolidation testing. This weathered clay shale primary specimen has a liquid limit of 95 percent, a plastic limit of 25 percent (PI = 70 percent), and a natural moisture content of approximately 29 percent. An expansion pressure ($p_{exp}$) of approximately 1.0 tsf was recorded during CEC testing on this weathered shale primary specimen. Based on CEC test results, the weathered clay shale primary specimen collected at a depth of 42.7 feet within boring 8A4C-

1688 has a moderate to very high expansion potential ($C_s$ = 0.07; $p_{exp}/p_0$ = 0.4) and a moderate consolidation potential ($C_c$ = 0.150). Controlled expansion-consolidation testing also was performed on a weathered clay shale primary specimen collected at a depth of 49.6 feet within boring 8A4C-1689. This weathered clay shale primary specimen has a liquid limit of 84 percent, a plastic limit of 25 percent (PI = 59 percent), and a natural moisture content of approximately 27 percent. An expansion pressure ($p_{exp}$) of approximately 1.0 tsf was recorded during CEC testing on this weathered shale primary specimen. Based on the CEC test results, the weathered clay shale specimen collected at a depth of 49.6 feet within boring 8A4C-1689 has a moderate to very high expansion potential ($C_s$ = 0.077; $p_{exp}/p_0$ = 0.3) and a moderate consolidation potential ($C_c$ = 0.155).

Controlled expansion-consolidation testing was not performed on specimens of the transitional/unweathered clay shale primary.

Controlled Expansion-Consolidation Tests

| Boring | Depth, feet | LL & PI | | $P_{exp}$, tsf | $P_{exp}/P_o$ | $C_s$ & $C_c$ | | Material Type |
|---|---|---|---|---|---|---|---|---|
| 8A4C-1689 | 3.0 | 87 | 23 | 1.5 | 8.0 | 0.098 | 0.250 | CH Clay Overburden |
| 8A4C-1689 | 9.0 | 31 | 18 | 0.3 | 0.4 | 0.016 | 0.076 | CL Clay Overburden |
| 8A4C-1688 | 42.7 | 95 | 70 | 1.0 | 0.4 | 0.066 | 0.150 | Weathered Shale |
| 8A4C-1689 | 49.6 | 84 | 59 | 1.0 | 0.3 | 0.077 | 0.155 | Weathered Shale |

b. Field Testing. Dynamic Cone Penetrometer (DCP) testing was performed for pavement design considerations at the ATC Dining Classroom Facility 4 project site in borings 10A-1691, 10A-1692, and 10A-1693. A DCP consists of a steel rod with a steel cone attached to one end and a sliding single-mass hammer. For this project, the DCP test was performed by driving the steel cone into the soil using a 10.1-pound sliding hammer dropped from a height of 22.6 inches (574 millimeters). The number of blows required for each 0.4 inch (10-mm) or higher of penetration was recorded as the "penetration per blow set"; therefore, the more penetration achieved per blow indicates that a "weaker" soil layer was

encountered. Typically, penetration measurements are taken to a depth of 39.4 inches (1,000 millimeters) or when refusal is achieved. Refusal is defined as the point when the cone cannot penetrate the soil more than 0.4 inches (10 millimeters). Presented below are the average in situ strength parameters derived from the DCP tests. DCP test results are also presented in Appendix D at the end of this report.

| Depth, in | CBR, % | k, pci |
|---|---|---|
| 0 – 6 | 6 - 9 | 137 - 169 |
| 6 – 12 | 8 - 12 | 176 - 224 |
| >12 | 5 - 17 | 135 - 273 |

**5. Discussions.** The following discussions are provided in support of the foundation and pavement design recommendations made for the proposed ATC Dining Classroom Facility 4.

a. Soil Activity Considerations. The ATC Dining Classroom Facility 4 site is characterized by a typically high plasticity clay and clayey and sandy gravel/cobble overburden strata that are further underlain by formations of weathered and unweathered clay shale primary. The typically high plasticity overburden clay was encountered to a depth of up to 18.6 feet below existing grade; the overburden clays have liquid limits ranging from 31 to 91 percent, plastic limits ranging from 13 to 28 percent (with plasticity indices varying from 18 to 66 percent), and in situ moisture contents ranging from 14 to 35 percent. (It should be noted that the lower plasticity and caliched clayey soils (CL) were encountered in select borings at depths typically between 4.0 and 18.6 feet below existing grade; the clayey soils at a depth of up to 8 feet are very highly expansive, as discussed in Section 3.b., above.) The top of the underlying clayey and sandy gravel/cobble stratum was encountered at depths ranging from 4.0 feet to 11.3 feet below existing grade at the test hole locations and ranges from approximately 6.2 to 10.0 feet in thickness at the locations of test holes drilled across the proposed building footprint [the underlying weathered clay shale primary was not penetrated (thus providing a gravel/cobble stratum thickness) in any of the “10A-” pavement borings drilled outside of the proposed building footprint]. Atterberg limits were not determined for the specimens of the clayey and sandy matrix soils within the gravel cobble stratum. The top of the weathered clay

shale was encountered at depths ranging from 11.2 feet to 18.6 feet below existing grade at the test hole locations; specimens of the weathered clay shale primary have liquid limits ranging from 84 to 95 percent, plastic limit of 25 percent (with plasticity indices varying from 59 to 70 percent), and in situ moisture contents ranging from 27 to 29 percent. The top of the dark gray, transitional slightly weathered to essentially unweathered (transitional/unweathered) clay shale was encountered at depths ranging from 56.8 to 61.2 feet below existing grade. Liquid limits measured from representative samples of the transitional/unweathered clay shale primary collected at the ATC Dining Classroom Facility 4 project site range from 79 to 93 percent, plastic limits vary from 24 to 28 percent (with plasticity indices ranging from 52 to 66 percent), and in situ moisture contents vary between 24 and 28 percent. Moisture content and Atterberg limits test results indicate that these materials are potentially moisture deficient throughout the total depth investigated (74.5 feet below existing grade).

The results of controlled expansion-consolidation testing performed on specimens of the low to high plasticity clay (CL to CH, respectively) overburden soils and the weathered and transitional/unweathered clay shale primary collected at the ATC Dining Classroom Facility 4 project site are discussed in Paragraph 4.a.(2), above. In addition, extensive controlled expansion-consolidation testing was recently performed for the adjoining Airmen Training Complex 7 (Dormitory 7), in late 2013 and early 2014 for the neighboring ATC – West Campus Airmen Training Complex 5 (Dormitory 5) and ATC Dining Classroom Facility 3. The stratigraphy and materials properties (Atterberg limits and in situ moisture content ranges) of the representative specimens collected at the ATC Dormitory 5 and TC Dining Classroom Facility 4 sites are very similar to those collected at the ATC Dining Classroom Facility 4 site. Therefore, the expansive soils analysis also considers the controlled expansion-consolidation testing data collected at the adjoining Airmen Training Complex project sites (and the laboratory testing data collected at the remaining ATC – West Campus project sites) to supplement the testing data for the current project. Based on the results of controlled expansion-consolidation testing conducted on the selected shelby tube and core specimens, the

clay overburden has a very high potential for expansion and the weathered and transitional/unweathered clay shale primary have a moderate to very high potential for expansion. Also, based on the cited testing data, the clay overburden has a moderate to very high potential for consolidation, the weathered clay shale has a moderate potential for consolidation. No controlled expansion consolidation tests were performed on the transitional/unweathered clay shale.

An expansive soils analysis was performed to quantify the response of the active clay overburden and clay shale primary when subjected to increased load conditions during periods of seasonal moisture fluctuations. In the analysis, the plastic overburden soils and clay shale primary are assumed to be in a saturated condition, and initially, surcharge loads (fill and building) were neglected. Due to the fractured nature of the clay shale primary, particularly in the weathered zone, and the results of the previously discussed Atterberg limits, moisture content, and controlled expansion-consolidation testing, an active zone potentially extending to at least 65 feet below existing grade was considered (approximately the full anticipated length of the pier foundations, as discussed further in Paragraphs 5.b. and 6.a., below). The expansive soils analysis considers the following idealized stratigraphy: 0.0 feet to 5.0 feet – dark brown to black and yellow brown to gray high plasticity (CH) clay; 5.0 feet to 15.0 feet – medium to high plasticity clay (CL to CH, respectively) and clayey gravel/cobble; 15.0 feet to 58.0 feet – yellow brown and gray weathered clay shale; 58.0 feet to 65.0+ feet – yellow brown and gray to dark gray weathered to transitional/unweathered clay shale. The expansive soils analysis is based on the following material properties, by layer/depth interval:

| Depth, feet | LL | PI | $P_{exp}$, tsf | $P_{exp}/P_o$ | $C_s$ | $C_c$ | Material Type |
|---|---|---|---|---|---|---|---|
| 2.0 – 5.0 | 87 | 23 | 1.5 | 8.0 | 0.098 | 0.250 | CH Clay Overburden[1] |
| 5.0 – 15.0 | 31 | 18 | 0.3 | 0.4 | 0.016 | 0.076 | CL Clay Overburden[2] |
| 15.0 – 58.0 | 98 | 67 | 1.0 | 1.9 | 0.102 | 0.226 | Weathered Shale[3] |
| 58.0 – 65.0 | 89 | 64 | 3.0 | 0.9 | 0.070 | 0.145 | Weath. to Trans./UW Shale[4] |

1. Boring 8A4C-1689, specimen ST-1 (sample depth = 3.0 feet) – this investigation;
2. Boring 8A4C-1689, specimen ST-2 (sample depth = 9.0 feet) – this investigation;

3. Boring 8A4C-1688, specimen ST-1 (sample depth = 17.0 feet) – ATC Dormitory 7 investigation;
4. Boring 8A4C-1645, specimen C-5 (sample depth = 55.6 feet) – ATC Dormitory 5 investigation.

Based on these conditions, the heave potential of the overburden and primary materials within an active zone equal to 65 feet was determined to be approximately 3.3 inches. A residual heave potential of 2.7 inches is anticipated even with a building surcharge of 100 psf. Less than an inch of heave (for both surface loading conditions) is attributable to the weathered clay shale. The settlement potential of the overburden clay and clay shale primary is anticipated to be about 1 inch considering a building surcharge of 100 psf. Considering fill surcharges (in addition to the building surcharge) ranging from 1 to 5 feet in thickness, the settlement potential of the overburden clay and clay shale primary is anticipated to range from approximately 1.6 inches to 3.3 inches. Fill surcharges exceeding 5 feet are not anticipated, however, settlement potentials for greater fill surcharges can be provided by CESWF-EC-G upon request. Settlement analyses for drilled and underreamed piers designed and constructed as specified herein indicate that total and differential settlement of the individual piers should not exceed 1 inch.

The expansive soils analysis demonstrates the very high expansion potential of the overburden clay and the clay shale primary. Due to the high potential volumetric changes that may be expected of the high plasticity clay overburden and clay shale primary, it is required that ground level floor slabs and grade beams for the ATC Dining Classroom Facility 4 be structurally-supported. Special foundation and subgrade preparation requirements for the primary facility and any relatively lightly-loaded secondary project facilities (if used) are provided herein to withstand the effects of the highly expansive subsurface conditions.

b. Foundation Design Considerations. The foundation design recommendations and requirements presented in this report are based on criteria contained in *TM 5-818-1*, *TM 5-818-7*, and engineering judgment.

The foundation for the proposed facility must meet several criteria. The foundation must be compatible with the superstructure it supports, its movements must be within

acceptable tolerances, it must meet functional requirements of the facility (such as a crawlspace), and it must be economical. Due to the potentially moderate to large anticipated column loads, the anticipated building geometry, the requirement for a crawl space, the anticipated differential heave and settlement potential of the high plasticity clay and the relatively low allowable bearing capacity that can be assigned to this stratum, the varying topography, the variable elevation, thickness, and consistency of the underlying gravel stratum, the heave potential of the underlying clay shale, and the cost of framework construction, shallow foundations such as a mat slab and dug and formed spot and continuous spread footings are not considered viable foundation systems for the ATC Dining Classroom Facility 4. However, a deep foundation system consisting of drilled and underreamed piers, when properly designed and constructed, has historically performed very well at Lackland Air Force Base, can be assigned a larger allowable end-bearing value (while also meeting the other criteria stated above), and can be constructed economically compared to a shallow footing system. Therefore a reinforced concrete drilled and underreamed pier foundation is considered to be the optimum foundation system for the ATC Dining Classroom Facility 4.

There are two potential bearing strata for the drilled and underreamed piers, namely the weathered clay shale and the transitional/unweathered clay shale. The gravel/coble would normally be considered as a preferable founding material since it can be assigned a moderately high allowable bearing capacity, and is above the highly expansive clay shale. Unfortunately, there are two problems associated with the gravel/cobble at this site. The first is that the anticipated contact depth of the gravel/cobble stratum is considered too shallow (less than 10 feet at most of the test hole locations within the proposed building footprint) for adequately formed underreamed piers. Second, and more importantly, the gravel/cobble stratum at the ATC Dining Classroom Facility 4 site is typically much less than 10 feet in thickness and occurs at variable depths. This is considered an inadequate thickness on which to bear piers carrying the magnitude of loads anticipated for the proposed ATC Dining Classroom Facility 4 and inconsistencies would require further reductions in allowable loads to limit differential

settlements, particularly given the presence of clayey, silty, and sandy zones within the gravel/cobble stratum. Furthermore, the gravel/cobble stratum can be expected to convey water into a pier excavation (and this has occurred during the recent previous phase Airmen Training Complex facility pier foundation construction), with gravel and cobbles likely sloughing into the excavation, further increasing the difficulties of attempting to form an underream in this material. Therefore, based upon these factors, the gravel/cobble stratum shall not be considered as a bearing stratum.

The weathered and unweathered clay shales are considered potential bearing strata for drilled and underreamed piers. Selecting a bearing stratum/elevation for drilled piers in expansive clay shales, such as those present at this site, must take into account constructability, bearing capacity, settlement, potential heave, and cost. These can be conflicting requirements and the final selection must strike a reasonable compromise between these considerations. The weathered shale has the obvious advantage of being shallower, thus piers would not have to extend as deep and would have a lesser cost. It has the disadvantages of being jointed and fissured with limonitic seams (which present constructability problems with forming underreams), has lower shear strengths, and is more compressible when compared to the transitional/unweathered clay shale. Furthermore, movements have been observed in pier foundations bearing in the shallower depths (less than 50 feet below existing grade) of the weathered clay shale at Lackland Air Force Base. Hence, the unweathered clay shale constitutes a significantly better bearing material than the weathered clay shale. Unfortunately, as previously stated, the completely unweathered shale is typically present at depths exceeding 70 feet below existing grade. Attempting to found piers within the uniformly dark gray unweathered shale would not only be much more costly than founding in the transitional zone between the weathered and unweathered clay shale, but much more difficult in terms of constructability (including pier construction quality control and quality assurance). However, the deepest sections of the transitional zone between the weathered and unweathered clay shale primary possess significantly higher strengths and typically lower compressibility

characteristics compared to the overlying weathered clay shale. Based upon the strength testing data within the transitional to unweathered clay shale, it is recommended that the piers for the ATC Dining Classroom Facility 4 be founded no shallower than elevation 715.0 feet (NGVD) to ensure adequate bearing capacity and an acceptable amount of settlement. Piers founded at this elevation (or deeper) within the transitional zone between the weathered and unweathered clay shale can be expected to experience approximately 1 inch of total and differential settlement, when designed in accordance with the recommendations provided herein. Based on the discussions presented above, the ATC Dining Classroom Facility 4 shall be founded on a reinforced concrete drilled and underreamed foundation system in accordance with the recommendations and requirements specified herein.

c. Pavement Design Considerations. The pavement designs presented in this report are based on criteria contained in *UFC 3-250-01FA*, *UFC 3-250-18FA*, and engineering judgment.

(1) Traffic Types and Conditions. Three (3) pavement structures were analyzed and designed for this project. New rigid pavement structures are anticipated to include an all-weather fire/emergency medical vehicle access lanes and concrete aprons in front of trash dumpster pads, loading docks, and hardstands for mechanical yards. New flexible pavement structures are anticipated to include privately-owned vehicle (POV) parking area(s). Types of vehicles to occupy the POV parking areas are anticipated to be limited to passenger cars and trucks (Category II Traffic) making potentially more than 25 passes per hour (peak) (Class E Street), resulting in a pavement Design Index of 2. Types of vehicles to occupy the remaining pavement structures are anticipated to consist of fire/emergency medical vehicles, trash trucks, troop busses, and vehicles up to large multi-axle trucks (i.e., Category IVA Traffic). The remaining pavement structures are assigned a Street Class F due to the anticipated low frequency of truck traffic passes (for a pavement Design Index of 4).

Based on criteria contained in the aforementioned United Facilities Criteria, the following traffic conditions were assigned:

| | Pavement Structure | Traffic Category | Street Class | Design Index |
|---|---|---|---|---|
| *Rigid* | Emergency Access Lane | IVA | F | 4 |
| | Apron (Trash, Loading Dock, and Mechanical Yard) | IVA | F | 4 |
| *Flexible* | POV Parking Spaces | II | E | 2 |

(2) Pavement Design Parameters. California Bearing Ratio (CBR) and plate bearing tests were not performed for this project. Instead, dynamic cone penetrometer (DCP) testing was conducted to evaluate the raw subgrade for pavement design considerations. The penetration resistance obtained from the DCP test is a measure of the soil's relative density, which in turn is used to derive "in situ" CBR and modulus of subgrade reaction values.

The in situ CBR values measured within the upper 12 inches of soils tested at the ATC Dining Classroom Facility 4 site range from approximately 6 to 12 percent, and below this depth, CBR values ranging from 5 to 17 percent were recorded. Modulus of subgrade reaction values measured within the upper 12 inches of soils tested at the ATC Dining Classroom Facility 4 site range from 0 to 285 pci, and below this depth, modulus of subgrade reaction values ranging from 113 to 301 pci were recorded. In the past, the clayey subgrade indicative of Lackland AFB has been assigned CBR values ranging from 4 to 6 percent when compacted to 90 percent of laboratory maximum density, and around 19 percent when lime-stabilized and compacted to 95 percent. Previously conducted plate-bearing tests indicate that a modulus of subgrade reaction ranging from 75 pci to 150 pci can be assigned to the in situ soils when compacted to 90 percent of laboratory maximum density. This value has been upgraded to as high as 200 pci when the same soils are lime-stabilized and compacted to 95 percent. The CBR and subgrade modulus values determined from in situ DCP testing are generally consistent with the historical CBR and subgrade modulus values described above. Some of the higher correlated CBR and subgrade modulus values are believed to be attributable to the presence of gravel in the soils at the test locations, and also potentially to temporary hardening of the near-surface soils due to desiccation at the time of the geotechnical field investigation.

Previous DCP testing performed by USACE, Fort Worth District, within similar soils at Lackland Air Force Base and nearby Fort Sam Houston (with similar subsurface conditions) during wetter periods has demonstrated that the soil's CBR and subgrade modulus decrease significantly at those times. Based on these considerations, and the possibility that some of the pavement sections may be constructed in areas of fill placement, design CBR and modulus of subgrade reaction values of 4 percent and 100 pci, respectively, were assigned to the raw subgrade for each site when compacted to 90 percent of laboratory maximum density (ASTM D 1557).

(3) Lime Stabilization. Atterberg limits test results indicate that the clay overburden is highly expansive. A layer of lime-stabilized subgrade is typically recommended to improve the strength characteristics of pavement sections at Lackland Air Force Base. Properly designed and constructed existing pavement structures at Lackland Air Force Base and pavement structures constructed on similar subgrade soils at nearby Fort Sam Houston have achieved excellent performance. Therefore, lime stabilization is recommended for new pavement structures.

(4) Material Sources. Material sources in the San Antonio area are capable of producing a high quality crushed aggregate for concrete mixes to meet strength requirements. For this reason, a concrete flexural strength of 650 psi at 28 days was considered in the design of rigid pavements. To date, Alkali/Silica Reaction with Portland Cement Concrete has never been a problem when using local aggregate sources.

**6. Recommendations.** The following foundation and pavement design recommendations and requirements are based on results of the field investigation, laboratory testing, and engineering studies.

a. Foundation Design Recommendations.

(1) Foundation System.

(a) ATC Dining Classroom Facility 4. The proposed ATC Dining Classroom Facility 4 shall be supported on a reinforced concrete drilled and underreamed pier

foundation system. The bearing stratum for the drilled and underreamed piers is the transitional zone between the weathered and unweathered clay shale primary. This material is characterized by seams of dark gray unweathered shale interbedded with lighter gray and yellow brown seams of weathered shale. Piers for the ATC Dining Classroom Facility 4 shall be founded within this clay shale bearing material at an elevation no shallower than 715.0 feet (NGVD). An allowable end bearing capacity of 20.0 ksf (net) should not be exceeded when sizing pier underreams founded at this elevation. It should be noted that this allowable bearing capacity is based on a factor of safety equal to 3 against shear failures. The number/layout and sizing for piers/underreams should be designed, and pier loading should be distributed in such a manner as to maximize the loading to as close as possible to the allowable end bearing in order to counteract the uplift forces acting on the piers, in accordance with the requirements specified herein. Based on structural requirements, the load used to size the piers shall consist of full dead load plus that portion of the live load that acts more or less continuously, usually 50 percent.

The following values are recommended for the parameters to be used in LPILE:

Layer 1 (CL to CH Clay Overburden)
Suggested L-Pile Soil Type = Stiff Clay w/o Free Water
Depth = 0 to 15.0 feet
Dry Density = 100 pcf
Undrained Cohesion = 1,000psf

Layer 2 (Weathered Clay Shale Primary)
Suggested L-Pile Soil Type = Stiff Clay w/o Free Water
Depth = 10.0 to 58.0 feet
Dry Density = 95 pcf
Undrained Cohesion = 3,000psf

Layer 3 (Transitional/Weathered Clay Shale Primary)
Suggested L-Pile Soil Type = Stiff Clay w/o Free Water
Depth = 58.0 to 70.0 feet
Dry Density = 100 pcf
Undrained Cohesion = 6,000psf

To facilitate clean out and inspection of the pier holes during construction, pier shafts shall be at least 24 inches in diameter; however, it is recommended that the smallest possible

shaft diameter should be used to minimize the surface area on which pier heave can act. Pier underream diameters shall be at least 2.5 times the diameter of the pier shaft but shall not exceed 3.0 times the diameter of the pier shaft. Once design pier underream sizes are determined, they shall be fixed to that diameter in the field. A minimum 12-inch void shall be maintained beneath all grade beams, and the void area shall be protected with concrete retainer blocks as shown in the latest edition of the SWD-AEIM. ***The bottom of all grade beams shall be formed with carton forms to provide the 12-inch void.***

To limit the potential for large differential movements from occurring, the following measures shall be implemented: (1) shaft diameters shall be the minimum required to limit the contact area with the surrounding expansive soils; (2) piers shall be widely spaced (not less than 20 feet center to center) in an attempt to impose a significant amount of dead load on the foundation; the most heavily loaded piers shall not be placed next to lightly loaded piers; (3) piers shall be properly reinforced to prevent stress (tensile) cracking within the pier concrete when subjected to uplift forces. Based on the results of analyses taking into account the expansion pressures of the soil and clay shale in combination with dead loads acting on individual piers, it was determined that piers 24 inches in diameter (shaft size) require a minimum of 3.0 percent reinforcing steel, piers 30 inches in diameter require a minimum of 2.75 percent reinforcing steel, and piers 36 inches in diameter require a minimum of 2.25 percent reinforcing steel; piers smaller than 24 inches in diameter shall not be used based on the anticipated bearing depth (>40 feet). ***For piers for which the dead load is LESS THAN 200 kips (which is anticipated in the single-story section(s) of the building), the following minimum tensile reinforcing steel requirements shall apply:*** **Piers 24 inches in diameter (shaft size) require a minimum of 3.25 percent reinforcing steel**, piers 30 inches in diameter require a minimum of 2.75 percent reinforcing steel, and piers 36 inches in diameter require a minimum of 2.25 percent reinforcing steel ***It is requested that the structural designer submit the proposed pier loading scheme to CESWF-EC-G for review and analysis of actual pier loads with respect to heave and settlement considerations. This information should include***

***a the total load, as well as the dead load and live load for each pier, and also state whether the loads are factored or unfactored.***

As previously noted, minimum pier spacing shall not be less than 20 feet (center-to-center). At expansion joints, the two piers on either side of the joint should be combined into one larger pier spanning across the joint. An additional concern that couples with the spacing requirements is lightly loaded piers. Lightly loaded piers (i.e., those with column loads less than 200 kips) dissipate most or all of their load in side shear and none of the end bearing will be mobilized. Thus, the expansive clay shale below the pier has no structural restraint when this material begins to heave and the full expansion potential of the material is realized. To reduce this risk, any pier supporting a column load of less than 200 kips shall be deleted and the load redistributed to adjacent piers by grade beams. This normally requires special structural spans at stoops and elevator pits as well as not allowing grade beams to be supported independently from column locations. Transferring load by grade beams may not be economical, but is required for adequate performance of the foundation system. In addition, to minimize the effects of differential movements, large differences (>50%) in column loading between adjacent piers should be avoided. Compression or settlements of individual piers should be checked to ensure acceptable deflections which will not cause cracking or distress to the building structural wall/floor units and building facade. Perimeter piers at the ends of the building wings are typically less heavily loaded than adjacent piers; special attention should be paid to the pier and grade beam design to ensure that piers in these locations also achieve the loads specified herein.

Proper sizing of the piers, both shafts and bells, is essential. Shaft and bell diameters must be within -0 to +2 inches of the specified dimension. The contract shall require that the belling tool have some means, such as a chain, to restrict the travel of the underreamer to the required dimension.

**Concrete slump for piers shall be from 6 to 8 inches.**

***The detail illustrated on Sheet B-102 shows a wedge-shaped mound of Select Clay***

***Cap placed around the pier top that is 1 foot high and sloped at a 1V on 2H slope. This will prevent water from ponding directly around the top of the pier.***

The contractor shall have temporary steel casing and pumps at the job site prior to construction of drilled piers. Groundwater should be anticipated during drilling operations; therefore, the above information should be provided in the contract documents as foundation notes. ***It should be assumed that approximately 100 percent of all piers will have to be cased to at least 40 feet below existing grade. Individual bid items should be provided in the contract bid schedule for each shaft and casing size. Final pier depths shall be determined in the field by the Contracting Officer's representative.***

Drilling equipment should be of suitable type and of sufficient size to satisfactorily perform the required drilling for the soil conditions identified. To this end, **all drill rigs shall have a 6-inch Kelly bar** and be capable of producing minimum torque and crowd capacities of 50,000 lb-ft and 30,000 lb-ft, respectively.

**Piers shall be installed plumb within a maximum of 1.5 inches for the first 10 feet and within 0.5-inch for each 10 feet of additional depth (for example, a 65-foot deep pier would therefore have a plumb tolerance of 4.25 inches).**

**Drilled pier construction, placement of the reinforcing steel cage, and concrete placement shall be a CONTINUOUS OPERATION performed and completed the same day that the excavation is completed. Concrete shall be placed within pier excavations within 3 hours of completion of the approved pier excavation. NO PIER EXCAVATION SHALL BE LEFT OPEN OVERNIGHT.**

***The above criteria for drilled pier construction should be included in guide specification UFGS-31 63 26 – DRILLED CAISSONS.***

(b) Small Support-type Structures. Small support-type structures (≤500GSF), if applicable, can be supported on a reinforced concrete slab-on-grade with turned-down edge beam foundation. The turned-down edge beam should extend a minimum of 12 inches below outside finished grade, and can be sized for a safe bearing pressure of 2,000 psf

(net). Subgrade preparation should consist of removing at least 5.0 feet of existing materials within the building footprint, and replacing with at least 5.0 feet of compacted non-expansive fill. Any additional fill required to achieve the final subgrade elevation below the floor slab system shall be nonexpansive material as well. The upper 6 inches of existing subgrade exposed after excavation operations, or cleared prior to fill placement shall be scarified, moistened, manipulated, and recompacted to the same density required for nonexpansive fill materials. Nonexpansive fill shall be placed in controlled lifts not exceeding 8 inches in loose thickness and compacted to at least 95 percent of laboratory maximum density (in accordance with ASTM D 1557).

(2) Ground-Level Floor Slab System. Ground-level floor slabs within ATC Dining Classroom Facility 4 shall be supported above a minimum 12-inch void or crawl space. The void area shall be protected with concrete retainer blocks as shown in the latest edition of the SWD-AEIM. The bottom of all grade beams and floor slabs shall be formed with carton forms to provide the 12-inch void. Stoops, porches, approaches, etc. shall also be structurally-supported to compensate for the active subgrade. Since the design requires the incorporation of a crawl space beneath the building, the underfloor area shall be sloped to collection points and drained using sumps and pumps. Swales shall drain away from pier column locations such that ponded water never occurs adjacent to piers.

(3) Subgrade Preparation and Fill Requirements. For portions of the building pad that will be in a fill section (which is anticipated to be most if not all of the building pad), subgrade preparation for ATC Dining Classroom Facility 4 shall consist of removing the upper 12 inches of existing materials and replacing with a compacted select backfill. Any additional fill required to raise the subgrade to the final elevation(s) below the building floor slab system shall be select material as well. Select fill should be placed in controlled lifts not exceeding 8 inches in loose thickness and compacted to at least 90 percent of laboratory maximum density as determined in accordance with ASTM D 1557. For portions of the building pad that will be a cut section, subgrade preparation should consist of removing all existing materials to a depth

that allows a minimum 12-inch void to be formed below the floor slab system. The upper 6 inches of existing subgrade exposed after cut and/or fill operations shall be scarified, moistened, and recompacted to the same density required for select fill.

Based on previous experience, if nonexpansive fill is placed outside the limits of the building footprint, the relatively higher permeability of the nonexpansive fill will allow moisture to infiltrate to the highly expansive soils adjacent to and beneath the foundation, potentially resulting in heave of the foundation. To limit moisture penetration to the area around and beneath the foundation, excavated areas beyond the limits of the building footprint shall be backfilled with select clay backfill materials. This select clay cap shall be a minimum of 2 feet in thickness and shall extend from the building perimeter to the limits of the excavation (completely capping/covering the compacted nonexpansive fill). Select clay backfill materials should be compacted to at least 92 percent of laboratory maximum density (with all other subgrade preparation and fill placement requirements being the same as those for nonexpansive fill).

(4) Material Testing Requirements. Testing shall be the responsibility of the contractor to ensure that the subgrade, fill, and backfill materials are properly compacted. To this end, the following minimum testing frequencies should be included in the contract specifications:

- In-place density of the subgrade, fills, and backfills shall be performed for every 2,500 square feet per lift in accordance with ASTM D 1556 or ASTM D 6938.
- Optimum Moisture and Laboratory Maximum Density of nonexpansive fill and backfill shall be performed for every 500 cubic yards or when any change in material occurs.

(5) Below-Grade Structures (Grade Beams). The following parameters are provided for the design of all below-grade structures. For the high plasticity clay and badly weathered clay shale, an at-rest lateral earth pressure coefficient ($K_o$) of 0.7, an active earth pressure coefficient ($K_a$) of 0.7, an angle of internal friction ($\phi$) of $10^o$, a cohesion value (c) of

100 psf, and an allowable bearing capacity of 2,000 psf shall be used. For select lean clay backfill placed behind below grade structures, an at-rest lateral earth pressure coefficient ($K_o$) of 0.7 and an angle of internal friction ($\phi$) of 20°, be used; an active earth pressure coefficient ($K_a$) of 0.7 shall be used (as it is anticipated that highly expansive soils will be in contact with the lean clay backfill and these highly expansive materials will transmit their earth pressures to the below-grade structures through the lean clay fill). The clay, clay shale, and backfill material should be assumed to have a moist unit weight of 125 lb/ft$^3$. All backfill shall be select lean clay soil. Backfill details for grade beams are shown on ***Sheet B-104***. The analyses and designs shall also account for surcharge loadings (e.g., due to vehicular traffic) where applicable.

(6) Drainage Conditions. Proper site drainage is imperative to ensure satisfactory long-term foundation performance. Exterior grading adjacent to the building shall be sloped away from the structure a minimum of 5 percent for the first 10 feet. Runoff from the roofs shall be adequately discharged away from foundation edges. In no case should water be allowed to pond adjacent to or beneath the buildings, both during and after construction.

(7) Care of Water. Drainage of ground and surface water from the project site continually throughout the construction contract is essential. The contractor shall be required to protect the excavation and all constructed work throughout the life of the contract by means of ditches, berms, sumps with pumps, and any other means required to continually and effectively remove water from the site at all times. Ponding of water in the excavation or around the piers is unacceptable at any time. In addition, site excavations to include the crawl space excavation, utility trenching, grading, and retention basins shall be constructed so as not to supply water directly or indirectly to the building or underlying active clay shale via the pervious gravel stratum. Such exposure of the underlying clay shale primary to surface runoff during construction could extend the active zone (via fractures) to much greater depths within the clay shale. This would activate these highly expansive materials and result in expansion

pressures on the foundation elements that could create distress on the structural system of the facility. ***These requirements shall be reflected in the specifications and in the structural notes.***

The designer shall grade the site to ensure positive drainage of all water away from the structure. Crawl spaces shall be graded to collect water and carry it to sumps. The sumps shall drain by gravity or be equipped with automatic pumps to direct the water to the storm drainage system. Sumps shall be located at least 10 feet away from any pier in the crawlspace.

Additional care of water and shale protection measures associated with the utility tunnel ("utilidor") connecting the Equipment Building and the ATC Dining Classroom Facility 4 are provided in Paragraph 6.a.(13), below.

(8) Mechanical Connections. All exterior mechanical connections should be of the flexible type. Flexible connections shall be capable of resisting a minimum of 4 inches of both vertical and horizontal movement. All mechanical/structural connections between slabs on grade and structurally supported units or building perimeter entry/exit points must be designed and constructed to handle up to 4 inches of vertical movement. All condensate lines shall drain away from foundation edges. It is recommended that below-grade utility lines connecting to the buildings be aligned under the centerline of the respective building footprints. The use of exterior lines connecting to the buildings by numerous utility trenches is discouraged, as this would create high permeability pathways for moisture to gain access to, and activate, the expansive clay and clay shale materials within the building footprint.

(9) Backfill Adjacent to Exterior Grade Beam Excavation. Use select clay backfill adjacent to exterior grade beam excavation to minimize water penetration to expansive subsoils. Reference below-grade wall backfill details shown on Sheet B102.

(10) Foundation Material Definitions.

(a) Satisfactory Materials. Satisfactory materials include materials classified in ASTM D 2487 as GW, GM, GC, GP, SW, SP, SM, SC, CL, and CH and shall be

free of trash, debris, roots or other organic matter, or stones larger than 3 inches in any dimension.

(b) Unsatisfactory Materials. Unsatisfactory materials include materials classified in ASTM D 2487 as Pt, OH, OL, ML, MH and any other materials not defined as satisfactory.

(c) Nonexpansive Soils. Nonexpansive soils should meet the requirements of Texas Department of Transportation Standard Specification for Base Course, Item 247, Type A, Grade 1 or 2, with plasticity index of not less than 4 percent nor greater than 12 percent when tested in accordance with ASTM D 4318.

(d) Select Soils. Select soils are satisfactory material having a liquid limit of 35 percent or less and a plasticity index not less than 8 nor greater than 18 when tested in accordance with ASTM D 4318.

(e) Select Clay Backfill. Select clay backfill shall be a satisfactory material having a liquid limit of 35 percent or less, and a plasticity index of not less than 8 nor greater than 20 when tested in accordance with ASTM D 4318, and classifying as a CL in accordance with ASTM D 2487.

(f) Cohesionless and Cohesive Materials. Cohesionless materials include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic.

(g) Capillary Water Barrier. Capillary Water Barrier shall consist of clean, crushed, nonporous rock, crushed gravel, or uncrushed gravel. The maximum particle size shall be 1.5 inches and no more than 2 percent by weight shall pass the 3/16-inch size (No. 4) sieve.

The above material definitions, subgrade preparation procedures, and material testing requirements should be presented in guide specification ***UFGS-31 00 00 EARTHWORK***.

(11) Instrumentation. Perimeter grade beam benchmarks, as shown in the

SWD-AEIM, Chapter IV (Plate S53), shall be installed around the perimeter of the ATC Dining Classroom Facility 4 at select pier and grade beam locations. Additional benchmarks similar in design shall be installed on select interior columns. ***Final location of the benchmarks shall be determined by CESWF-EC-G when the 65% design is complete.*** The benchmarks should be surveyed to the nearest 1/100th of a foot from a permanent benchmark as soon as the forms are stripped and shall be surveyed monthly throughout the remainder of the construction contract from a permanent deep benchmark. Elevations for the benchmarks shall be supplied to the contracting officer for forwarding to CESWF-EC-G within 7 days of completing the survey. ***A typical construction detail for the benchmarks and the benchmark installation locations shall be presented in the construction drawings***.

(12) Elevator Equipment Jack Shafts/Casings. It is anticipated that elevator equipment jack shafts will be drilled deeply into the clay shale primary, potentially extending to the depth of the pier foundations. Based on previous experience, some of these elevator equipment jack shafts may be situated in close proximity (much less than 20 feet) to pier locations. Unless special measures are implemented, these elevator jack shafts (which will have permanent casing/pipes installed within them) will serve as conduits for moisture to penetrate deeply within the clay shale formation, potentially to the pier bearing depth. Over time (and over the project life cycle), the moisture front spreading from the elevator jack shaft horizontally and vertically within the fractured clay shale formation will potentially induce heave forces upon the pier foundations. To minimize the potential for these effects, **the following measures shall be implemented during the construction of the elevator equipment jack shafts:** 1) the elevator jack shafts should be located as far as possible away from the pier foundations, but no closer than 10 feet; 2) the elevator jack shafts shall be cleaned of loose subsurface material cuttings prior to installation of the permanent jack casing; 3) a welded plate completely and effectively sealing the base of the jack casing shall be used to prevent any water that might accumulate within the jack casing over the life of the project from seeping into the underlying fractured, expansive clay shale formation; 4) if the bottom of the

elevator jack casing is not sealed with a welded plate, but is open to the underlying clay shale formation, a minimum of 12 inches of lean bentonitic grout shall be placed at the bottom of the elevator jack shaft prior to placement of the casing; 5) the annular space between the elevator jack casing and the exposed subsurface materials within the shaft shall be completely filled (no open voids or pockets shall be permitted) from bottom to the surface with a lean bentonitic grout – placement of sand or other granular material, cuttings from the shaft excavation, or soil materials of any type **shall not be permitted**.

(13) Utility Tunnel Excavation and Protective Measures for the Weathered Clay Shale Primary During Construction. Based on information currently available to CESWF-EC-G, the depth (invert) of the excavation for the utility tunnel connecting the Equipment Building and the ATC Dining Classroom Facility 4 will vary but is estimated to be approximately 15 feet below existing grade. Based on the logs of borings drilled for the ATC Dormitory 7 project and the adjoining ATC Dining Classroom Facility 4 project, the contact with the weathered clay shale at the base of the gravel/cobble stratum is anticipated to occur at depths of 9 to 15 feet below the existing grade. The subsurface information indicates that the clay shale stratum potentially may be penetrated by the excavation for the utility tunnels. Therefore, the following excavation and protective measures for the weathered clay shale primary are provided, below, for the utility tunnel construction.

Based upon the anticipated limited extent of penetration of the weathered clay shale stratum by the utility tunnel excavation, the construction of a soil-bentonite slurry cutoff wall is not recommended as a measure to protect the clay shale material. Construction of such a feature is anticipated to add significant cost and may not be effective if the exposed clay shale area is not completely encapsulated and cut off from the gravel/cobble stratum (which, again, is anticipated to be both difficult and expensive to effectively achieve). Instead, the shale surface protection measures described below are recommended.

Once excavation operations have begun, it is critically important that water not be allowed to accumulate in or adjacent to the excavation. Water that enters the excavation shall

be removed by pumps, ditches, or any other suitable methods. A network of dewatering wells along and adjacent to the utility tunnel excavation may be used as an alternative or additional measure to prevent water from the gravel/cobble stratum from entering the excavation. The bottom of the excavation shall be shaped to drain to a sump where the water can be continually removed throughout construction.

The excavated surface of the clay shale primary must be protected from exposure to 1) ensure the material does not deteriorate due to loss of moisture (a phenomenon that can happen rapidly (in a matter of hours) upon exposure to the atmosphere), and 2) ensure water is not absorbed into the material that will cause it to swell to its maximum potential. Excavation of the final 2 feet of material should not be performed during inclement weather. Lastly, it is important that the amount of time between excavation and vertical construction be minimized. In addition to the aforementioned care of water and clay shale protection concerns, it should also be considered that once the overlying materials have been removed (stress relief), the fractured weathered clay shale primary will experience elastic rebound, which will result in the formation of additional cracks within this material. This situation will serve to exacerbate the potential for moisture infiltration and heave of this material.

For areas in which the utility tunnel invert occurs within the gravel/cobble overburden stratum, it is recommended that a polyethylene vapor barrier (10-mil minimum thickness) and a minimum 6-inch capillary water barrier should be placed beneath the base of the utility tunnel (in accordance with mat slab/slab-on-grade recommendations provided herein). A 4-inch mud slab may be incorporated as added protection for the subgrade and to facilitate construction.

For areas in which the utility tunnel invert occurs within the weathered clay shale primary stratum, it is recommended that a 4-inch mud slab underlain by a 30-mil EPDM geomembrane liner should be placed beneath the utility tunnel conduit structure and directly over the exposed weathered clay shale primary. The geomembrane liner and 4-inch mud slab shall be placed over **ALL** exposed portions of the weathered clay shale primary within the utility tunnel excavation. The mud slab can incorporate reinforcing wire to limit cracking.

Implementing the above measures should provide satisfactory protection of the weathered clay shale primary during and after construction. Shale protection measures shall be coordinated with and submitted for approval to CESWF-EC-G.

b. Pavement Design Recommendations and Requirements. The pavement sections presented below are based on criteria contained in *UFC 3-250-01FA, UFC 3-250-18FA*, and engineering judgment.

(1) Rigid Pavement. The following pavement sections are recommended for the all-weather fire/emergency medical vehicle access lanes, and for aprons for a minimum distance of 15 feet in front of trash dumpster pad(s), for aprons in front of loading docks, and for mechanical yard hardstands. The rigid pavement designs consider a modulus of subgrade reaction equal to 100 pci for the raw subgrade when compacted to 90 percent of laboratory maximum density, and a concrete flexural strength of 650 pci at 28 days.

(a) Fire/Emergency Vehicle Access Lanes (Rigid Pavement Option). The design is based on Category IVA Traffic and a Class F Street (Design Index = 4).

7” Portland Cement Concrete (nonreinforced)

6” Aggregate Base Course compacted to at least 95 percent of maximum laboratory density (ASTM D 1557)

6” Lime-Stabilized Raw Subgrade compacted to at least 90 percent of maximum laboratory density (ASTM D 1557)

6” Raw Subgrade compacted to at least 90 percent of maximum laboratory density (ASTM D 1557)

(b) Aprons in Front of Trash Dumpster Pads, Aprons in Front of Loading Docks, and Mechanical Yard Hardstands. The design is based on Category IVA Traffic and a Class F Street (Design Index = 4).

6” Portland Cement Concrete reinforced with No. 4 bars spaced 16 inches o.c.e.w.

6” Aggregate Base Course compacted to at least 95

percent of maximum laboratory density (ASTM D 1557)

6" Raw Subgrade compacted to at least 90 percent of maximum laboratory density (ASTM D 1557)

Reinforcement for odd-shaped slabs, joint design, joint spacing, and other details should be in accordance with the latest edition of the SWD-AEIM and UFC 3-250-01FA, where applicable. The reinforcement bars should be placed a minimum of 1.5 inches clear distance from the surface of the pavement.

(2) Flexible Pavement. The following pavement sections are recommended for privately-owned vehicle (POV) parking area. The flexible pavement designs consider a CBR value of 4 percent for the raw subgrade when compacted to 90 percent of laboratory maximum density.

(a) POV Parking Area. The design is based on Category II Traffic and a Class E Street (DI=2).

1.5" Hot-Mix Surface Course

7" Aggregate-Base Course compacted to at least 100 percent of maximum laboratory density (ASTM D 1557)

6" Lime-Stabilized Subgrade compacted to at least 95 percent of maximum laboratory density (ASTM D 1557)

6" Raw Subgrade compacted to at least 90 percent of maximum laboratory density (ASTM D 1557)

The following note should be incorporated as part of the pavement details shown on the contract drawings.

***"1. The moisture content shall be at least 1 percent above optimum during compaction of the raw subgrade."***

(3) Pavement Material Definitions.

(a) Hot-Mix Surface Course (50 Blow Mix). Aggregates and asphaltic

materials shall conform to the requirements of the Texas Department of Transportation, Standard Specifications for Construction of Highways, Streets and Bridges, (TXDOT, Std Spec), Items 300 and 340. The paving mixture shall conform to the requirements for Type "D" (Fine-Graded surface course) grading. Asphaltic material for the paving mixture should be asphaltic cement, viscosity grade AC-20, or performance grade PG64-22. Edit guide specification ***UFGS-32 12 16 HOT-MIX ASPHALT (HMA) FOR ROADS*** to the above requirements.

(b) Prime and Tack Coats. Asphaltic material for the prime coat shall be cut-back asphalt, grade MC-30, conforming to the requirements of TXDOT, Std Spec, Item 300, Asphalts, Oils, Emulsions. Prime coat should be applied to the surface of the aggregate base coarse. Asphaltic material for the tack coat shall be cut-back asphalt, grade RC-250, or emulsified asphalt, grade SS-1, conforming to the requirements of TXDOT, Std Spec, Item 300, Asphalts, Oils, Emulsions. Tack coat should be applied to all surfaces that contact new asphalt pavement. Edit guide specification ***UFGS-32 12 10 BITUMINOUS TACK AND PRIME COATS*** to the above requirements.

(c) Aggregate Base Course. Aggregates shall conform to the requirements of the ***UFGS-32 11 23 AGGREGATE BASE COURSE***. The gradation should conform to the requirements of TXDOT, Std Spec, Item 247, for Type "A", Grade 1 Material.

(d) Raw Subgrade. Material should conform to the requirements of ***UFGS-31 00 00 EARTHWORK***.

(e) Portland Cement Concrete. The material shall conform to the requirements of ***UFGS-32 13 11 CONCRETE PAVEMENT FOR AIRFIELDS AND OTHER HEAVY-DUTY PAVEMENT***. The maximum nominal size coarse aggregate shall be 1.5 inches, and the mixture shall be designed to attain a flexural strength of 650 psi at 28 days.

(f) Lime-Stabilized Subgrade. The material shall consist of a mixture of raw subgrade and hydrated lime. The application rate of lime should be 6 percent by dry

weight of the raw soil. Guide Specification ***UFGS-32 11 29 LIME-STABILIZED BASE COURSE, SUBBASE, OR SUBGRADE*** should be edited to include the above criteria.

(4) Vehicular Pavement Material Testing Requirements. Testing shall be the responsibility of the contractor to ensure that the subgrade, aggregate base course, hot-mix surface course, and Portland cement concrete are properly constructed. To this end, the following testing requirements shall be included in the contract specifications as a minimum:

- In-place density testing of the subgrade, aggregate base course, and lime-stabilized subgrade shall be performed, at a minimum, every 600 square yards per lift in accordance with ASTM D 1556 and ASTM D 6938. ASTM D 1556 shall be used as a check at least once per lift for each 3,000 square yards of completed subgrade, aggregate base course, and lime-stabilized subgrade.

- Before starting work, at least one sample of aggregate base course and lime-stabilized subgrade shall be tested in accordance with ASTM C 136. After the initial test, a minimum of one sieve analysis (ASTM C 136 and ASTM D 422) shall be performed for each 1,000 tons of aggregate base course and lime-stabilized subgrade placed, with a minimum of one analysis performed for each day's run until the course is completed. One liquid limit and plasticity index shall be performed for each sieve analysis per ASTM D 4318

- Wear tests shall be performed in accordance with ASTM C 131. A minimum of one test per aggregate base course material source shall be run.

- Thickness of the aggregate base course and lime-stabilized subgrade shall be measured for each 600 square yards of material placed. Compacted thickness of the aggregate base and lime-stabilized subgrade shall be as presented in this report and the completed section shall be within 3/8-inch of the thickness presented.

- Hot Bin gradations for the asphalt wearing course shall be tested in accordance with ASTM C 136 and ASTM C 117. A minimum of one test shall be conducted. Marshall specimens shall be taken in accordance with methods described in AI MS-2. At least two sets of specimens shall be taken. Asphalt extractions shall be performed in accordance with ASTM D 2172, Method A or B. At least one asphalt extraction shall be conducted. Field density tests shall be conducted in accordance with ASTM D 2950. One test shall be conducted for each 300 square yards of pavement placed. The mat density shall be 97.5 to 100.5 percent and the joint density shall be 95.5 to 100.5 percent of the density obtained from laboratory-compacted specimens. Thickness measurements shall be taken at a minimum of one measurement for each 1,000 square yards of pavement placed.

- The Job Mix Formula for the bituminous mixture shall be furnished to the Contracting Officer for approval. The formula will indicate the percentage of each stockpile and mineral filler, the percentage of each size aggregate, the percentage of bitumen, and the temperature of the completed mixture when

discharged from the mixer. The Contractor shall file with the Contracting Officer certified delivery tickets for all aggregates and bituminous materials actually used in construction. The finished mixture shall be designed using procedures contained in AI MS-2 and the criteria shown below.

| Test Property | 50 Blows |
|---|---|
| Stability (minimum), lbs | 1,000 |
| Flow (maximum), 1/100-inch | 8-18 |
| Air Voids, percent | 3% to 5% |
| Percent Voids in mineral aggregate | 14 |
| TSR, minimum percent | 75 |

- The contractor shall be responsible for the development of the mixture proportion study for cementitious materials and chemical admixtures. The concrete mix design shall include a statement giving the maximum nominal coarse aggregate size and the proportions of all ingredients that will be used in the manufacture of concrete at least 60 days prior to commencing concrete operations. Trial design batches, mixture proportioning studies, and testing requirements shall be the responsibility of the Contractor. Strength requirements shall be based on flexural strength. Trial mixtures having proportions, slumps, and air content suitable for the work shall be based on methodology described in ACI 211.1, modified as necessary to accommodate flexural strength. The maximum water-cementitious material ratio is 0.45. Coarse and fine aggregates shall have a satisfactory service record of at least 5 years successful service in three paving projects, or if a new source is used, shall meet the requirements when tested for resistance to freezing and thawing. Coarse and fine aggregates not having a satisfactory demonstrable service record shall have a durability factor of 50 when subjected to freezing and thawing in concrete in accordance with COE CRD-C 114 (Test Method for Soundness of Aggregates by Freezing and Thawing of Concrete Specimens).

- Smoothness measurements shall be taken in successive positions parallel to the pavement (flexible and rigid) centerline with a 12-foot straightedge. Measurements shall be taken perpendicular to the pavement (flexible and rigid) centerline at 15-foot intervals. Surface smoothness shall not exceed 3/8-inch.

**References:**

- TEAM Consultants, Incorporated Report No. 132050, 172066, and 172067
- TM 5-818-1 – Soils and Geology Procedures for Foundation Design of Buildings and Other Structures (Except Hydraulic Structures)
- TM 5-818-7 – Foundations in Expansive Soils
- CESWD-ED-TS/G Criteria Letter, dated 29 January 1988 – Design Criteria for Ribbed Mat Foundations (APPENDIX E)
- UFC 3-250-01 – Pavement Design for Roads, Streets, Walks, and Open Storage Areas
- UFC 3-250-18FA – General Provisions and Geometric Design For Roads, Streets, Walks, and Open Storage Areas
- Texas Department of Transportation - Standard Specifications For Construction of Highways, Streets and Bridges
- SWD-AEIM Architectural-Engineering Manual
- UFGS Guide Specifications For Construction

**FORT WORTH DISTRICT**
**AUGUST 2017**

***(Revised NOVEMBER 2017)***

***(Amended November 2017 to provide recommendations for pavement structures included in the 15% design submittal received on 28 September 2017, exclude recommendations for the geotextile originally provided for the subdrainage system, exclude recommendations for the utility tunnel, and include sheet B102.)***

***(Further amended January 2018 to incorporate revisions to B102.)***

***(Further amended in June 2018 to incorporate recommended values for LPILE parameters.)***

***(Further amended in October 2018 to include recommendations for the utility tunnel and correction to sheet B201.)***

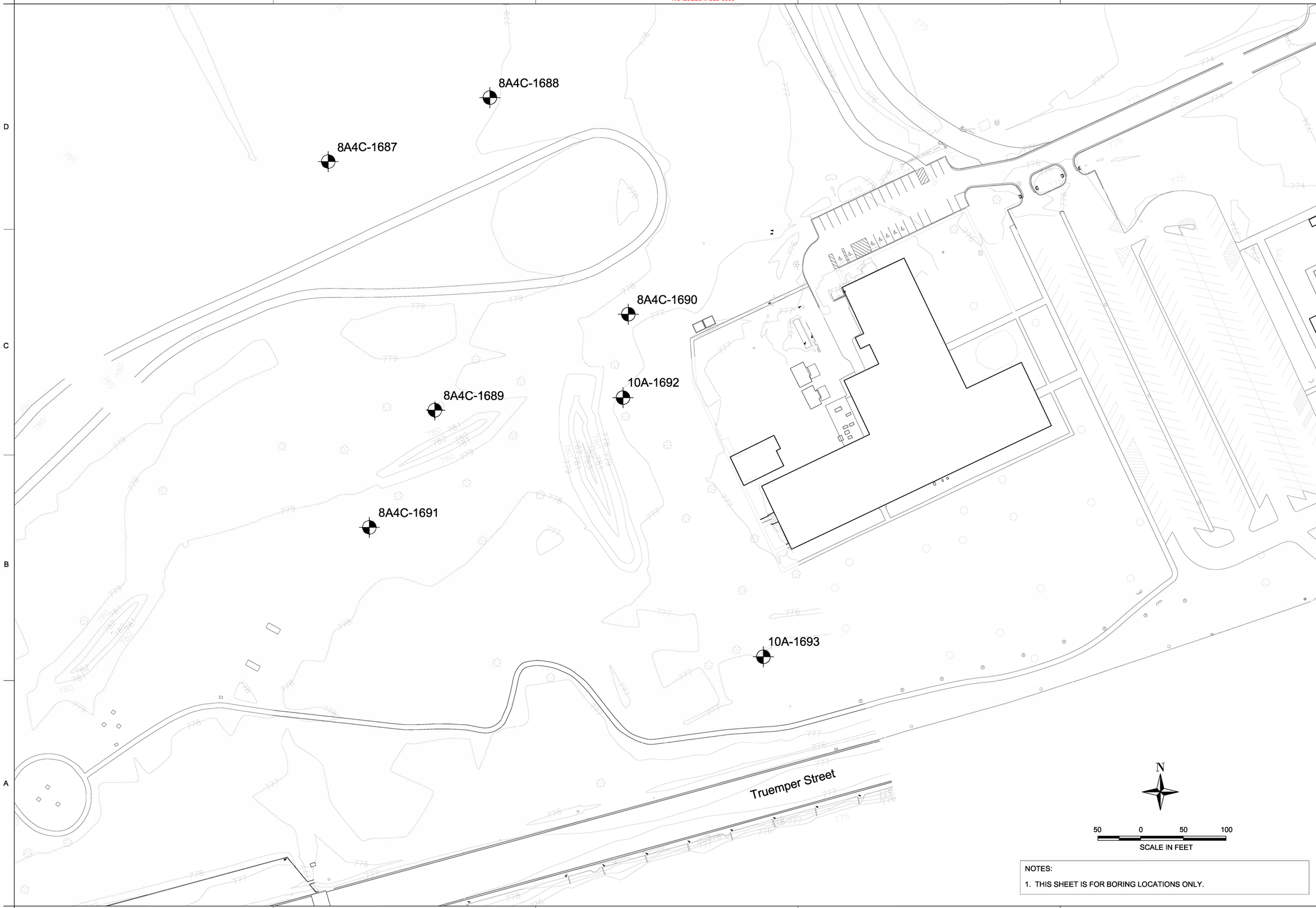
***(The report was amended in August 2020 to incorporate revisions to B-102 and to include sheets B-103 and B-104.)***

# APPENDIX A

# BORING LOCATIONS & LOGS OF BORINGS

W9126G26RA028-0003

\\swf-netapp2\common\ec\MILCON\Air Force\Lackland AFB\Airmen Training Complex\DCF4\CADD\k-DCF4-B101.dwg 8/3/2017




NOTES:

1. THIS SHEET IS FOR BORING LOCATIONS ONLY.

US ARMY CORPS OF ENGINEERS ®
FORT WORTH DISTRICT

| Symbol | Description | Tracking No. | Action | Date |
|---|---|---|---|---|
| | | | | |

Designed by: C. BERRY
Drawn by: C. BERRY
Reviewed by: K. McCLESKEY
Submitted by: KENNETH McCLESKEY, P. G. CHIEF, DAM & LEVEE SAFETY

Date: AUG 2017
Solicitation No.: 888888888
Contract No.: -
File Name: FY18_DCF4_B101.dwg PLOT DATE: 08/03/2017 PLOT SCALE: 1:50

Rev: -

U.S. ARMY ENGINEER DISTRICT, CORPS OF ENGINEERS FORT WORTH, TEXAS

ENGINEERING/ CONSTRUCTION DIVISION GEOTECHNICAL BRANCH

LACKLAND AIRFORCE BASE, TEXAS
FY18 DINING CLASSROOM FACILITY 4
PN: MPLS08373S4

BORING LOCATIONS - 1 OF 1

SHEET SEQUENCE NUMBER

B-101

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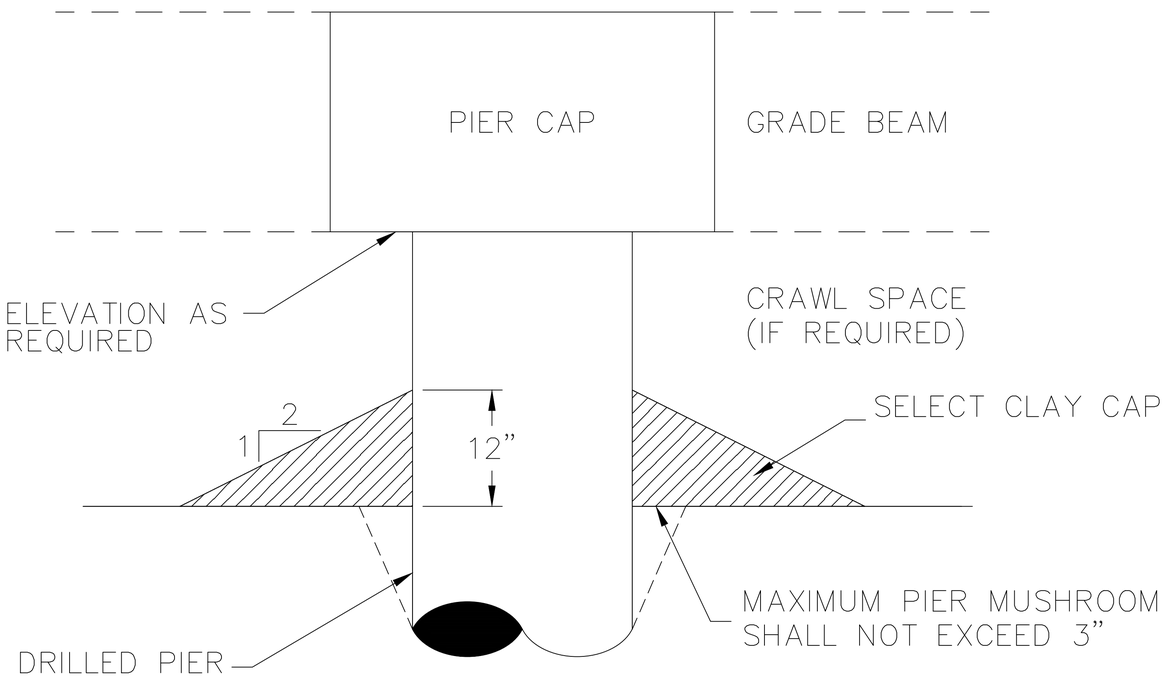


CLAY CAP DETAILS

NOT TO SCALE

NOTE:
1. REFER TO THE GOVERNMENT GEOTECHNICAL REPORT FOR SELECT CLAY FILL MATERIAL DEFINITIONS AND REQUIREMENTS.

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| Symbol | Description | Tracking No. | Action | Date |
|---|---|---|---|---|

Date: 12 NOV 2018
Rev: -
Solicitation No.: 698888888
Contract No.: -
File Name: FWCDCF4-B102.dwg
PLOT DATE: 12NOV2018
PLOT SCALE: NTS

Designed by: C. BERRY
Drawn by: C. BERRY
Reviewed by: K. McCLESKEY
Submitted by: KENNETH McCLESKEY, P. G. CHIEF, DAM & LEVEE SAFETY

U.S. ARMY ENGINEER DISTRICT, CORPS OF ENGINEERS FORT WORTH, TEXAS

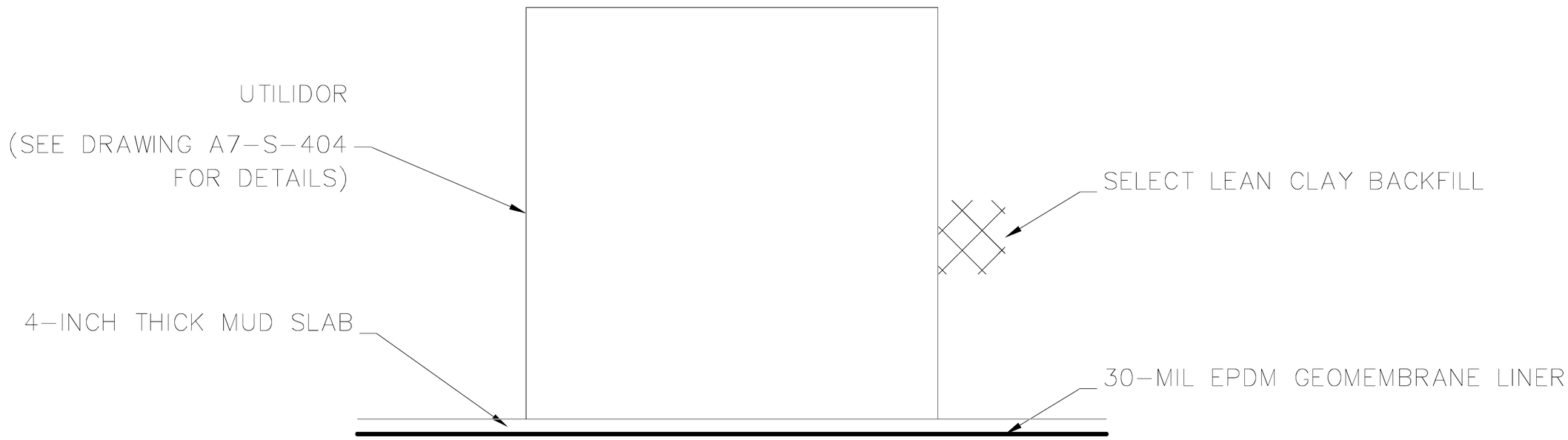
ENGINEERING/ CONSTRUCTION DIVISION GEOTECHNICAL BRANCH

LACKLAND AIRFORCE BASE, TEXAS
FY18 DINING CLASSROOM FACILITY 4
PN: MPLS083737S4

CLAY CAP DETAILS

SHEET SEQUENCE NUMBER
B-102

\\swf-netapp2\common\ec\MILCON\Air Force\Lackland AFB\Airmen Training Complex\Dorm 7\CADD\lk-ATC7-B103.dwg 04 OCT 2018




# UTILIDOR FOUNDATION DETAILS

NOT TO SCALE

NOTES:

1. SELECT LEAN CLAY FILL SHALL BE PLACED IN CONTROLLED LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS AND COMPACTED TO AT LEAST 90 PERCENT OF LABORATORY MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D 1557.

2. REFER TO THE GOVERNMENT GEOTECHNICAL REPORT FOR NONEXPANSIVE FILL, SELECT FILL, AND SELECT CLAY FILL MATERIAL DEFINITIONS AND REQUIREMENTS, AND FOR COMPLETE FILL AND SUBGRADE PREPARATION MINIMUM REQUIREMENTS.

3. THE LOGS OF BORINGS (SHEETS B-201 AND B-202) INDICATE THE YELLOW BROWN AND GRAY WEATHERED CLAY SHALE PRIMARY MAY BE PENETRATED BY THE UTILIDOR EXCAVATION. THE ESTIMATED CONTACT DEPTH WITH THE CLAY SHALE PRIMARY ALONG THIS ALIGNMENT IS ANTICIPATED TO OCCUR AT AN APPROXIMATE DEPTH OF BETWEEN 8 AND 14 FEET BELOW EXISTING (PRE-CONSTRUCTION) SURFACE GRADE. ONCE EXCAVATION OPERATIONS HAVE BEGUN, IT IS CRITICALLY IMPORTANT THAT WATER THAT ENTERS THE EXCAVATION SHALL BE REMOVED BY PUMPS, DITCHES, OR ANY OTHER SUITABLE METHODS. THE BOTTOM OF THE EXCAVATION SHALL BE SHAPED TO DRAIN TO A SUMP WHERE WATER CAN BE CONTINUALLY REMOVED THROUGHOUT CONSTRUCTION. EXCAVATION OF THE FINAL 2 FEET OF MATERIAL SHOULD NOT BE PERFORMED DURING INCLEMENT WEATHER.

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FORT WORTH DISTRICT

| Symbol | Description | Tracking No. | Action | Date |
|---|---|---|---|---|
| | | | | |

Date: 04 OCT 2018
Rev: -
Solicitation No.: 888888888
Contract No.: -
File Name: lk-ATC7-B103.dwg
Date Plotted: 04-OCT-2018
PLOT SCALE: NTS

Designed by: C. BERRY
Drawn by: C. BERRY
Reviewed by: K. McCLESKEY
Submitted by: FAISAL AHMED, P. E. CHIEF, GEOT. ENG. & DES. SEC.

U.S. ARMY ENGINEER DISTRICT, CORPS OF ENGINEERS FORT WORTH, TEXAS

ENGINEERING/ CONSTRUCTION DIVISION GEOTECHNICAL BRANCH

LACKLAND AIRFORCE BASE, TEXAS
FY18 DINING CLASSROOM FACILITY 4
PN MPLS083737S4

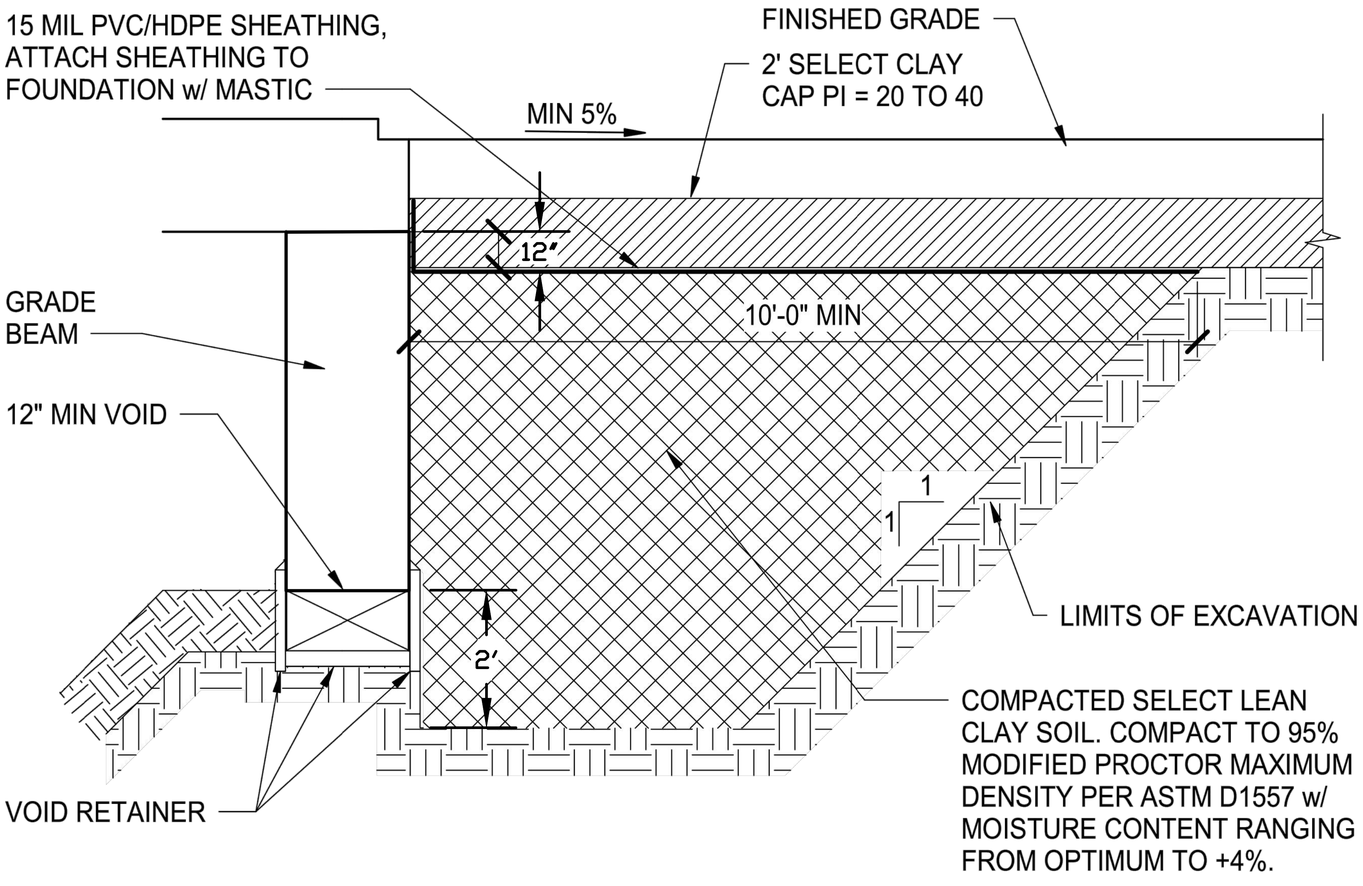
UTILIDOR FOUNDATION DETAILS

SHEET SEQUENCE NUMBER

B-103

NOTES:

1. SELECT FILL SHALL BE PLACED IN CONTROLLED LIFTS NOT EXCEDDING 8 INCHES IN LOOSE THICKNESS AND COMPACTED TO AT LEAST 95 PERCENT OF LABORATORY MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D 1557.
2. REFER TO THE GEOTECHNICAL REPORT FOR SELECT FILL, AND CLAY FILL MATERIAL DEFINITIONS AND REQUIREMENTS, AND FOR COMPLETE FILL AND SUBGRADE PREPARATION MINIMUM REQUIREMENTS.




**GRADE BEAM BACKFILL DETAIL**

US ARMY CORPS OF ENGINEERS ®
FORT WORTH DISTRICT

| Symbol | Description | Tracking No. | Action | Date |
|---|---|---|---|---|

Designed by: FAISAL AHMED
Drawn by: DAVID CHOUNG
Reviewed by: FAISAL AHMED
Submitted by: KENNETH MCCLESKEY, P. G. CHIEF, DAM & LEVEE SAFETY
Date: JULY 2020
Solicitation No.: 9999999999
Contract No.: -
Rev: -
File Name: B-104-B101.dwg
PLOT DATE: 03AUG2017
PLOT SCALE: 1:50

U.S. ARMY ENGINEER DISTRICT, CORPS OF ENGINEERS FORT WORTH, TEXAS

ENGINEERING/ CONSTRUCTION DIVISION GEOTECHNICAL BRANCH

LACKLAND AIRFORCE BASE, TEXAS
FY18 DINING CLASSROOM FACILITY 4
PN: MPLS983737S4

GRADE BEAM BACKFILL DETAIL

SHEET SEQUENCE NUMBER
B-104

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## Hole No. 8A4C–1687

DRILLING LOG — DIVISION SWD — INSTALLATION FORT WORTH DISTRICT — SHEET 1 OF 1 SHEETS

1. PROJECT: DINING CLASSROOM FACILITY, DFC–4
2. LOCATION (Coordinates or Station): LACKLAND AIRFORCE BASE (AFB), TEXAS
3. DRILLING AGENCY: USACE
4. HOLE NO. (As shown on drawing title and file number): 8A4C–1687
5. NAME OF DRILLER: BEAN
6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED ___ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: 18.6'
8. DEPTH DRILLED INTO ROCK: 49.6'
9. TOTAL DEPTH OF HOLE: 68.2'
10. SIZE AND TYPE OF BIT: SEE REMARKS
11. DATUM FOR ELEVATION SHOWN (TBM or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: GUS PECH 1300C
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 5, UNDISTURBED 4
14. TOTAL NUMBER CORE CARTONS: 10
15. ELEVATION GROUND WATER: 8.6' AFTER 90MIN
16. DATE HOLE: STARTED 5 MAY 17, COMPLETED 6 MAY 17
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING: 98%
19. SIGNATURE OF INSPECTOR: JOEL WEBSTER

| % MOISTURE CONTENT | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS (Description) | % CORE RECOVERY | BOX OR SAMPLE NO. | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) |
|---|---|---|---|---|---|---|
| | | VISUAL | 0.0' TO 18.6' CLAY<br>0.0' TO 4.0' – HIGH PLASTICITY, VERY STIFF TO STIFF, MOIST, VERY DARK GRAY, LITTLE FINE GRAINED SUBANGULAR GRAVEL, FEW ROOTLETS AND LINE NODULES TO 1/2", TRACE FINE GRAINED SAND POCKETS.<br>4.0' TO 8.0' – HIGH PLASTICITY, VERY STIFF, MOIST, VERY PALE BROWN, FEW TO TRACE SCATTERED SUBANGULAR GRAVEL.<br>8.0' TO 18.6' – LOW TO MEDIUM PLASTICITY, STIFF TO FIRM, VERY MOIST TO WET FROM 9.0' TO 10.5', VERY PALE BROWN AND WHITE, CALCAREOUS, TRACE SCATTERED SUBANGULAR GRAVEL AND SCATTERED THICK BEDS OF CALICHE.<br>18.6' TO 67.6'<br>SHALE<br>18.6' TO 39.5' – HIGHLY WEATHERED LIGHT BROWNISH GRAY AND BROWNISH YELLOW, SOFT TO MODERATELY HARD (RX), MASSIVE BEDDED, HIGHLY FRACTURED, SLIGHTLY BLOCKY, SOME CALICHE TO 20.0', LITTLE SILT, MgO BLACK STAINING AND FeO BROWNISH YELLOW TO YELLOWISH BROWN STAINING/DEPOSITS IN FRACTURES, HARD (RX) LIMONITIC SEAM AT 32.0'.<br>39.5' TO 57.5' – WEATHERED BROWNISH GRAY, MODERATELY HARD (RX), MASSIVE BEDDED, MODERATELY TO HIGHLY FRACTURED, SOME Fe/MgO STAINING/DEPOSITS IN FRACTURES, HARD (RX) LIMONITIC SEAM 1/2" THICK AT 40.3', LITTLE DARK GRAY AFTER 56.0'.<br>57.5' TO 67.6' – UNWEATHERED BLACK TO VERY DARK GRAY, MODERATELY HARD (RX), MASSIVE BEDDED, SLIGHTLY TO MODERATELY FRACTURED, LAMINATED WITH THIN <1/16" FINE GRAINED GYPSUM SAND PARTINGS, TRACE FeO STAINING TO 60.0'. | | | BORING LOCATION<br>N: 29.38530°<br>W: 98.63330°<br>DRILLING<br>2.0' TO 4.0', 12.0' TO 13.5', 24.0' TO 26.0', AND 32.0' TO 34.0' – PUSHED 3" SHELBY TUBE.<br>4.0' TO 34.5' – 8" HSA X 4–1/4" INNER DIAMETER. PULL AUGERS AND DRIVE 6" METAL CASING TO 35.5'. SET MUD PAN. CLEAN OUT TO 36.0' WITH 6" ROLLER BIT.<br>*WATER LEVEL AT 10.0' AFTER REFUSAL OF ST–2 + 10 MIN. WATER LEVEL AT 8.6' AFTER RETRIEVAL OF ST–4 + 90MIN.<br>GROUT TO SURFACE.<br>JAR SAMPLES<br>A: 0.5' TO 2.0'<br>B: 4.0' TO 8.0'<br>C: 8.0' TO 12.0'<br>D: 14.0' TO 18.6'<br>E: 18.6' TO 20.0'<br>SHELBY TUBE SAMPLES<br>ST–1: 2.0' TO 4.0', 425PSI/71SEC<br>ST–2: 12.0' TO 13.5', NOT RECORDED<br>ST–3: 24.0' TO 26.0', 500PSI/16SEC<br>ST–4: 32.0' TO 34.0', 500PSI/14SEC<br>CARTON SAMPLES<br>C–1: 36.5' TO 37.3'<br>C–2: 42.1' TO 43.0'<br>C–3: 45.2' TO 46.1'<br>C–4: 50.4' TO 51.3'<br>C–5: 54.4' TO 55.3'<br>C–6: 57.5' TO 58.4'<br>C–7: 62.8' TO 63.7'<br>C–8: 66.7' TO 67.6' |

10 20 30 40 50 60 70 80

27.8 25.3

ST–1 A; B; ST–2 C; D; E; ST–3; ST–4; C–1 36'–40' NO LOSS; 42'–44' LOST 0.7'; C–2 44'–46' NO LOSS; C–3 48'–52' NO LOSS; C–4 52'–56' GAIN 0.7'; C–5 56'–60' LOST 0.8'; C–6 60'–64' GAIN 0.8'; C–7 64'–68.2' LOST 0.8'; C–8

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT: DCF–4, LACKLAND AFB HOLE NO. 8A4C–1687

## Hole No. 8A4C–1688

DRILLING LOG — DIVISION SWD — INSTALLATION FORT WORTH DISTRICT — SHEET 1 OF 1 SHEETS

1. PROJECT: DINING CLASSROOM FACILITY, DFC–4
2. LOCATION (Coordinates or Station): LACKLAND AIRFORCE BASE (AFB), TEXAS
3. DRILLING AGENCY: USACE
4. HOLE NO. (As shown on drawing title and file number): 8A4C–1688
5. NAME OF DRILLER: SPENCER
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ___ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: 11.2'
8. DEPTH DRILLED INTO ROCK: 69.4'
9. TOTAL DEPTH OF HOLE: 80.6'
10. SIZE AND TYPE OF BIT: SEE REMARKS
11. DATUM FOR ELEVATION SHOWN (TBM or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: GUS PECH 1300C
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 3, UNDISTURBED 4
14. TOTAL NUMBER CORE CARTONS: 9
15. ELEVATION GROUND WATER: SEE REMARKS
16. DATE HOLE: STARTED 27 APR 17, COMPLETED 3 MAY 17
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING: 73%
19. SIGNATURE OF INSPECTOR: JOEL WEBSTER

| % MOISTURE CONTENT | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS (Description) | % CORE RECOVERY | BOX OR SAMPLE NO. | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) |
|---|---|---|---|---|---|---|
| | | VISUAL | 0.0' TO 5.0'<br>CLAY – HIGH PLASTICITY, HARD TO VERY STIFF, MOIST, BLACK TO VERY DARK GRAY, FEW LIME NODULES TO 1/8", TRACE ROOTLETS AND SUBANGULAR TO SUBROUNDED GRAVEL..<br>5.0' TO 11.2'<br>GRAVEL – COARSE TO FINE GRAINED WITH COBBLES TO 4", LIMESTONE AND CHERT, ANGULAR TO SUBROUNDED AND VERY SANDY TO 6", MEDIUM DENSE, MOIST, VERY PALE BROWN AND WHITE, LIMY, SUBROUNDED TO SUBANGULAR WITH SOME CALICHE AND CALCAREOUS CLAY AFTER 6.0'.<br>11.2' TO 79.7'<br>SHALE<br>11.2' TO 21.0' – HIGHLY WEATHERED LIGHT BROWNISH GRAY WITH YELLOWISH BROWN STAINING, SOFT (RX), MASSIVE BEDDED, HIGHLY FRACTURED, SLIGHTLY BLOCKY, LITTLE SILT, FEW TO LITTLE MgO STAINING, HARD (RX) LIMONITE SEAM FROM 16.7' TO 17.0'.<br>21.0' TO 36.7' – AS ABOVE, BROWNISH GRAY, GREENISH GRAY, WITH YELLOWISH BROWN STAINING, SOFT TO MODERATELY HARD (RX), HIGHLY FRACTURED WITH HIGH AND LOW ANGLE, VERTICAL AND HORIZONTAL FRACTURES, SOME WELL HEALED AND OPEN – TYPICALLY FILLED WITH Fe/MgO STAINING/DEPOSITS.<br>36.7' TO 61.2' – AS ABOVE, DARK GRAYISH BROWN TO GRAYISH BROWN WITH FEW TO LITTLE YELLOWISH BROWN AND BLACK STAINING, MODERATELY HARD (RX), GYPSIFEROUS, MODERATELY FRACTURED AFTER 44', HARD (RX), LIMONITIC SEAM FROM 54.8' TO 55.0', SOME DARK GRAY AFTER 55.4'.<br>61.2' TO 79.7' – UNWEATHERED VERY DARK GRAY TO BLACK, MODERATELY HARD (RX), MASSIVE BEDDED, MODERATELY TO SLIGHTLY FRACTURED, SLIGHTLY BLOCKY, FEW TO LITTLE SILT, TRACE OLIVE BROWN STAINING AT HORIZONTAL FRACTURES TO 66.0'; VERY HARD (RX) NODULE WITH 5" DIAMETER FROM 71.6' TO 71.9', WEATHERED YELLOWISH BROWN LAYER FROM 75.3' TO 76.5', HIGH ANGLE FRACTURE FROM 77.0' TO 77.8'.<br>NOTE: CORE HOLE WALL COLLAPSING INTO HOLE FROM 62.0' TO 32.0' DURING CORING ACTIVITIES. BOREHOLE WAS CASED TO 32.0'.<br>SRT = 191.5 X 2.5' X 0.1(MULTI) X 0.5(ZERO) = 23.94 OHMS–CM | | | BORING LOCATION<br>N: 29.38550°<br>W: 98.63270°<br>DRILLING<br>0.0' TO 2.0' – SPLIT BARREL SAMPLER.<br>2.0' TO 4.0' – 3" SHELBY TUBE<br>4.0' TO 30.0' – 8" HSA + INNER BARREL SAMPLER,<br>12.0' TO 14.0', 20.0' TO 22.0', 28.0' TO 30.0' – PUSH 3" SHELBY TUBES IN HIGHLY FRACTURED SHALE. PULL AUGERS AND DRIVE 6" METAL CASING TO 30.5' SET MUD PAN. CLEANOUT TO 32.0' WITH 6" ROLLER BIT.<br>32.0' TO 80.6' – 4" GATOR BIT. LOST ~ 25 GAL WATER AT 39.7', SHALE STUCK IN CORE BARREL – DIG OUT AND CLEAN OUT HOLE WITH 6" ROLLER BIT. DRILL OUT TO 50.0' AFTER 46.0' TO 49.5' CORE RUN. CORE RUNS NOT YELDING ANY OR NOT MUCH SAMPLE, MATERIAL COLLAPSING INTO HOLE UPON CORE BARREL RETRIEVAL AFTER RUNS. DRILLER USED LOW PRESSURE AND SLOW REVOLUTIONS ON 54.0' TO 58.0' RUN, ~3' MATERIAL STUCK N BARREL, DIG OUT.<br>BAILED TO 44.0', PULL UP CASING 3', WITH HOLE OPEN TO 48'. NO CHANGE AFTER 24 HOURS.<br>JAR SAMPLES<br>A: 0.0' TO 5.0'<br>B: 6.0' TO 8.0'<br>C: 8.0' TO 11.2'<br>SHELBY TUBE SAMPLES<br>ST–1: 2.0' TO 4.0', 500PSI/39SEC<br>ST–2: 12.0' TO 14.0' 500PSI/14SEC<br>ST–3: 20.0' TO 22.0' 500PSI/22SEC<br>ST–4: 28.0' TO 30.0'<br>CARTON SAMPLES<br>C–1: 41.0' TO 41.7'<br>C–2: 42.2' TO 43.1'<br>C–3: 43.1' TO 44.0'<br>C–4: 61.4' TO 62.3'<br>C–5: 62.7' TO 63.6'<br>C–6: 66.2' TO 67.0'<br>C–7: 69.1' TO 70.0'<br>C–8: 74.1' TO 75.0'<br>C–9: 78.6' TO 79.5'<br>GROUT TO SURFACE |

10 20 30 40 50 60 70 80

28.7 26.8 26.2 25.0 24.3

ST–1 A; B; C; ST–2; ST–3; ST–4; C–1 36'–40' NO LOSS; 32'–36' LOST 4.0'; C–2 42'–44' LOST 1.6'; C–3 44'–46' LOST 1.5'; 46'–49.5' GAIN 1.5'; C–4 50'–54' LOST 3.5'; C–5 54'–58' LOST 1.2'; C–6 58'–62' LOST 4.0'; 62'–65.6' GAIN 1.0'; C–7 65.6'–69.6' LOST 2.3'; 69.6'–72.6' GAIN 2.0'; 72.6'–76.6' NO LOSS; C–8 76.6'–80.6' GAIN 0.3'

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT: DCF–4, LACKLAND AFB HOLE NO. 8A4C–1688

## Hole No. 8A4C–1689

DRILLING LOG — DIVISION SWD — INSTALLATION FORT WORTH DISTRICT — SHEET 1 OF 1 SHEETS

1. PROJECT: DINING CLASSROOM FACILITY, DFC–4
2. LOCATION (Coordinates or Station): LACKLAND AIRFORCE BASE (AFB), TEXAS
3. DRILLING AGENCY: USACE
4. HOLE NO. (As shown on drawing title and file number): 8A4C–1689
5. NAME OF DRILLER: BEAN
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ___ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: 18.5'
8. DEPTH DRILLED INTO ROCK: 49.5'
9. TOTAL DEPTH OF HOLE: 68.0'
10. SIZE AND TYPE OF BIT: SEE REMARKS
11. DATUM FOR ELEVATION SHOWN (TBM or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: GUS PECH 1300C
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 4, UNDISTURBED 4
14. TOTAL NUMBER CORE CARTONS:
15. ELEVATION GROUND WATER: 8.7' AFTER 24 HRS
16. DATE HOLE: STARTED 10 MAY 17, COMPLETED 16 MAY 17
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING: 99%
19. SIGNATURE OF INSPECTOR: JOEL WEBSTER

| % MOISTURE CONTENT | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS (Description) | % CORE RECOVERY | BOX OR SAMPLE NO. | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) |
|---|---|---|---|---|---|---|
| 28.7 | | VISUAL | 0.0' TO 11.3'<br>CLAY<br>0.0' TO 5.2' – HIGH PLASTICITY, VERY STIFF TO STIFF, MOIST, BLACK TO VERY DARK GRAY, FEW TO LITTLE LIME NODULES TO 1/4", TRACE ROOTLETS AND FINE GRAINED, SUBANGULAR GRAVEL.<br>5.2' TO 11.3' – HIGH TO MEDIUM PLASTICITY, STIFF, VERY MOIST FROM 10.0' TO 11.3', VERY PALE BROWN AND WHITE CALCAREOUS, SOME CALICHE, TRACE BLACK GRAVEL, VERY GRAVELLY FROM 9.5' TO 10.0'.<br>11.3' TO 18.5'<br>GRAVEL – COARSE TO FINE GRIANED SUBROUNDED TO SUBANGULAR, WITH COBBLES TO 6", DENSE TO VERY DENSE, MOIST, VERY PALE BROWN, WHITE, AND BROWNISH YELLOW, LIMY, SANDY, LITTLE TO SOME CALICHE AND CALCAREOUS CLAY, LIMONITIC SEAM FROM 15.8' TO 16.0'.<br>18.5' TO 68.0'<br>SHALE<br>18.5' TO 39.3' – HIGHLY WEATHERED, LIGHT BROWNISH GRAY AND BROWNISH YELLOW, SOFT (RX), MASSIVE BEDDED, HIGHLY FRACTURED WITH HIGH AND LOW ANGLE, HORIZONTAL AND VERTICAL FRACTURES – SOME FILLED WITH Fe/MgO STAINING/THIN DEPOSITS, SLIGHTLY BLOCKY, LITTLE SILT, FRACTURES ARE OPEN TO WELL HEALED, HARD (RX) LIMONITIC DEPOSITS < 0.2' THICK AT 20.0', 24.0', 28.0' AND 36.5'.<br>39.3' TO 56.8' – WEATHERED BROWNISH GRAY TO DARK BROWNISH GRAY, MODERATELY HARD (RX), MODERATELY FRACTURED WITH HORIZONTAL FRACTURES FILLED WITH YELLOWISH BROWN FeO STAINING/DEPOSITS, MASSIVE BEDDED, SLIGHTLY BLOCKY, LITTLE SILT, TRACE GYPSUM, GYPSUM – FILLED FRACTURE ~0.1' THICK AT 56.5'.<br>56.8' TO 68.0' – UNWEATHERED VERY DARK GRAY TO BLACK, MODERATELY HARD (RX), MODERATELY FRACTURED AS ABOVE TO 60.2', MASSIVE BEDDED, SLIGHTLY BLOCKY, LITTLE SILT. | | | BORING LOCATION<br>N: 29.38450°<br>W: 98.63290°<br>DRILLING<br>0.0' TO 4.0' – 3" OR 2" SPT SAMPLER.<br>4.0' TO 34.5' – 8" X 4–1/4" HSA + INNER BARREL SAMPLER.<br>2.0' TO 4.0', 8.0' TO 10.0', 26.0' TO 28.0', AND 30.0' TO 32.0' – 3" SHELBY TUBE PUSHES.<br>REFUSAL AT 13.5' DURING 12.0' TO 16.0' RUN, USED CENTER BIT TO DRILL TO 16.0' WITH NO RECOVERY FROM 13.5' TO 16.0'. INNER BARREL SAMPLER BLOCKED OFF IN SHOE AT ~18.0' WITH NO RECOVERY FROM 18.0' TO 20.0'. PULL AUGERS AND DRIVE 6" METAL CASING TO 35.5'. SET MUD PAN AND CLEANOUT TO 36.0' WITH 6" ROLLER BIT.<br>36.0' TO 68.0' – 4" GATOR BIT. BAIL DRY.<br>GROUT TO SURFACE<br>JAR SAMPLES<br>A: 0.5' TO 5.2'<br>B: 5.2' TO 8.0'<br>C: 10.0' TO 11.3'<br>D: 20.0' TO 24.0'<br>SHELBY TUBE SAMPLES<br>ST–1: 2.0' TO 4.0'<br>ST–2: 8.0' TO 10.0'<br>ST–3: 26.0' TO 28.0'<br>ST–4: 30.0' TO 32.0'<br>CARTON SAMPLES<br>C–1: 38.6' TO 39.5'<br>C–2: 45.1' TO 46.0'<br>C–3: 49.1' TO 50.0'<br>C–4: 55.1' TO 56.0'<br>C–5: 60.6' TO 61.5'<br>C–6: 65.0' TO 65.9' |

10 20 30 40 50 60 70 80

26.9 23.8

ST–1 A; B; ST–2; C; ST–3; ST–4; C–1 36'–40' LOST 0.5'; C–2 42'–44' LOST 0.9'; C–3 44'–48' LOST 0.7'; C–4 48'–52' NO LOSS; C–5 52'–56' NO LOSS; C–6 56'–60' LOST 0.4'; 60'–64' NO LOSS; 64'–68' NO LOSS

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT: DCF–4, LACKLAND AFB HOLE NO. 8A4C–1689

## Hole No. 8A4C–1690

DRILLING LOG — DIVISION SWD — INSTALLATION FORT WORTH DISTRICT — SHEET 1 OF 1 SHEETS

1. PROJECT: DINING CLASSROOM FACILITY, DFC–4
2. LOCATION (Coordinates or Station): LACKLAND AIRFORCE BASE (AFB), TEXAS
3. DRILLING AGENCY: USACE
4. HOLE NO. (As shown on drawing title and file number): 8A4C–1690
5. NAME OF DRILLER: SPENVER
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ___ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: ~14.0'
8. DEPTH DRILLED INTO ROCK: ~56.2'
9. TOTAL DEPTH OF HOLE: 70.2'
10. SIZE AND TYPE OF BIT: SEE REMARKS
11. DATUM FOR ELEVATION SHOWN (TBM or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: GUS PECH 1300 C
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 4, UNDISTURBED 0
14. TOTAL NUMBER CORE CARTONS: N/A
15. ELEVATION GROUND WATER: SEE REMARKS
16. DATE HOLE: STARTED 18 APR 17, COMPLETED 19 APR 17
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING: 100%
19. SIGNATURE OF INSPECTOR: JOEL WEBSTER

| % MOISTURE CONTENT | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS (Description) | % CORE RECOVERY | BOX OR SAMPLE NO. | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) |
|---|---|---|---|---|---|---|
| | | VISUAL | 0.0' TO 4.0'<br>CLAY – HIGH PLASTICITY, VERY STIFF TO STIFF, MOIST, BLACK TO VERY DARK GRAY, SLIGHTLY SILTY, FEW LIME NODULES TO 1/8" AND DEPOSITS, TRACE ROOTLETS.<br>4.0' TO 14.0'<br>GRAVEL AND CALICHE – COARSE TO FINE GRAINED WITH COBBLES TO 5.5", SUBROUNDED TO ROUNDED, CHERT AND LIMESTONE, MEDIUM DENSE TO DENSE, DRY, WHITE AND VERY PALE BROWN, LIMY, LITTLE CLAY AND SILT, TRACE Fe/MgO DEPOSITS/STAINING.<br>14.0' TO 70.2'<br>SHALE<br>14.0' TO 39.1' – WEATHERED LIGHT GRAY AND YELLOWISH BROWN, SOFT (RX), HIGHLY FRACTURED, MASSIVE BEDDED, VERY HARD (RX) TO HARD (RX) LIMONITE SEAMS FROM 22.2' TO 22.4' AND 24.0' TO 24.4', BECOMING LIGHT BROWNISH GRAY WITH YELLOWISH BROWN STAINING, TRACE TO FEW BLACK STAINING, SCATTERED HORIZONTAL AND HIGH ANGLE GYPSUM–FILLED FRACTURES AFTER 34.6'.<br>39.1' TO 57.8' – WEATHERED OLIVE BROWN AND LIGHT OLIVE BROWN, MODERATELY HARD (RX), MASSIVE BEDDED, MODERATELY FRACTURED, SCATTERED FINE GRAINED LIGHT GRAY SAND LENSES <1/16" THICK, TYPICALLY BOUNDED BY LIMONITIC Fe/MgO STAINING/DEPOSITS, SOME MgO/FeO DEPOSIT/STAINING–FILLED FRACTURES, VERY HARD 9RX) LIMONITE SEAM FROM 56.1' TO 56.2'.<br>57.8' TO 70.2' – UNWEATHERED VERY DARK GRAY, MODERATELY HARD (RX), MASSIVE BEDDED, SLIGHTLY FRACTURED, FRACTURES HAVE LIMONITIC DEPOSITS <1/8" THICK, SCATTERED WEATHERED LAYERS TO 62.8'. | | | BORING LOCATION<br>N: 29.38480°<br>W: 98.63220°<br>DRILLING<br>0.0' TO 4.0' – SPLIT BARREL SAMPLER.<br>4.0' TO 16.0' – 8"X4–1/4" HSA + INNER BARREL SAMPLER (IBS). IBS SLEEVE BLOCKED OFF AT 10.5' DUE TO COBBLES, CLEANOUT TO 12.0'. IBS BLOCKED OFF FROM 12.0' TO 14.0'. DRILLER HIT SOFTER/SMOOTHER MATERIAL AFTER ~14.0'. GRAVELS MIXED IN WITH SHALE ON 12.0' TO 16.0' IBS RUN. SHALE POSSIBLY "REWORKED" FROM 14.0' TO 16.0'.<br>16.0' TO 18.0' – 2" SPT SAMPLER WITH 4–6–9–11 BLOW COUNT. CLEANOUT WITH IBS TO 18.0' – RECOVED COBBLE >5". PULL AUGERS.<br>18.0' TO 20.0' – SET 6" METAL CASING TO 19.5', CLEANOUT TO 20.0' WITH 6" ROLLER BIT.<br>LOST >25GAL WATER DURING 22.4' TO 26.4' RUN, WALL CAVING, DRIVE 10.0' OF 6" METAL CASING TO 29.5' CLEANOUT WITH 6" ROLLER BIT TO 30.8'.<br>JAR SAMPLES<br>A: 0.0' TO 4.0'<br>B: 4.0' TO 8.0'<br>C: 8.0' TO 10.5'<br>D: 14.0' TO 18.0'<br>CARTON SAMPLES<br>C–1: 23.1' TO 24.0'<br>C–2: 32.3' TO 33.2'<br>C–3: 37.0' TO 37.9'<br>C–4: 40.7' TO 41.6'<br>C–5: 45.7' TO 46.4'<br>C–6: 50.3' TO 51.2'<br>C–7: 57.1' TO 58.0'<br>C–8: 60.6' TO 61.5'<br>C–9: 65.9' TO 66.8'<br>C–10: 69.1' TO 70.0' |

10 20 30 40 50 60 70 80

25.3 25.2

ST–1 A; B; C; D; C–1 20'–22.4' NO LOSS; C–2 22.4'–27.5' NO LOSS; C–3 27.5'–33.8' LOSS 0.3'; C–4 33.8'–38' NO LOSS; C–5 38'–42' NO LOSS; C–6 42'–46.5' NO LOSS; C–7 46.5'–50.5' NO LOSS; C–8 50.5'–54' NO LOSS; C–9 54'–58' NO LOSS; C–10 58'–62.5' NO LOSS; 62.5'–67.2' NO LOSS; 67.2'–70.2' NO LOSS

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT: DCF–4, LACKLAND AFB HOLE NO. 8AC–1690

NOTES:

1. USE THIS SHEET FOR BORING LOGS ONLY.
2. MOISTURE CONTENT, WHERE SHOWN, IS EXPRESSED AS PERCENT DRY WEIGHT AT TIME OF LABORATORY CLASSIFICATION.
3. LEGEND SHOWS OVERBURDEN MATERIALS CLASSIFIED ACCORDING TO ASTM D 2487 AND ASTM D 2488.
4. DESCRIPTION OF OVERBURDEN MATERIALS CHANGED TO CORRESPOND WITH LABORATORY CLASSIFICATION AS NECESSARY.
5. ORIGINAL DRILLING LOGS AVAILABLE AT CORPS OF ENGINEERS OFFICES.

US ARMY CORPS OF ENGINEERS®
FORT WORTH DISTRICT

| Symbol | Description | Tracking No. | Action | Date |
|---|---|---|---|---|
| | | | | |

Date: SEPTEMBER 2018 | Rev: -
Solicitation No.: 888888888
Contract No.: -
File Name: 1836Logs.dwg PLOT DATE: 08SEP2018 PLOT SCALE: 1:5

Designed by: K. McCLESKEY
Drawn by: C. BERRY
Reviewed by: K. McCLESKEY
Submitted by: KENNETH McCLESKEY, P. G. CHIEF, DAM & LEVEE SAFETY

U.S. ARMY ENGINEER DISTRICT, CORPS OF ENGINEERS FORT WORTH, TEXAS

ENGINEERING/ CONSTRUCTION DIVISION GEOTECHNICAL BRANCH

LACKLAND AIRFORCE BASE, TEXAS
FY18 DINING CLASSROOM FACILITY 4
PN: MPLS08373734

LOGS OF BORINGS 1 OF 2

SHEET SEQUENCE NUMBER
B-201

\\swf-netapp2\common\ec\MILCON\Air Force\Lackland AFB\Airmen Training Complex\DCF 4\lk-DCF4-B202.dwg 8/3/2017

## Hole No. 10A–1691

DRILLING LOG | DIVISION SWD | INSTALLATION FORT WORTH DISTRICT | SHEET 1 OF 1 SHEETS

1. PROJECT: DINING CLASSROOM FACILITY, DFC–4
2. LOCATION (Coordinates or Station): LACKLAND AIRFORCE BASE (AFB), TEXAS
3. DRILLING AGENCY: USACE
4. HOLE NO. (As shown on drawing title and file number): 10A–1691
5. NAME OF DRILLER: BEAN
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: ---
8. DEPTH DRILLED INTO ROCK: ---
9. TOTAL DEPTH OF HOLE: 10'
10. SIZE AND TYPE OF BIT: 2" SPT SPLIT BARREL SAMPLER
11. DATUM FOR ELEVATION SHOWN (TBM or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: GUS PECH 1300C
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 3, UNDISTURBED 0
14. TOTAL NUMBER CORE CARTONS: N/A
15. ELEVATION GROUND WATER: DRY
16. DATE HOLE: STARTED 6 APR 17, COMPLETED 6 APR 17
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR: JOEL WEBSTER

| % MOISTURE CONTENT | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS (Description) | % CORE RECOVERY | BOX OR SAMPLE NO. | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) |
|---|---|---|---|---|---|---|
| 29.0 | | | 0.0' TO 8.0'<br>CLAY<br>0.0' TO 4.7' – HIGH PLASTICITY, VERY STIFF, MOIST, BLACK, BECOMING GRAY WITH DEPTH, SLIGHTLY SILTY, FEW TO LITTLE LIME NODULES TO 1/2", TRACE ROOTLETS AND SUBROUNDED FINE GRAINED GRAVEL. | | A | BORING LOCATION<br>N: 29.38412°<br>W: 98.63314° |
| 23.9 | | | 4.7' TO 8.0' – HIGH TO MEDIUM PLASTICITY, STIFF, MOIST, PALE BROWN, CALCAREOUS, GYPSIFEROUS, FEW TO LITTLE LIME NODULES TO 1/4". | | B | SEE CONE TEST<br>BACKFILLED TO SURFACE |
| 12.5 | 10 | | 8.0' TO 10.0'<br>CALICHE AND GRAVEL – CHALKY SILT AND CLAY, STIFF, MOIST, PALE BROWN TO YELLOWISH BROWN AND WHITE, LIMY, SCATTERED GRAVELLY SEAMS. | | C | JAR SAMPLES<br>A: 0.0' TO 4.7'<br>B: 4.7' TO 8.0'<br>C: 8.0' TO 10.0' |
| | 20 | | | | | |
| | 30 | | | | | |

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. | PROJECT: DCF–4, LACKLAND AFB | HOLE NO. 10A–1691

## Hole No. 10A–1692

DRILLING LOG | DIVISION SWD | INSTALLATION FORT WORTH DISTRICT | SHEET 1 OF 1 SHEETS

1. PROJECT: DINING CLASSROOM FACILITY, DFC–4
2. LOCATION (Coordinates or Station): LACKLAND AIRFORCE BASE (AFB)
3. DRILLING AGENCY: USACE
4. HOLE NO. (As shown on drawing title and file number): 10A–1692
5. NAME OF DRILLER: BEAN
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: ---
8. DEPTH DRILLED INTO ROCK: ---
9. TOTAL DEPTH OF HOLE: 10.0'
10. SIZE AND TYPE OF BIT: 2" SPT SPLIT BARREL SAMPLER
11. DATUM FOR ELEVATION SHOWN (TBM or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: GUS PECH 1300C
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 3, UNDISTURBED 0
14. TOTAL NUMBER CORE CARTONS: N/A
15. ELEVATION GROUND WATER: DRY
16. DATE HOLE: STARTED 6 APR 17, COMPLETED 6 APR 17
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR: JOEL WEBSTER

| % MOISTURE CONTENT | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS (Description) | % CORE RECOVERY | BOX OR SAMPLE NO. | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) |
|---|---|---|---|---|---|---|
| 35.4 | | | 0.0' TO 3.8'<br>CLAY – HIGH PLASTICITY, VERY STIFF, MOIST, BLACK TO VERY DARK GRAY, SLIGHTLY SILTY, SOME TO LITTLE LIME NODULES TO 1/2", TRACE ROOTLETS. | | A | BORING LOCATION<br>N: 29.38454°<br>W: 98.63222° |
| 29.0 | | | 3.8' TO 5.8'<br>CALICHE – WITH MEDIUM TO LOW PLASTICITY CLAY AND SILT, STIFF, MOIST, WHITE AND VERY PALE BROWN, HIGHLY GYPSIFEROUS, FEW TO LITTLE LIME NODULES TO 1/2". | | B | SEE CONE TEST<br>BACKFILLED TO SURFACE |
| 37.9 | 10 | | 5.8' TO 10.0'<br>CALICHE AND GRAVEL – CALICHE AS ABOVE, FEW TO LITTLE YELLOWISH BROWN AND Fe/MgO DEPOSITS; GRAVEL – COARSE TO FINE GRAINED WITH COBBLES TO 5", MEDIUM DENSE TO DENSE, DRY, VERY PALE BROWN AND WHITE, LIMY.<br>NOTE: CLASSIFICATION OF CLAY MATRIX (BINDER) SHOWN ON THE LEGEND. | | C | JAR SAMPLES<br>A: 0.0' TO 3.8'<br>B: 3.8' TO 5.8'<br>C: 5.8' TO 10.0'<br>(BINDER ONLY) |
| | 20 | | | | | |
| | 30 | | | | | |

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. | PROJECT: DCF–4, LACKLAND AFB | HOLE NO. 10A–1692

## Hole No. 10A–1693

DRILLING LOG | DIVISION SWD | INSTALLATION FORT WORTH DISTRICT | SHEET 1 OF 1 SHEETS

1. PROJECT: DINING CLASSROOM FACILITY, DFC–4
2. LOCATION (Coordinates or Station): LACKLAND AIRFORCE BASE (AFB), TEXAS
3. DRILLING AGENCY: USACE
4. HOLE NO. (As shown on drawing title and file number): 10A–1693
5. NAME OF DRILLER: BEAN
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: ---
8. DEPTH DRILLED INTO ROCK: ---
9. TOTAL DEPTH OF HOLE: 10'
10. SIZE AND TYPE OF BIT: 2" SPT SPLIT BARREL SAMPLER
11. DATUM FOR ELEVATION SHOWN (TBM or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: GP–1300 C
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 3, UNDISTURBED 0
14. TOTAL NUMBER CORE CARTONS: N/A
15. ELEVATION GROUND WATER: DRY
16. DATE HOLE: STARTED 06 APR 17, COMPLETED 06 APR 17
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR: JOEL WEBSTER

| % MOISTURE CONTENT | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS (Description) | % CORE RECOVERY | BOX OR SAMPLE NO. | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) |
|---|---|---|---|---|---|---|
| 25.8 | | | 0.0' TO 8.0'<br>CLAY<br>0.0' TO 4.3' – HIGH PLASTICITY, HARD TO VERY STIFF, DRY, BLACK, FEW TO LITTLE LIME NODULES TO 1/2", TRACE ROOTLETS AND SUBROUNDED GRAVEL. | | A | BORING LOCATION<br>N: 29.38370°<br>W: 98.63170° |
| 26.5 | | | 4.3' TO 8.0' – MEDIUM PLASTICITY, VERY STIFF, MOIST, VERY PALE BROWN, LIMY, VERY GYPSIFEROUS, TRACE LIME NDOULES TO 1/2", TRACE BLACK MgO DEPOSITS. | | B | SEE CONE TEST<br>BACKFILLED TO SURFACE |
| 12.7 | 10 | | 8.0' TO 10.0'<br>GRAVEL AND CALICHE – COARSE TO FINE GRAINED, WITH COBBLES TO 5.5", MEDIUM DENSE, DRY, WHITE AND VERY PALE BROWN, WITH CHALKY WHITE SILTY AND CLAYEY CALICHE. | | C | JAR SAMPLES<br>A: 0.0' TO 4.3'<br>B: 4.3' TO 8.0'<br>C: 8.0' TO 10.0' |
| | 20 | | | | | |
| | 30 | | | | | |

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. | PROJECT: DCF–4, LACKLAND AFB | HOLE NO. 10A–1693

NOTES:

1. USE THIS SHEET FOR BORING LOGS ONLY.
2. MOISTURE CONTENT, WHERE SHOWN, IS EXPRESSED AS PERCENT DRY WEIGHT AT TIME OF LABORATORY CLASSIFICATION.
3. LEGEND SHOWS OVERBURDEN MATERIALS CLASSIFIED ACCORDING TO ASTM D 2487 AND ASTM D 2488.
4. DESCRIPTION OF OVERBURDEN MATERIALS CHANGED TO CORRESPOND WITH LABORATORY CLASSIFICATION AS NECESSARY.
5. ORIGINAL DRILLING LOGS AVAILABLE AT CORPS OF ENGINEERS OFFICES.

US ARMY CORPS OF ENGINEERS ®
FORT WORTH DISTRICT

| Symbol | Description | Tracking No. | Action | Date |
|---|---|---|---|---|

Designed by: K. McCLESKEY
Drawn by: C. BERRY
Reviewed by: K. McCLESKEY
Submitted by: KENNETH McCLESKEY, P. G. CHIEF, DAM & LEVEE SAFETY
Date: SEPTEMBER 2016
Rev: -
Solicitation No.: 0000000000
Contract No.: -
File Name: IN-OUT-A-ENG-Dims IN-OUT-A-ENG-LOBS.dwg
PLOT SCALE: 1:5

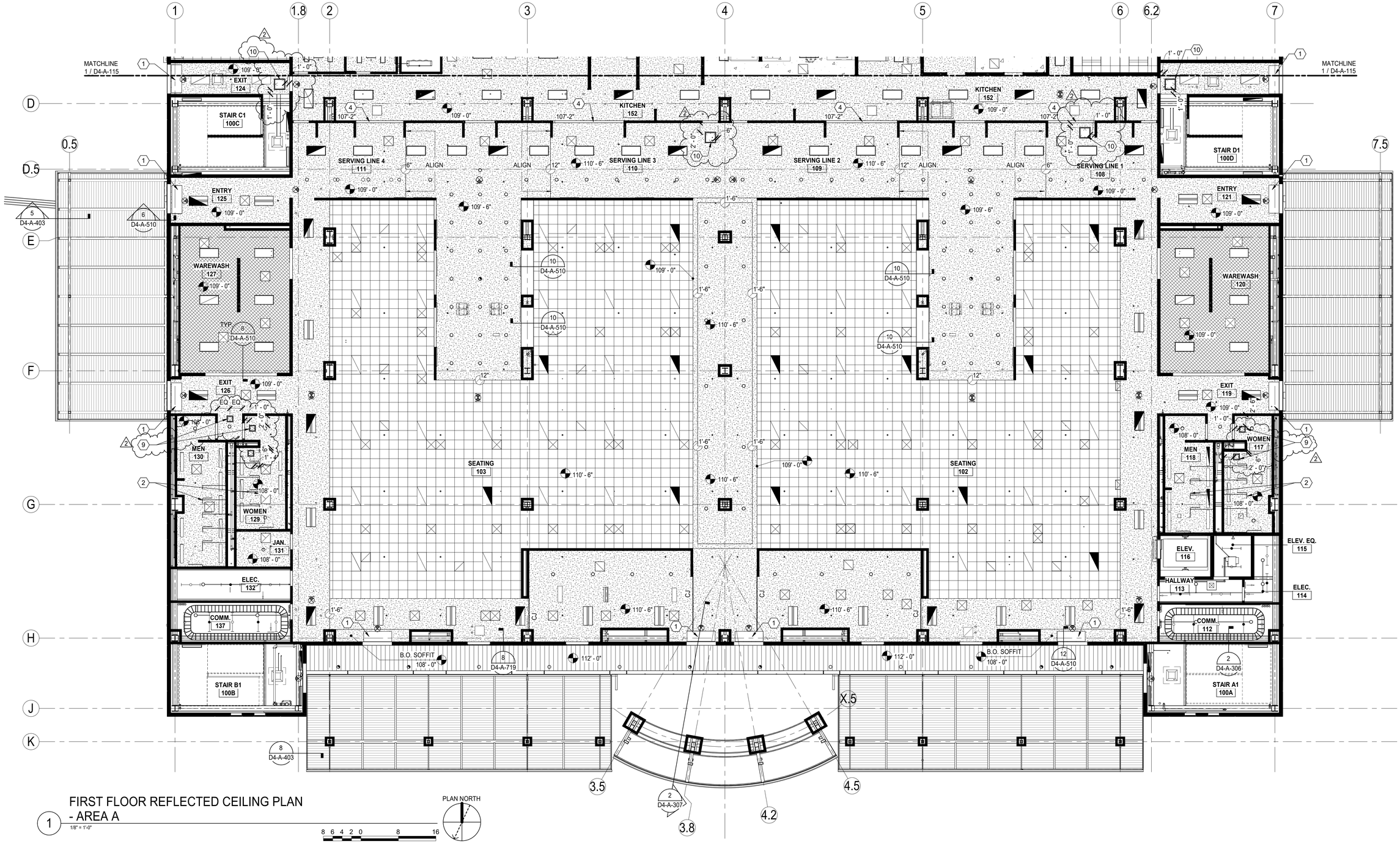
U.S. ARMY ENGINEER DISTRICT, CORPS OF ENGINEERS FORT WORTH, TEXAS

ENGINEERING/ CONSTRUCTION DIVISION GEOTECHNICAL BRANCH

LACKLAND AIRFORCE BASE, TEXAS
FY18 DINING CLASSROOM FACILITY 4
PN: MPLS08373S4

LOGS OF BORINGS 2 OF 2

SHEET SEQUENCE NUMBER
B-202




# FIRST FLOOR REFLECTED CEILING PLAN - AREA A

1 1/8" = 1'-0"

PLAN NORTH

8 6 4 2 0 8 16

## SHEET NOTES

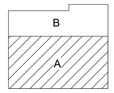
1. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL DOWNLIGHTS, SPEAKERS, SPRINKLER HEADS, ETC. SHALL BE CENTERED IN CEILING TILE.
2. CLIP IN PLACE CEILING TILES WITHIN A 6'-0" RADIUS IMMEDIATELY IN FRONT OF EACH EXTERIOR DOOR.
3. ENTER CORRIDOR LIGHTING EQUALLY FROM EACH SIDE IN WIDTH OF CORRIDOR SPACE. AT JOGS IN CORRIDOR WALL ALIGN FIXTURES THROUGH ENTIRE LENGTH OF CORRIDOR. SPACE FIXTURES ALONG CORRIDOR LENGTH AT UNIFORM DISTANCES. PROVIDE EQUAL DISTANCE FROM EACH END FIXTURE TO END OF CORRIDOR.
4. ARCHITECTURAL CEILING PLANS ARE FOR LOCATING FIXTURES UNLESS NOTED OTHERWISE. FOR ADDITIONAL INFORMATION AND RELATED WORK REFER TO ELECTRICAL LIGHTING, MECHANICAL, AND PLUMBING PLANS.
5. COORDINATE LOCATION OF ALL ACCESS PANELS IN FIELD AND CONSOLIDATE IF POSSIBLE.
6. A.F.F. CEILING ELEVATIONS ARE MEASURED FROM THE FINISHED FLOOR OF EACH FLOOR.
7. PAINT ALL EXPOSED STEEL COMPONENTS. DO NOT OVERPAINT MEMBERS WITH INTUMESCENT PAINT TYP, UNO.
8. FOR TYPICAL SUSPENDED GYP BOARD ACCESS PANEL DETAIL, SEE14 / D4-A-510
9. TYPICAL CONTROL JOINT REFER TO 11 / D4-A-510
10. ALL CEILINGS ARE 9'-0" UNO
11. FOR VIDEO WALL IN CLASSROOMS, RE: TELECOMMUNICATIONS

## KEYNOTES : DOES NOT APPLY ON ALL SHEETS

1. AIR CURTAIN
2. PROVIDE STRUCTURAL SUPPORT FOR CEILING HUNG TOILET PARTITION, TYP. COORDINATE MOUNTING HEIGHT WITH PARTITION MANUFACTURER. REFERENCE DETAIL 9 / D4-A-510 AND 16 / D4-A-510
3. ROOF ACCESS HATCH AND LADDER
4. PROVIDE GWB SOFFIT AROUND CEILING OPENING
5. PROVIDE 1-HOUR SPRAY APPLIED FIRE PROOFING WITH THERMAL BARRIER AT ROOF ASSEMBLY
6. REFER TO KITCHEN DRAWINGS FOR CEILING FINISH
7. HOOD AND FIRE SUPPRESSION; RE: KITCHEN DRAWINGS
8. GYPSUM BOARD SOFFIT AROUND BEAM
9. CEILING ACCESS PANEL (12" x 12")
10. CEILING ACCESS PANEL (24" x 24")

## LEGEND

- ACOUSTICAL TILE CEILING
- ACOUSTICAL TILE CEILING - SOUND RATED
- EXPOSED CEILING OPEN TO STRUCTURE
- GYPSUM WALLBOARD
- CEMENT BOARD WITH APPLIED FINISH - SEE FINISH SCHEDULE
- 2' x 4' FIBERGLASS REINFORCED PLASTIC PANEL ON CEMENT BOARD
- METAL SOFFIT PANEL
- EXPOSED METAL DECKING COLOR: DARK BRONZE
- RECESSED MOUNTED FLUORESCENT DIRECT/INDIRECT LIGHT FIXTURE
- EMERGENCY - RECESSED MOUNTED FLUORESCENT DIRECT/INDIRECT LIGHT FIXTURE
- RECESSED MOUNTED FLUORESCENT LIGHT FIXTURE
- EMERGENCY - RECESSED MOUNTED FLUORESCENT LIGHT FIXTURE
- STRIP FLUORESCENT LIGHT FIXTURE
- RECESSED COMPACT FLUORESCENT OR WALL WASHED LIGHT FIXTURE
- SQUARE DOWNLIGHT FIXTURE
- BUILDING EXTERIOR LIGHTING FIXTURE
- RECESSED FLUORESCENT LIGHT FIXTURE
- ATRIUM LIGHTING FIXTURE
- EXHAUST
- SUPPLY AIR DIFFUSER
- RETURN AIR DIFFUSER
- LINEAR DIFFUSERS
- JUNCTION BOX
- CEILING ACCESS PANEL
- CJ — CONTROL JOINT - RE: I-601 FINISH SELECTION AND I-103 FINISH PLAN
- EXIT LIGHT
- SPOT ELEVATION - HEIGHT A.F.F. UNO.
- FIRE SPRINKLER




KEY PLAN

US Army Corps of Engineers
Fort Worth District

REGISTERED ARCHITECT STATE OF TEXAS
06 AUGUST 2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | | | AUG 2026 |
| 1 | REVISED IAW AM0002 | | | JULY 2026 |

Designed by: A. RIVARD
Dwn by: F. DE LUNA
Reviewed by: D. DUNEE
Submitted by: C. LANGUM
Date: MAY 2025
Solicitation No.: W912RG25RA020
Contract No.:
File name:
Plot date: 8/3/2026 12:59:44 PM
Plot scale: 1:1
Rev:

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

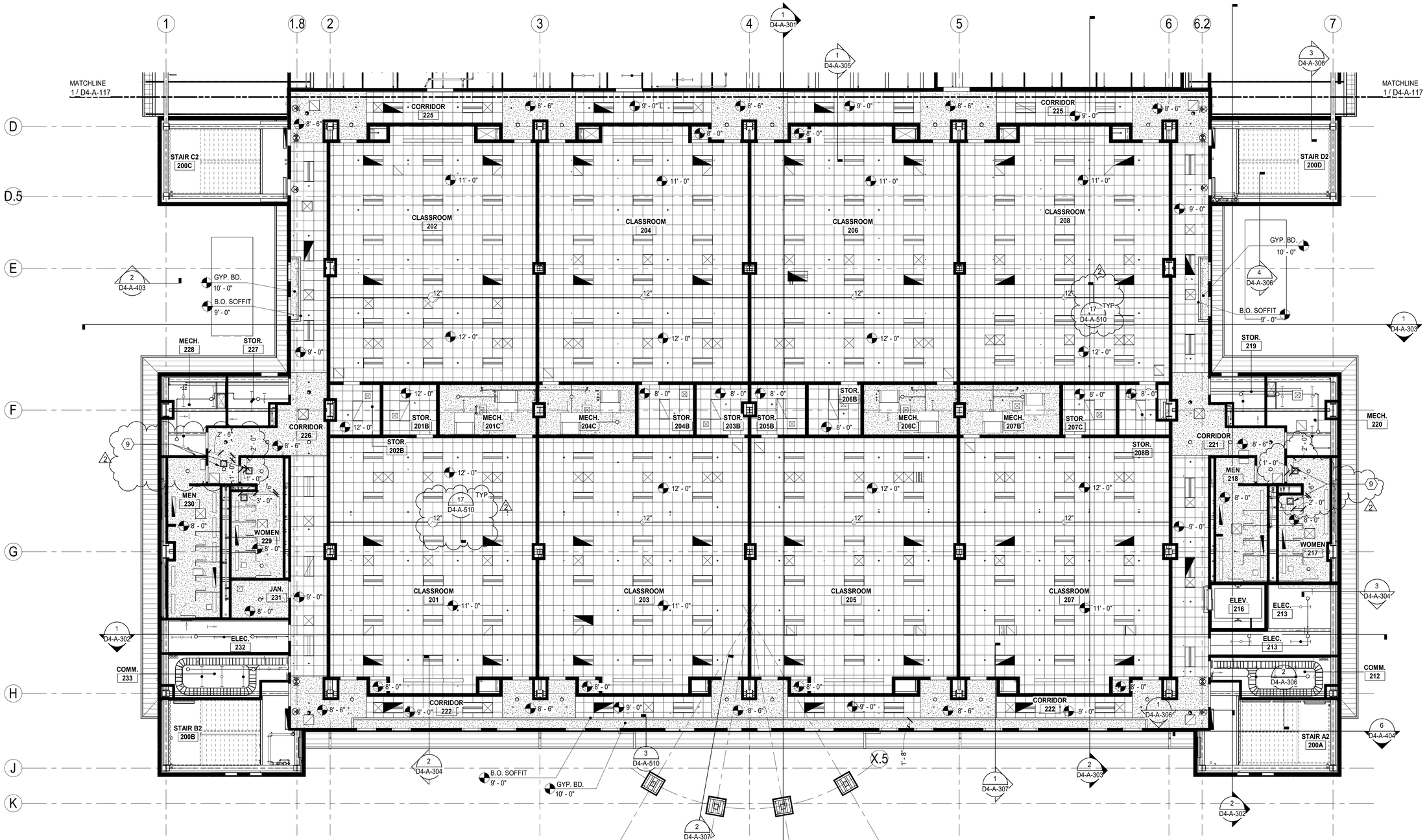
DRAWING NUMBER: LA 20-0003

IRSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

FIRST FLOOR REFLECTED CEILING PLAN - AREA A

Sheet reference number
D4-A-114
Sheet of

Cont No.




# SECOND FLOOR REFLECTED CEILING PLAN - AREA A

1 1/8" = 1'-0"

PLAN NORTH

8 6 4 2 0 8 16

## SHEET NOTES

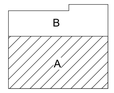
1. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL DOWNLIGHTS, SPEAKERS, SPRINKLER HEADS, ETC. SHALL BE CENTERED IN CEILING TILE.
2. CLIP IN PLACE CEILING TILES WITHIN A 6'-0" RADIUS IMMEDIATELY IN FRONT OF EACH EXTERIOR DOOR.
3. ENTER CORRIDOR LIGHTING EQUALLY FROM EACH SIDE IN WIDTH OF CORRIDOR SPACE. AT JOGS IN CORRIDOR WALL ALIGN FIXTURES THROUGH ENTIRE LENGTH OF CORRIDOR. SPACE FIXTURES ALONG CORRIDOR LENGTH AT UNIFORM DISTANCES. PROVIDE EQUAL DISTANCE FROM EACH END FIXTURE TO END OF CORRIDOR.
4. ARCHITECTURAL CEILING PLANS ARE FOR LOCATING FIXTURES UNLESS NOTED OTHERWISE. FOR ADDITIONAL INFORMATION AND RELATED WORK REFER TO ELECTRICAL LIGHTING, MECHANICAL, AND PLUMBING PLANS.
5. COORDINATE LOCATION OF ALL ACCESS PANELS IN FIELD AND CONSOLIDATE IF POSSIBLE.
6. A.F.F. CEILING ELEVATIONS ARE MEASURED FROM THE FINISHED FLOOR OF EACH FLOOR.
7. PAINT ALL EXPOSED STEEL COMPONENTS. DO NOT OVERPAINT MEMBERS WITH INTUMESCENT PAINT TYP, UNO.
8. FOR TYPICAL SUSPENDED GYP BOARD ACCESS PANEL DETAIL, SEE 14 / D4-A-510
9. TYPICAL CONTROL JOINT REFER TO 11 / D4-A-510
10. ALL CEILINGS ARE 9'-0" UNO
11. FOR VIDEO WALL IN CLASSROOMS, RE: TELECOMMUNICATIONS

## KEYNOTES : DOES NOT APPLY ON ALL SHEETS

1. AIR CURTAIN
2. PROVIDE STRUCTURAL SUPPORT FOR CEILING HUNG TOILET PARTITION, TYP. COORDINATE MOUNTING HEIGHT WITH PARTITION MANUFACTURER. REFERENCE DETAIL 9 / D4-A-510 AND 16 / D4-A-510
3. ROOF ACCESS HATCH AND LADDER
4. PROVIDE GWB SOFFIT AROUND CEILING OPENING
5. PROVIDE 1-HOUR SPRAY APPLIED FIRE PROOFING WITH THERMAL BARRIER AT ROOF ASSEMBLY
6. REFER TO KITCHEN DRAWINGS FOR CEILING FINISH
7. HOOD AND FIRE SUPPRESSION; RE: KITCHEN DRAWINGS
8. GYPSUM BOARD SOFFIT AROUND BEAM
9. CEILING ACCESS PANEL (12" x 12")
10. CEILING ACCESS PANEL (24" x 24")

## LEGEND

- ACOUSTICAL TILE CEILING
- ACOUSTICAL TILE CEILING - SOUND RATED
- EXPOSED CEILING OPEN TO STRUCTURE
- GYPSUM WALLBOARD
- CEMENT BOARD WITH APPLIED FINISH - SEE FINISH SCHEDULE
- 2' x 4' FIBERGLASS REINFORCED PLASTIC PANEL ON CEMENT BOARD
- METAL SOFFIT PANEL
- EXPOSED METAL DECKING COLOR: DARK BRONZE
- RECESSED MOUNTED FLUORESCENT DIRECT/INDIRECT LIGHT FIXTURE
- EMERGENCY - RECESSED MOUNTED FLUORESCENT DIRECT/INDIRECT LIGHT FIXTURE
- RECESSED MOUNTED FLUORESCENT LIGHT FIXTURE
- EMERGENCY - RECESSED MOUNTED FLUORESCENT LIGHT FIXTURE
- STRIP FLUORESCENT LIGHT FIXTURE
- RECESSED COMPACT FLUORESCENT OR WALL WASHED LIGHT FIXTURE
- SQUARE DOWNLIGHT FIXTURE
- BUILDING EXTERIOR LIGHTING FIXTURE
- RECESSED FLUORESCENT LIGHT FIXTURE
- ATRIUM LIGHTING FIXTURE
- EXHAUST
- SUPPLY AIR DIFFUSER
- RETURN AIR DIFFUSER
- LINEAR DIFFUSERS
- J JUNCTION BOX
- CEILING ACCESS PANEL
- CJ CONTROL JOINT - RE: I-601 FINISH SELECTION AND I-103 FINISH PLAN
- EXIT LIGHT
- SPOT ELEVATION - HEIGHT A.F.F. UNO.
- FIRE SPRINKLER




KEY PLAN

US Army Corps of Engineers
Fort Worth District

REGISTERED ARCHITECT
STATE OF TEXAS
06 AUGUST 2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | | | AUG 2026 |
| 1 | REVISED IAW AM0002 | | | JULY 2026 |

Designed by: A. RIVARD
Date: MAY 2025
Solicitation No.: W9126G26RA020
Contract No.:
Rev.
Drawn by: F. DE LUNA
Reviewed by: J. DUREE
Approved by: C. LANGAM
File name:
Plot date: xxxxxx x:xx:xx
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
PROVIDE ALL SERVICES
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

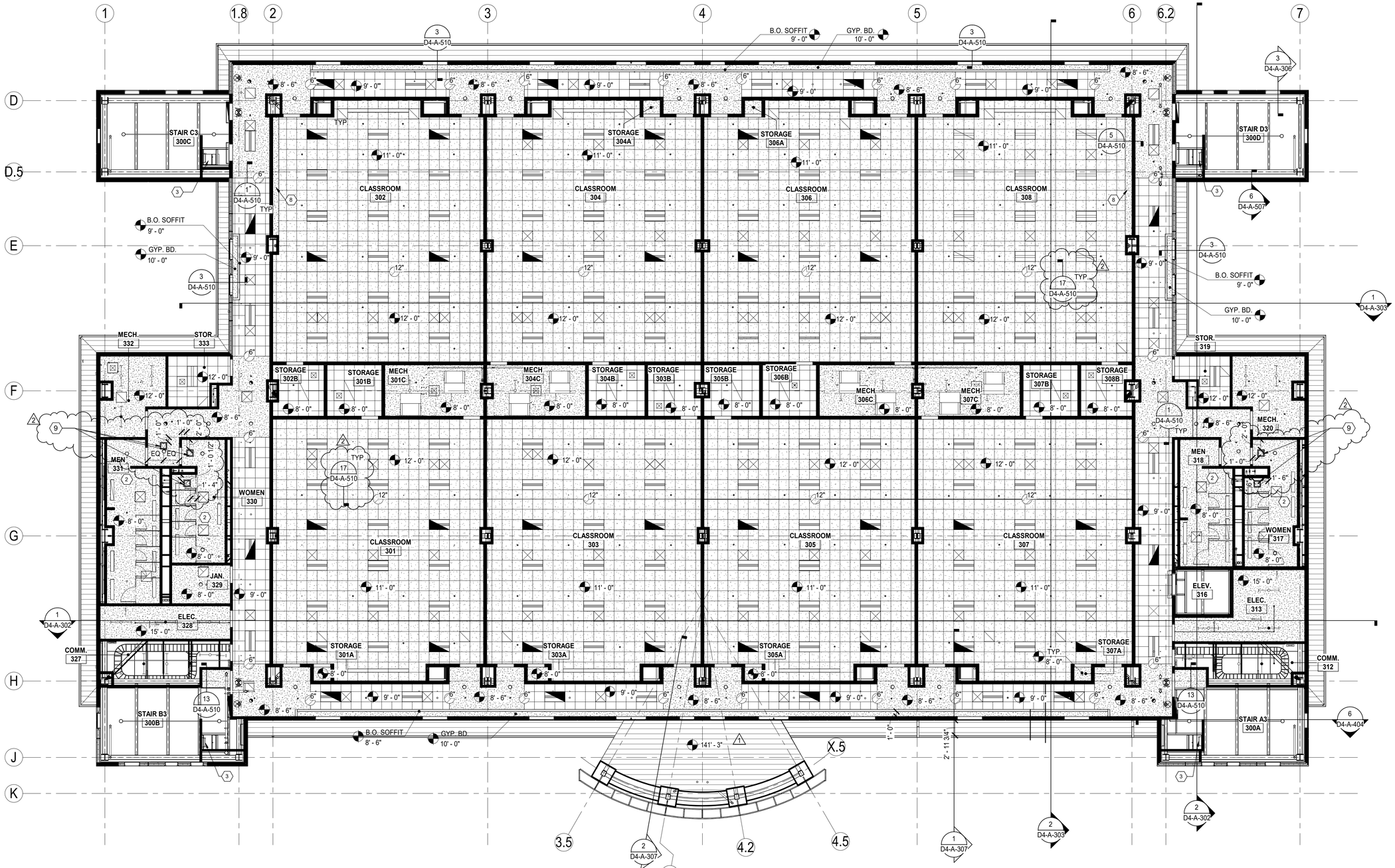
JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220927

SECOND FLOOR REFLECTED CEILING PLAN - AREA A

Sheet reference number
D4-A-116
Sheet of

Contr No.

8/4/2026 9:35:15 AM




1 THIRD FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0"

PLAN NORTH

## SHEET NOTES

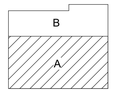
1. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL DOWNLIGHTS, SPEAKERS, SPRINKLER HEADS, ETC. SHALL BE CENTERED IN CEILING TILE.
2. CLIP IN PLACE CEILING TILES WITHIN A 6'-0" RADIUS IMMEDIATELY IN FRONT OF EACH EXTERIOR DOOR.
3. ENTER CORRIDOR LIGHTING EQUALLY FROM EACH SIDE IN WIDTH OF CORRIDOR SPACE. AT JOGS IN CORRIDOR WALL ALIGN FIXTURES THROUGH ENTIRE LENGTH OF CORRIDOR. SPACE FIXTURES ALONG CORRIDOR LENGTH AT UNIFORM DISTANCES. PROVIDE EQUAL DISTANCE FROM EACH END FIXTURE TO END OF CORRIDOR.
4. ARCHITECTURAL CEILING PLANS ARE FOR LOCATING FIXTURES UNLESS NOTED OTHERWISE. FOR ADDITIONAL INFORMATION AND RELATED WORK REFER TO ELECTRICAL LIGHTING, MECHANICAL, AND PLUMBING PLANS.
5. COORDINATE LOCATION OF ALL ACCESS PANELS IN FIELD AND CONSOLIDATE IF POSSIBLE.
6. A.F.F. CEILING ELEVATIONS ARE MEASURED FROM THE FINISHED FLOOR OF EACH FLOOR.
7. PAINT ALL EXPOSED STEEL COMPONENTS. DO NOT OVERPAINT MEMBERS WITH INTUMESCENT PAINT TYP, UNO.
8. FOR TYPICAL SUSPENDED GYP BOARD ACCESS PANEL DETAIL, SEE14 / D4-A-510
9. TYPICAL CONTROL JOINT REFER TO 11 / D4-A-510
10. ALL CEILINGS ARE 9'-0" UNO
11. FOR VIDEO WALL IN CLASSROOMS, RE: TELECOMMUNICATIONS

## KEYNOTES : DOES NOT APPLY ON ALL SHEETS

1. AIR CURTAIN
2. PROVIDE STRUCTURAL SUPPORT FOR CEILING HUNG TOILET PARTITION, TYP. COORDINATE MOUNTING HEIGHT WITH PARTITION MANUFACTURER. REFERENCE DETAIL 9 / D4-A-510 AND 16 / D4-A-510
3. ROOF ACCESS HATCH AND LADDER
4. PROVIDE GWB SOFFIT AROUND CEILING OPENING
5. PROVIDE 1-HOUR SPRAY APPLIED FIRE PROOFING WITH THERMAL BARRIER AT ROOF ASSEMBLY
6. REFER TO KITCHEN DRAWINGS FOR CEILING FINISH
7. HOOD AND FIRE SUPPRESSION; RE: KITCHEN DRAWINGS
8. GYPSUM BOARD SOFFIT AROUND BEAM
9. CEILING ACCESS PANEL (12" x 12")
10. CEILING ACCESS PANEL (24" x 24")

## LEGEND

- ACOUSTICAL TILE CEILING
- ACOUSTICAL TILE CEILING - SOUND RATED
- EXPOSED CEILING OPEN TO STRUCTURE
- GYPSUM WALLBOARD
- CEMENT BOARD WITH APPLIED FINISH - SEE FINISH SCHEDULE
- 2' x 4' FIBERGLASS REINFORCED PLASTIC PANEL ON CEMENT BOARD
- METAL SOFFIT PANEL
- EXPOSED METAL DECKING COLOR: DARK BRONZE
- RECESSED MOUNTED FLUORESCENT DIRECT/INDIRECT LIGHT FIXTURE
- EMERGENCY - RECESSED MOUNTED FLUORESCENT DIRECT/INDIRECT LIGHT FIXTURE
- RECESSED MOUNTED FLUORESCENT LIGHT FIXTURE
- EMERGENCY - RECESSED MOUNTED FLUORESCENT LIGHT FIXTURE
- STRIP FLUORESCENT LIGHT FIXTURE
- RECESSED COMPACT FLUORESCENT OR WALL WASHED LIGHT FIXTURE
- SQUARE DOWNLIGHT FIXTURE
- BUILDING EXTERIOR LIGHTING FIXTURE
- RECESSED FLUORESCENT LIGHT FIXTURE
- ATRIUM LIGHTING FIXTURE
- EXHAUST
- SUPPLY AIR DIFFUSER
- RETURN AIR DIFFUSER
- LINEAR DIFFUSERS
- JUNCTION BOX
- CEILING ACCESS PANEL
- CJ — CONTROL JOINT - RE: I-601 FINISH SELECTION AND I-103 FINISH PLAN
- EXIT LIGHT
- SPOT ELEVATION - HEIGHT A.F.F. UNO.
- FIRE SPRINKLER




KEY PLAN

US Army Corps of Engineers
Fort Worth District

REGISTERED ARCHITECT STATE OF TEXAS
06 AUGUST 2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | | | AUG 2026 |
| 1 | REVISED IAW AM0002 | | | JULY 2026 |

Designed by: A. RIVARD
Date: MAY 2025
Solicitation No.: W912KG25RA020
Rev.
Drawn by: F. DE LUNA
Contract No.
Reviewed by: S. LOPEZ
Submitted by: C. LANGUM
File name:
Plot date:
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
PROJECT MANAGER
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

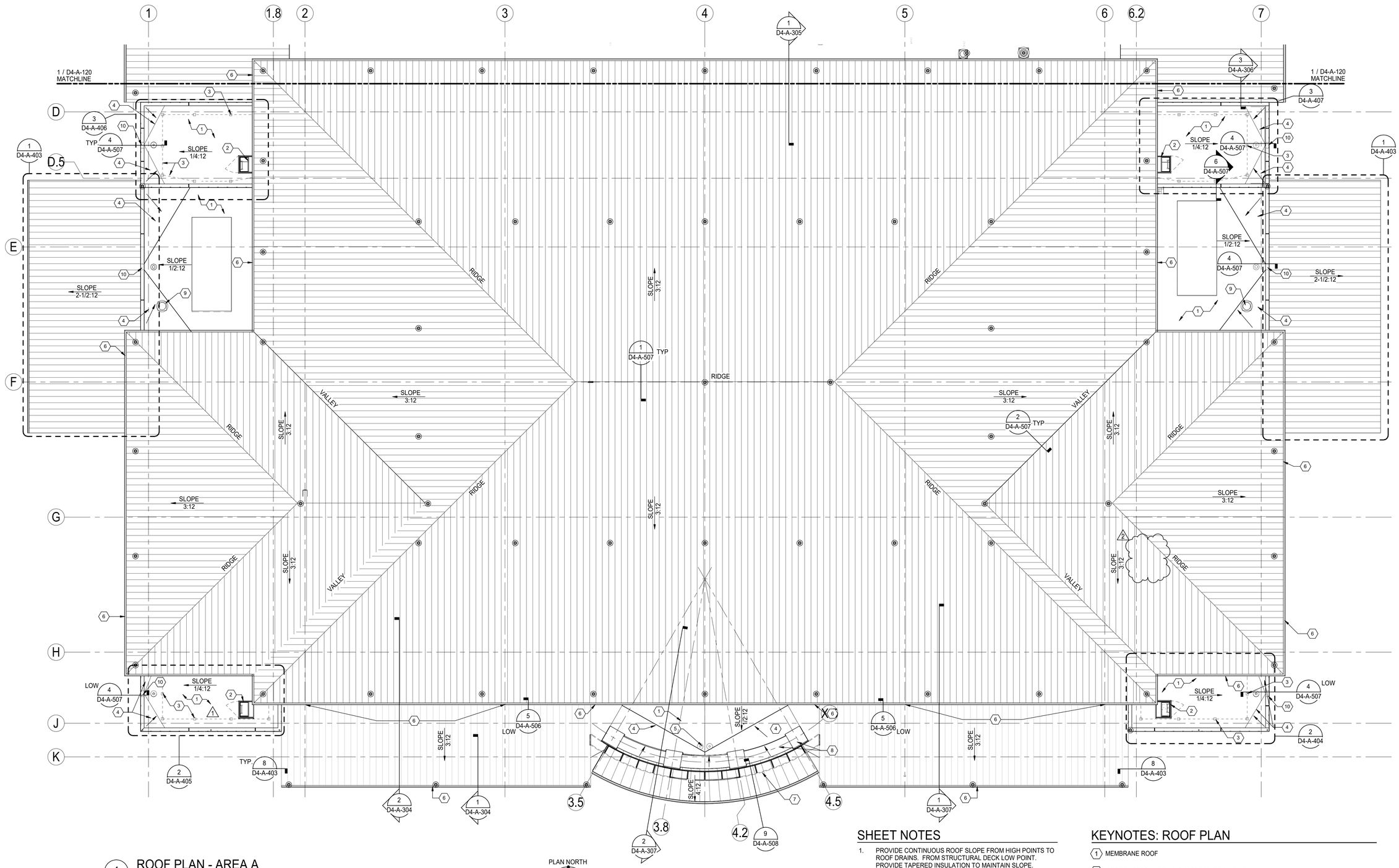
JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX, WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

THIRD FLOOR REFLECTED CEILING PLAN

Sheet reference number
D4-A-118
Sheet of

Contr No.

8/3/2026 12:59:54 PM




1 ROOF PLAN - AREA A
1/8" = 1'-0"

8 6 4 2 0 8 16

PLAN NORTH

## SHEET NOTES

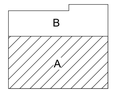
1. PROVIDE CONTINUOUS ROOF SLOPE FROM HIGH POINTS TO ROOF DRAINS. FROM STRUCTURAL DECK LOW POINT. PROVIDE TAPERED INSULATION TO MAINTAIN SLOPE. ARROWS INDICATE SLOPE DIRECTIONS.
2. PROVIDE FLASHING AT ALL SSMR PENETRATIONS: REFERENCE DTL 5/D4-A507.

## LEGEND

- STANDING SEAM METAL ROOF
- MEMBRANE ROOF
- LIGHTNING PROTECTION - RE: ELECTRICAL
- FALL PROTECTION; RE: 13/D4-S-531

## KEYNOTES: ROOF PLAN

1. MEMBRANE ROOF
2. ROOF ACCESS HATCH & GUARDRAIL RE:D4-A508
3. ROOF FALL PROTECTION. RE: DTL 10/D4-A-507 & DTL 10/D4-S-531
4. MEMBRANE ROOFING OVER TAPERED CRICKET -SLOPE TO DRAIN
5. OVERFLOW ROOF DRAIN - RE: DTL 7/D4-A507
6. PREFINISHED METAL GUTTER & DOWNSPOUT. PROVIDE LOCK AT LOCATIONS ON FLAT ROOF WHERE DOWNSPOUTS DAYLIGHT. MIN. GUTTER SIZE REQUIREMENT 6" X 6". MIN. DOWNSPOUT REQUIREMENT 3.75" X 4.75"
7. STEEL ARCHITECTURAL FEATURE, PAINT TO MATCH COMPOSITE METAL PANELS
8. FLAT SEAM METAL PANELS TO MATCH COMPOSITE METAL WALL. SLOPE TO DRAIN
9. MECH EQUIPMENT - RE: MECH
10. SCUPPER AND ROOF DRAIN - RE: DTL 4/D4-A507
11. SCREEN WALL -RE: DTL 4/D4-A508, 5/D4-A508& 6/D4-A508
12. ROOFTOP WALKWAY PADS




KEY PLAN

US Army Corps of Engineers
Fort Worth District

REGISTERED ARCHITECT
STATE OF TEXAS
06 AUGUST 2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | | | AUG 2026 |
| 1 | REVISED IAW AM0002 | | | JULY 2026 |

Date: MAY 2025
Solicitation No.: W912DQ23RA020
Contract No.:
Rev.:
File name:
Plot date: 8/6/2026 3:26:39 PM
Plot scale: 1:1

Designed by: A. RIVARD
Dwn by: F. DE LUNA
Reviewed by: LEAD ARCHITECT
Submitted by: C. LANGUM

U.S. ARMY ENGINEER DISTRICT, GEOSPATIAL CENTER FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

ROOF PLAN - AREA A

Sheet reference number
D4-A-119
Sheet of

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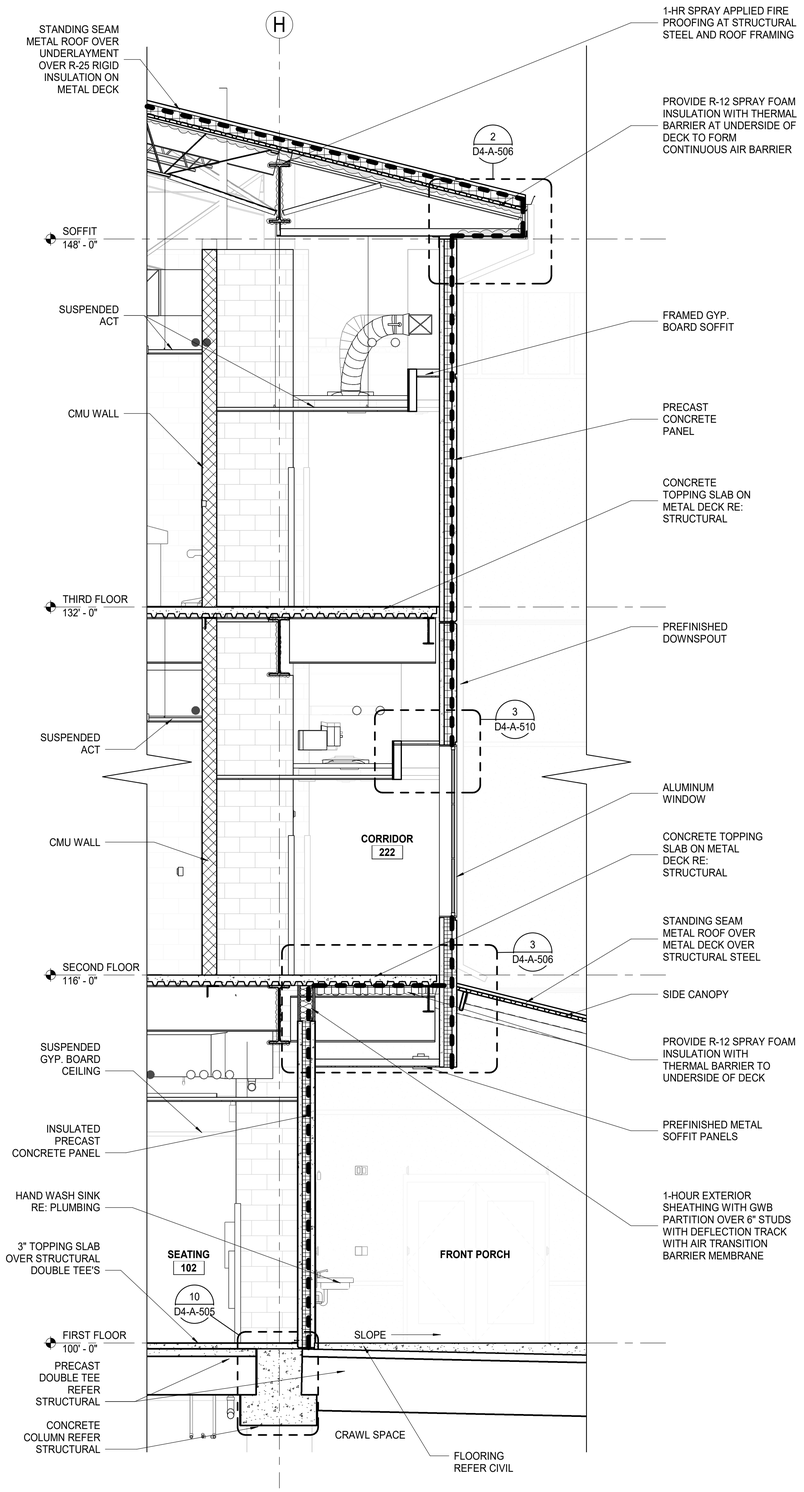
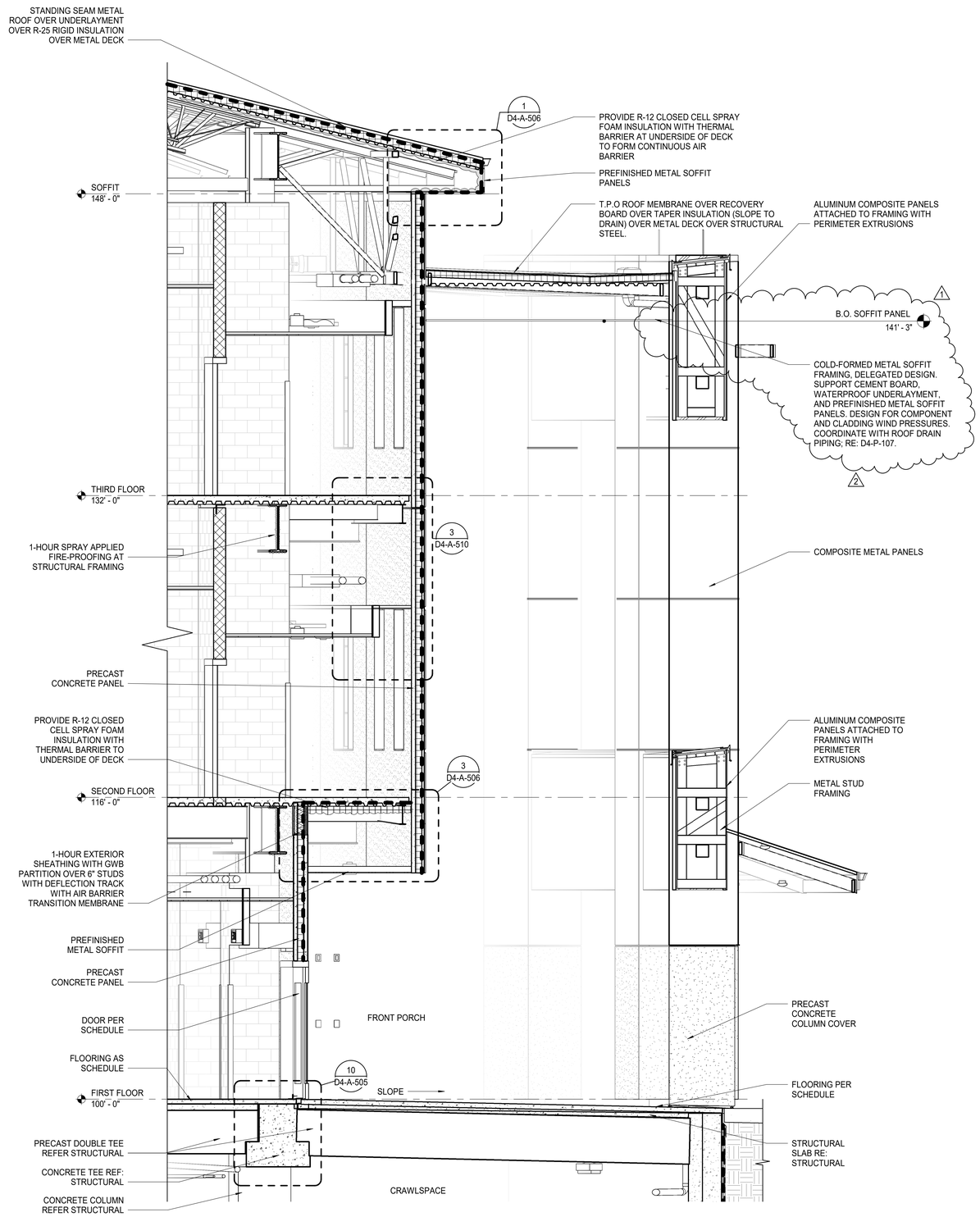



1 SECTION AT FRONT OVERHANG
3/8" = 1'-0"




2 SECTION AT FRONT CURVED PORCH
3/8" = 1'-0"

US Army Corps of Engineers
Fort Worth District

REGISTERED ARCHITECT STATE OF TEXAS 29038
06 AUGUST 2026

| No. | Description | Date | Action | D.O. No. |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | AUG 2026 | | |
| 1 | REVISED IAW AM0002 | JULY 2026 | | |

Designed by: A. RIVARD
Date: MAY 2025
Rev:
Dwn by: F. DE LUNA
Solicitation No.: W912QR25RA030
Contract No.
Reviewed by: A. GONZALEZ
Submitted by: C. LANGUM
File name:
Plot date: 8/6/2026 4:09:49 PM
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

IRSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPS\220527

CURVED PORCH WALL SECTIONS

Sheet reference number
D4-A-307
Sheet of

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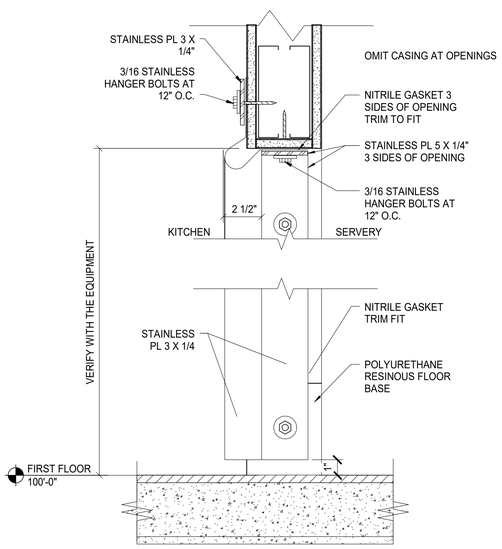
## SHEET NOTES: PARTITION TYPES

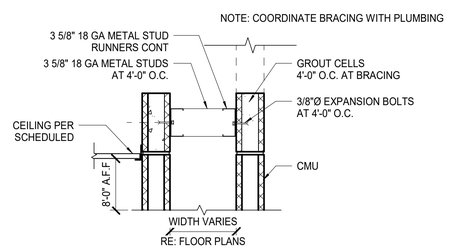
1. PARTITION THICKNESS SHOWN ON THE FLOOR PLANS ARE NOMINAL (NOM.) DIMENSIONS.
2. PARTITION TYPES ARE TYPICAL. NOT ALL PARTITION TYPES ARE USED.
3. ALL PARTITION TYPES WITH A "R" AS PART OF THE IDENTIFIER SHALL BE FIRE RATED.
4. PARTITION TYPES WITH STC RATINGS SHOW THE MINIMUM ACCEPTABLE CONSTRUCTION.
5. PARTITION TYPES WITH UL DESIGN NO. SHALL BE CONSTRUCTED AS INDICATED IN UL FIRE RESISTANCE DIRECTORY.
6. INTERIOR PARTITION STUD SPACING SHALL NOT EXCEED 16" O.C.
7. FIRE RATED PARTITIONS SHALL EXTEND TO THE UNDERSIDE OF FLOOR OR ROOF DECK.
8. FOR ALL KITCHEN STUD PARTITIONS SEE D4-A110 & D4-A501. OMIT CURB AT COLUMN ENCLOSURES.

## SHEET NOTES: MASONRY PARTITION CONSTRUCTION

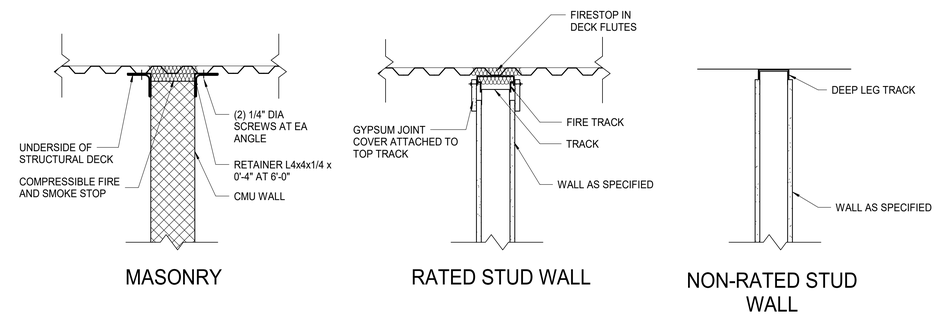
1. HORIZONTAL REINFORCING AT 16 INCHES O.C.
2. 6 INCH MASONRY WALLS
   - A. SOLID GROUT AND REINFORCE WITH # 4 VERTICAL AT 32" O.C.
   - B. REINFORCE WALL ENDS, OPENING HEADS AND JAMBS PER STRUCTURAL.
   - C. BRACE 6 INCH MASONRY WALLS WITH UNBRACED LENGTH GREATER THAN 10'-0" AT 10'-0" HEIGHT. BRACE FULL HEIGHT WALLS AS SHOWN IN DETAIL 3/A502. BRACE PARTIAL HEIGHT WALLS AS SHOWN IN DETAIL 13/S511.
3. 8 INCH MASONRY WALLS
   - A. SOLID GROUT AND REINFORCE VERTICAL WITH VERTICAL # 4 AT 48" O.C.
   - B. REINFORCE WALL ENDS, OPENING HEADS AND JAMBS PER STRUCTURAL/



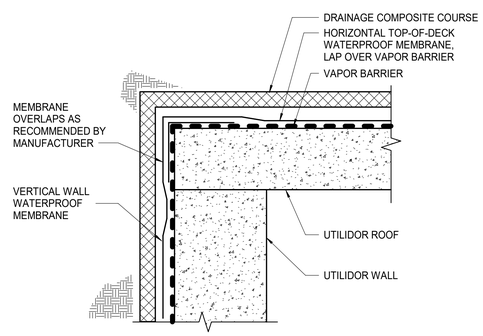

1 SERVERY WALL OPENING DETAILS
3" = 1'-0"



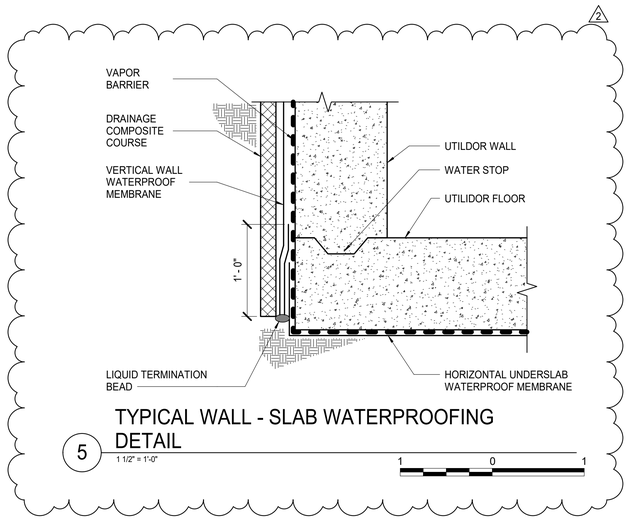

2 BRACING DETAIL AT CHASE TYPE "B"
1 1/2" = 1'-0"




3 WALL HEAD / SLIP JOINT DETAILS
1 1/2" = 1'-0"




4 TYPICAL WALL - WALL WATERPROOFING DETAIL
1 1/2" = 1'-0"




5 TYPICAL WALL - SLAB WATERPROOFING DETAIL
1 1/2" = 1'-0"

US Army Corps of Engineers
Fort Worth District

REGISTERED ARCHITECT — STATE OF TEXAS — 29038 — 06 AUGUST 2026

| No. | Description | Date | Action | O.O. No. |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | AUG 2026 | | |
| 1 | REVISED IAW AM0002 | JULY 2026 | | |

Designed by: A. RIVARD
Date: MAY 2025
Rev.
Solicitation No.: W912GG25RA020
Contract No.:
Drawn by: F. DE LUNA
Reviewed by: A. DUNCE
Approved by: C. LANGUM
File name:
Plot date: 7/28/2026 7:34:48 PM
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
MERRICK
DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

PARTITION TYPES AND DETAILS

Sheet reference number
D4-A-502
Sheet of

Cover No.

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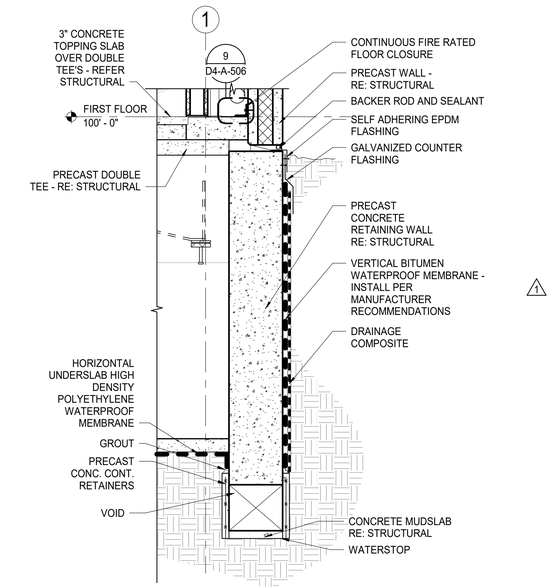
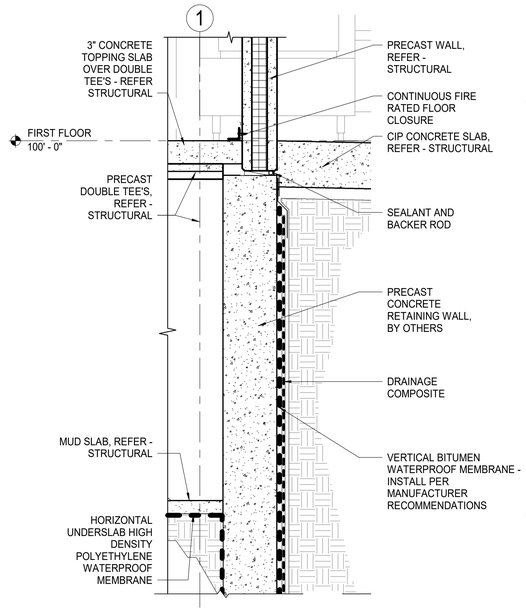
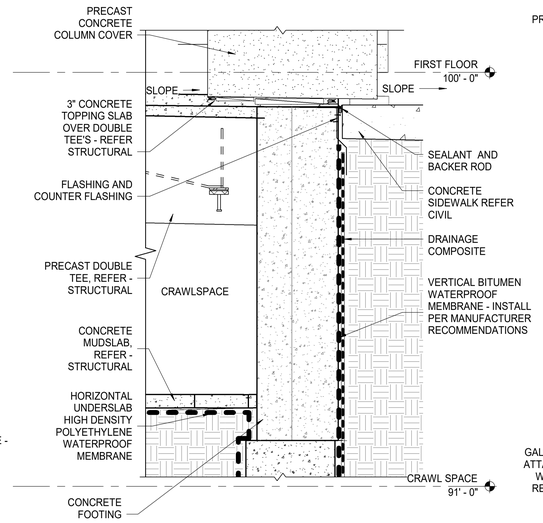


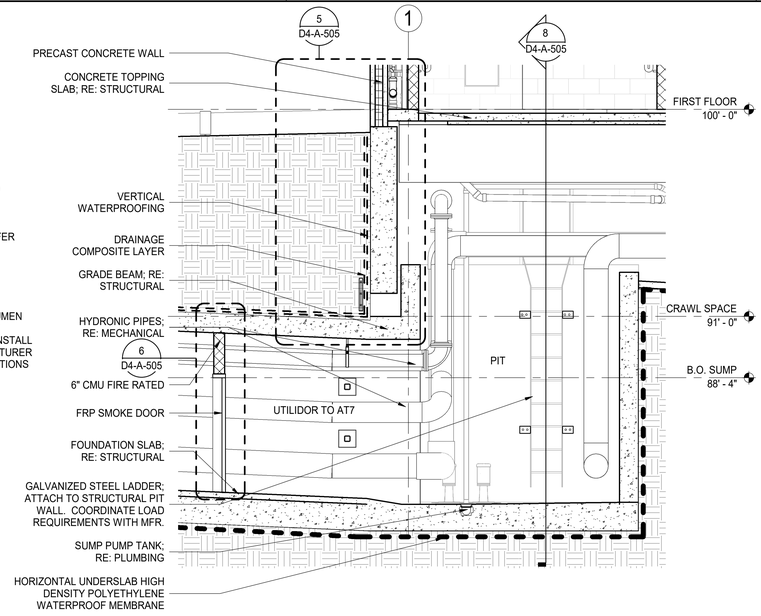

1 CONCRETE DETAIL
3/4" = 1'-0"



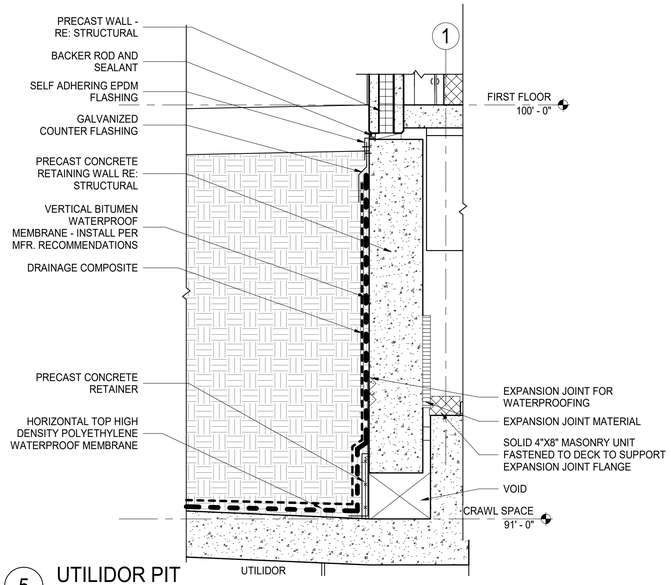

2 FOUNDATION WALL DETAIL
3/4" = 1'-0"



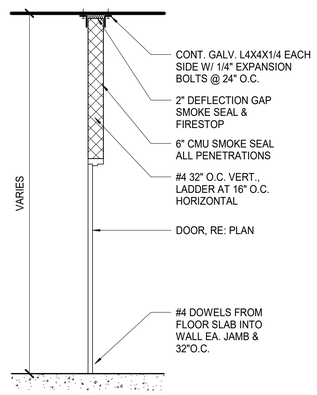

3 FOUNDATION WALL @ CURVED ENTRY DETAIL
3/4" = 1'-0"



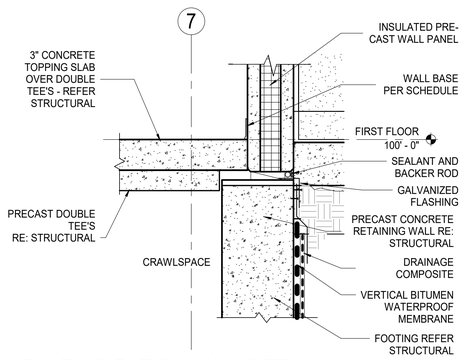

4 UTILIDOR TO PIT SECTION
3/8" = 1'-0"



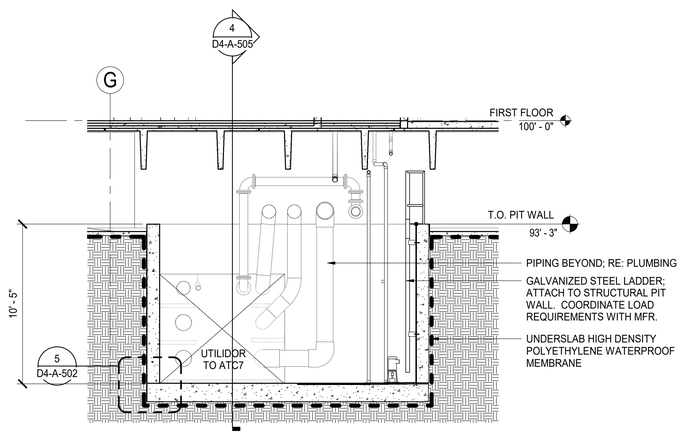

5 UTILIDOR PIT
3/4" = 1'-0"



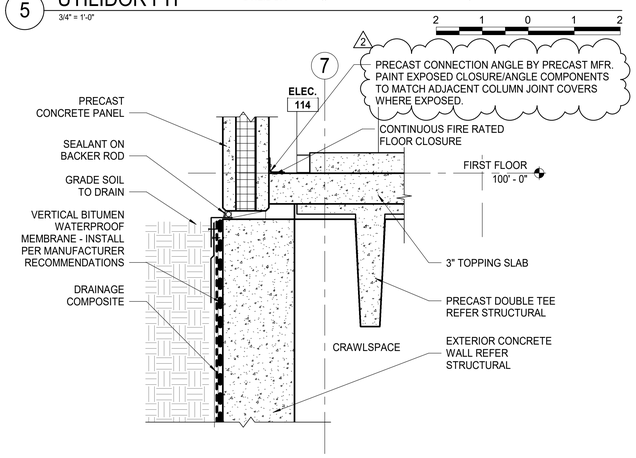

6 UTILIDOR SMOKE DOOR
1/2" = 1'-0"



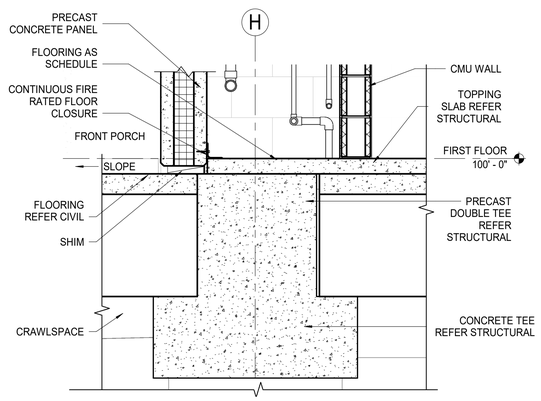

7 FOUNDATION WALL DETAIL
1" = 1'-0"



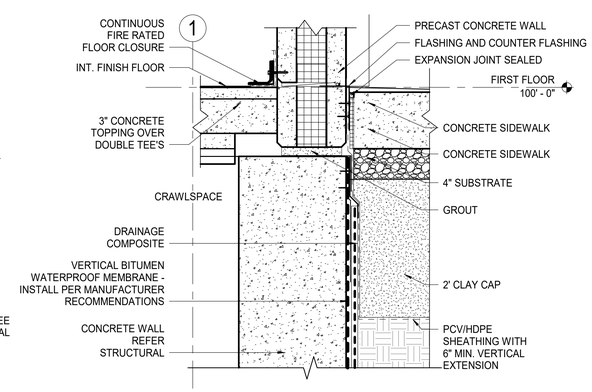

8 PIT SECTION
1/4" = 1'-0"



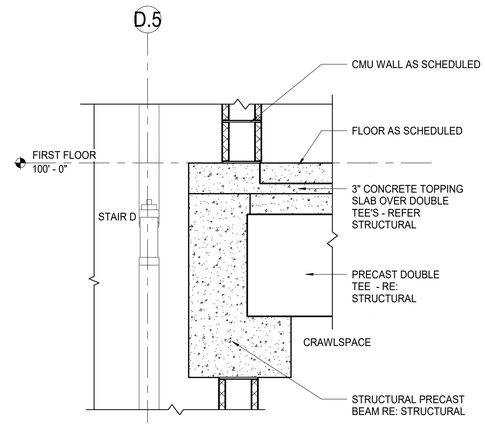

9 PRECAST PANEL AT FOUNDATION
1" = 1'-0"




10 PRECAST PANEL TO FOUNDATION AT STOOP
1" = 1'-0"




11 DETAIL AT CRAWL SPACE
1 1/2" = 1'-0"




12 FLOOR TO STAIR AT CRAWL SPACE
1" = 1'-0"

US Army Corps of Engineers
Fort Worth District

REGISTERED ARCHITECT STATE OF TEXAS 29038 06 AUGUST 2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | | | AUG 2026 |
| 1 | REVISED IAW AM0002 | | | JULY 2026 |

Date: MAY 2025
Solicitation No.: W912RQ25RA030
Contract No.:
Rev.:
File name:
Plot date: 8/6/2026 3:43:35 PM
Plot scale: 1:1

Designed by: A. RIVARD
Dwn by: F. DE LUNA
Reviewed by: J. LAVOIE
Submitted by: C. LANGUM

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

SECTION DETAILS

Sheet reference number
D4-A-505
Sheet of

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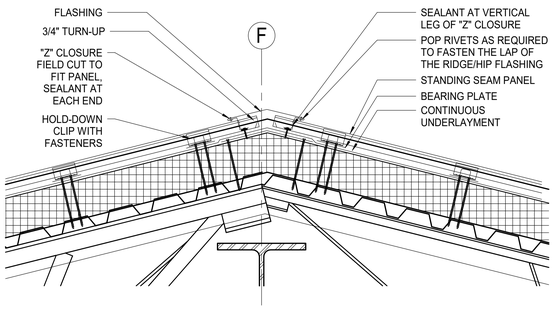
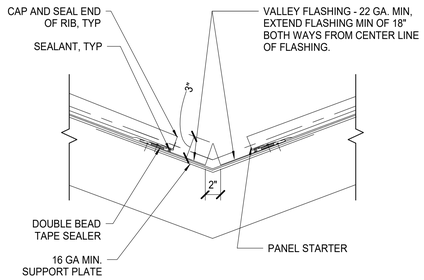



1 TYPICAL ROOF RIDGE/ HIP DETAIL
1 1/2" = 1'-0"




2 TYPICAL VALLEY FLASHING
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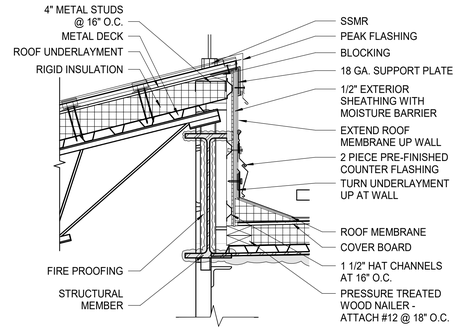
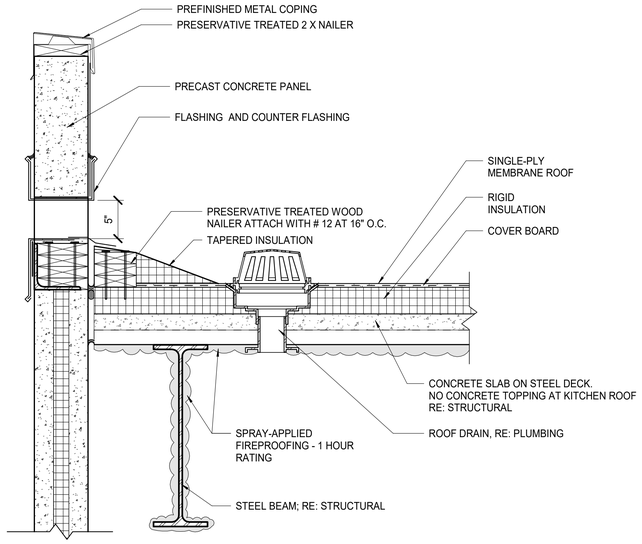
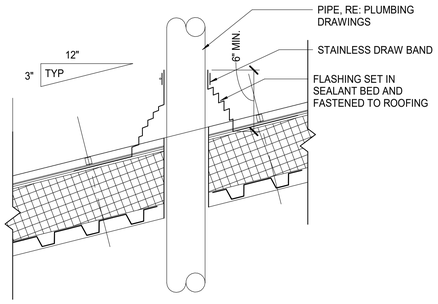


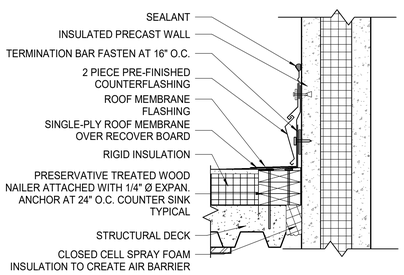

3 ROOF AT ATTIC SPACE
1" = 1'-0"




4 SCUPPER AND ROOF DRAIN DETAIL
1 1/2" = 1'-0"




5 ROOF PENETRATION AT STANDING SEAM ROOF
1 1/2" = 1'-0"

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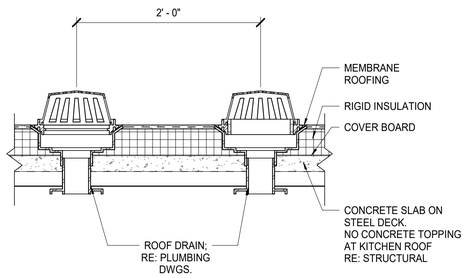
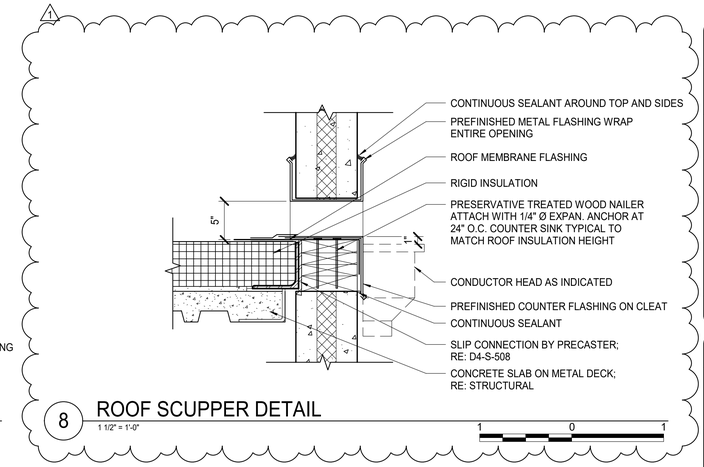
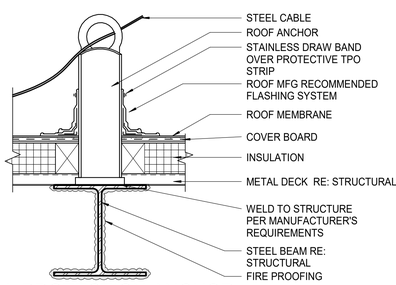


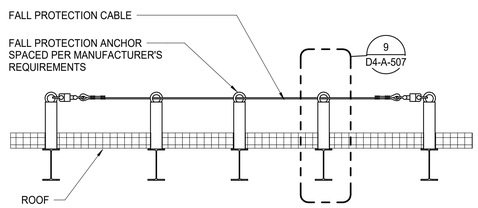

7 OVERFLOW ROOF DRAIN DETAIL
1 1/2" = 1'-0"



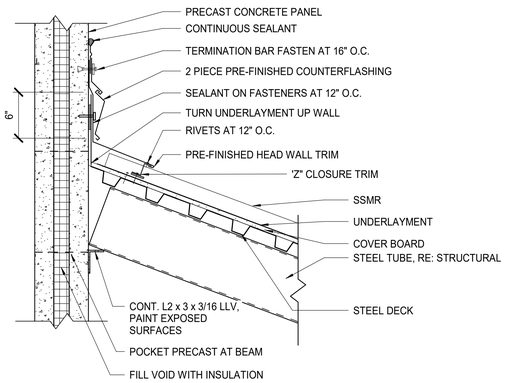

8 ROOF SCUPPER DETAIL
1 1/2" = 1'-0"




9 FALL PROTECTION ANCHOR
1 1/2" = 1'-0"




10 FALL PROTECTION
1/2" = 1'-0"




11 STANDING SEAM HEADWALL DETAIL
1 1/2" = 1'-0"

US Army Corps of Engineers
Fort Worth District

REGISTERED ARCHITECT
STATE OF TEXAS
06 AUGUST 2026

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| 1 | REVISED IAW AM0003 | | | AUG 2026 |

Designed by: A. RIVARD
Date: MAY 2025
Rev.
Dwn by: F. DE LUNA
Solicitation No. W912GG25RA030
Contract No.
Reviewed by: J. LOVICE
Submitted by: C. LANGUM
File name:
Plot date: in no use
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

ROOF DETAILS

Sheet reference number
D4-A-507
Sheet of

Cover No.

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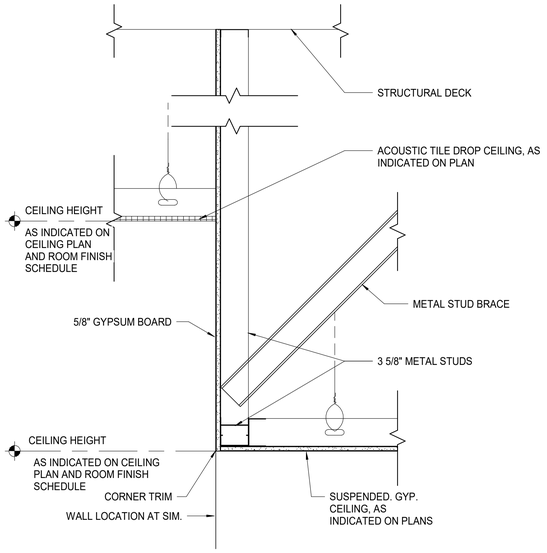
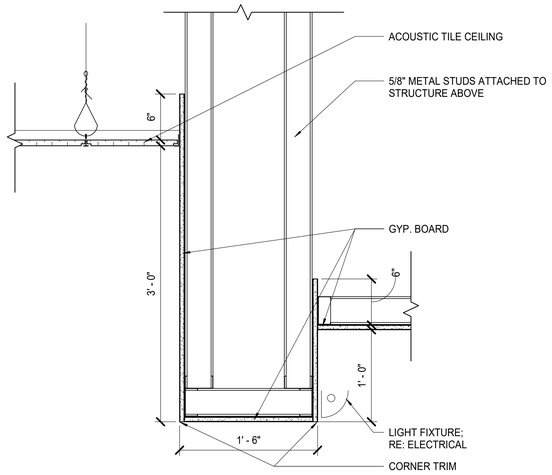
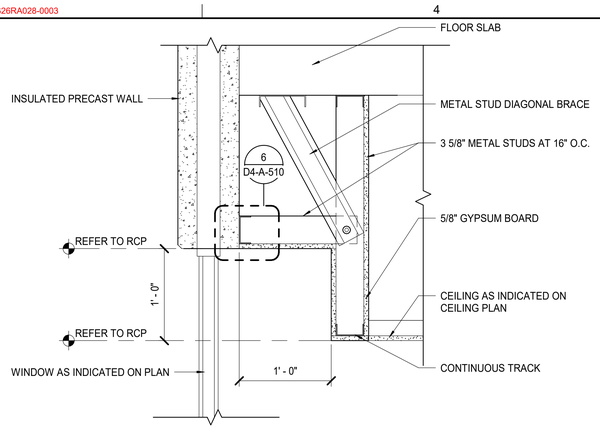


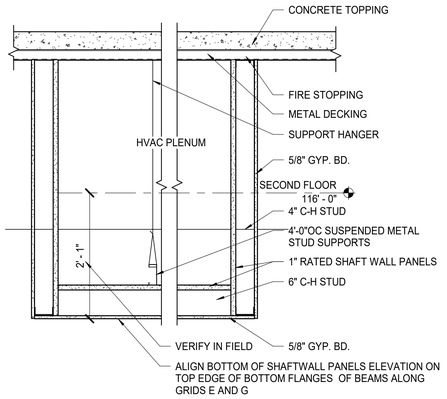

1 CEILING DETAIL
1 1/2" = 1'-0"




2 CEILING DETAIL AT DINING SEATING AREA
1 1/2" = 1'-0"

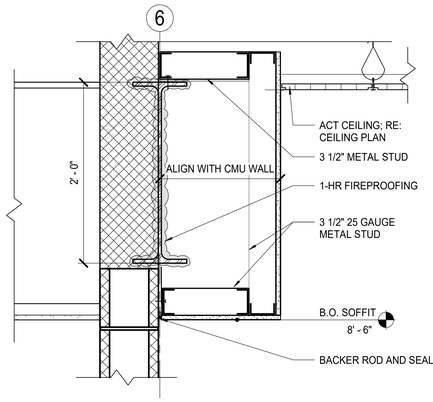



3 DETAIL AT WINDOW POCKET
1 1/2" = 1'-0"

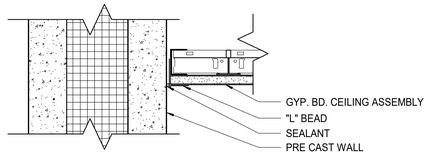



1 HR RATED SHAFT WALL CONSTRUCTION PER UL ASSEMBLY U415 -SYSTEM A

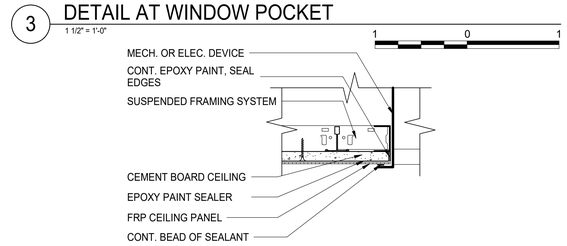
4 HVAC PLENUM @ BELOW CLASSROOMS
1" = 1'-0"



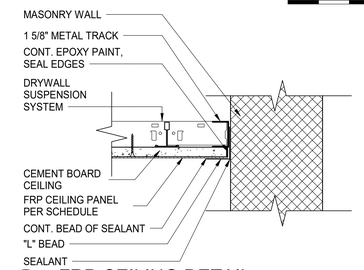

5 SOFFIT DETAIL
1 1/2" = 1'-0"



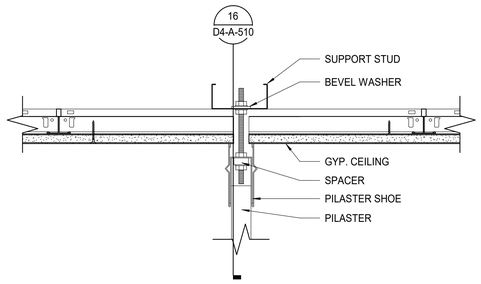

6 CEILING JOINT DETAIL AT PRECAST PANEL
3" = 1'-0"



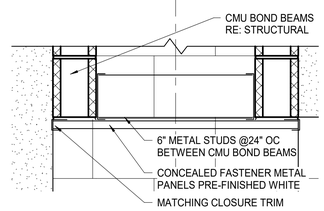

7 FRP PENETRATION CEILING DETAIL
3" = 1'-0"



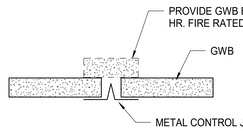

8 FRP CEILING DETAIL
3" = 1'-0"



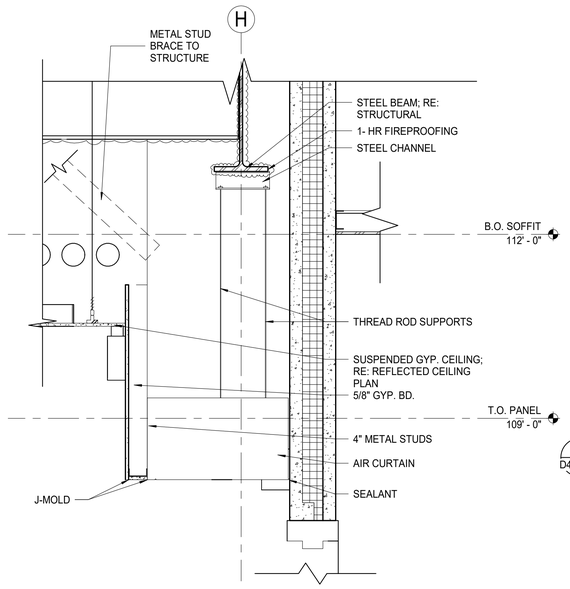

9 CEILING MOUNTED TOILET PARTITION DETAIL
3" = 1'-0"



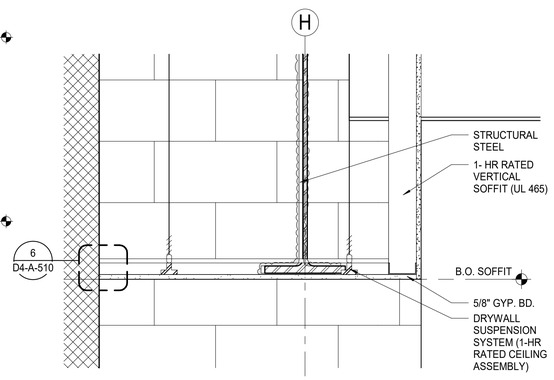

10 TOP OF OPENING AT SERVICE LINE/SEATING
1 1/2" = 1'-0"



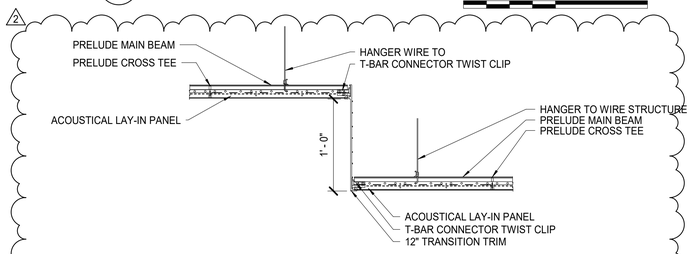

11 CONTROL JOINT DETAIL
6" = 1'-0"



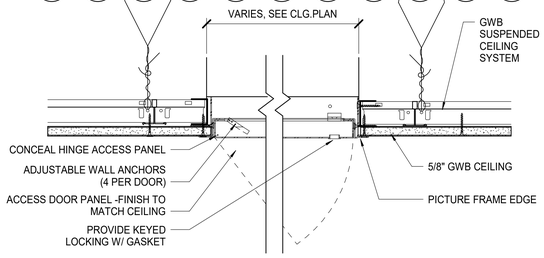

12 SOFFIT DETAIL AT AIR CURTAIN
1" = 1'-0"



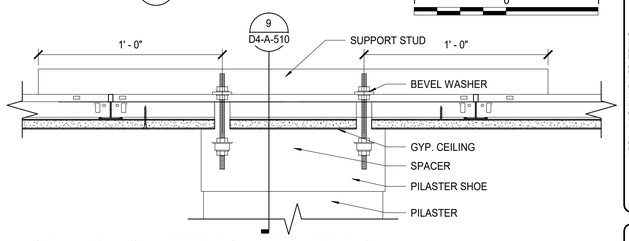

13 STAIR SOFFIT DETAIL
1 1/2" = 1'-0"




17 CLASSROOM CEILING TRANSITION
1 1/2" = 1'-0"




14 SUSPD. GWB SYSTEM AND RECESSED ACCESS PANEL
3" = 1'-0"




15 PROJECTOR SCREEN DETAIL
1 1/2" = 1'-0"




16 CEILING MOUNTED TOILET PARTITION DETAIL
3" = 1'-0"

US Army Corps of Engineers
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| 2 | REVISED IAW AM0003 | | | AUG 2026 |
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Rev.
Date: MAY 2025
Solicitation No.: W912GS26RA020
Contract No.:
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Plot scale: 1:1
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Dwn by: F. DE LUNA
Reviewed by: A. CRUMBY
Submitted by: C. LANGUM

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
FORT WORTH, TEXAS

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CEILING DETAILS

Sheet reference number
D4-A-510
Sheet of

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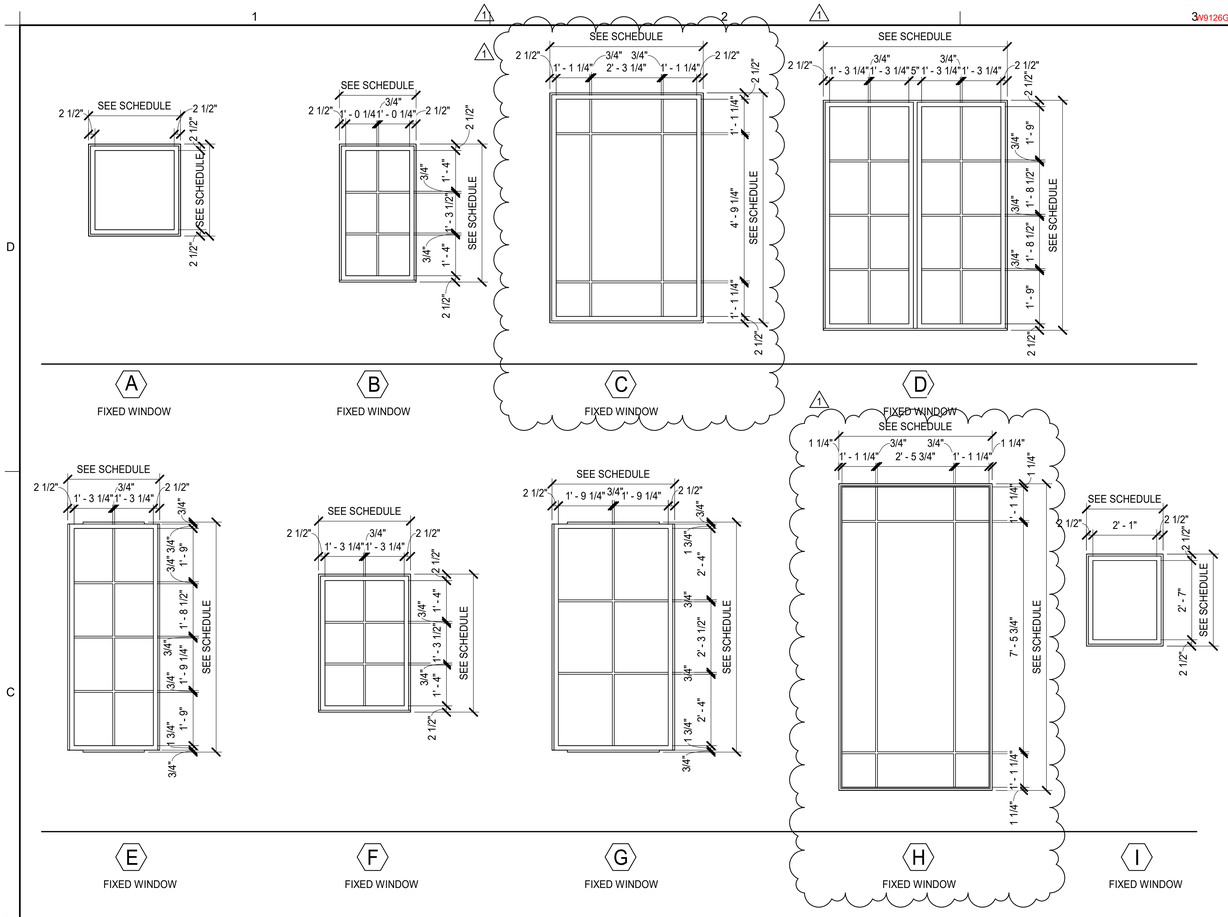


1 WINDOW TYPES
1/2" = 1'-0"

## WINDOW SCHEDULE

| WINDOW MARK | WINDOW SIZE (ROUGH OPENING) | FRAME MATERIAL | HEAD | JAMB | SILL | REMARKS |
|---|---|---|---|---|---|---|
| A | 3'-0" x 3'-0" | ALUM | 5/ D3-A604 | 6/ D3-A604 | 5 / D3-A604 | |
| B | 2'-6" X 4'-6" | ALUM | 5/ D3-A604 | 6/ D3-A604 | 5 / D3-A604 | |
| C | 5'-0" X 7'-6" | ALUM | 2/ D3-A604 | 3/ D3-A604 | 2/ D3-A604 | |
| D | 6'-0" X 7'-6" | ALUM | 5/ D3-A604 | 6/ D3-A604 | 5 / D3-A604 | |
| E | 3'-0" X 7'-6" | ALUM | 5/ D3-A604 | 6/ D3-A604 | 5 / D3-A604 | |
| F | 3'-0" X 4'-6" | ALUM | 5/ D3-A604 | 6/ D3-A604 | 5 / D3-A604 | |
| G | 4'-0" X 7'-6" | ALUM | 5/ D3-A604 | 6/ D3-A604 | 5 / D3-A604 | |
| H | 5'-0" x 10'-0" | ALUM | 2/ D3-A604 | 3/ D3-A604 | 2/ D3-A604 | |
| I | 2'-6" x 3'-0" | ALUM | 5/ D3-A604 | 6/ D3-A604 | 5 / D3-A604 | |

## SHEET NOTES

1. COORDINATE ALL ROUGH OPENING SIZES WITH WINDOW AND PRECAST PANEL MANUFACTURE. FIELD VERIFY ALL DIMENSIONS.
2. REFER TO PRECAST PANEL DRAWINGS FOR WINDOW ELEVATIONS
3. PROVIDE SAFETY GLASS WHERE REQUIRED BY CODE AND/ OR AS INDICATED HEREIN.

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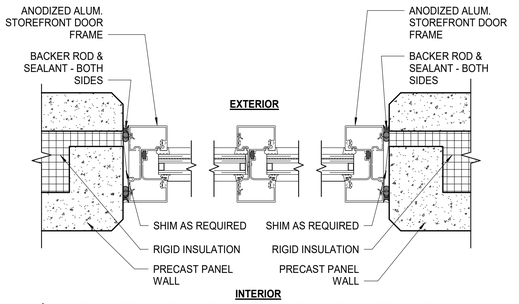
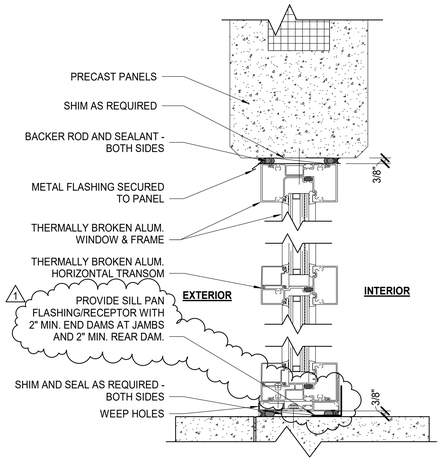
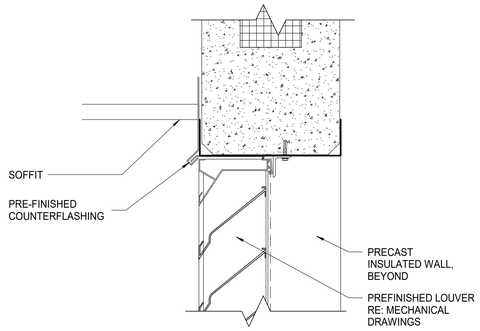


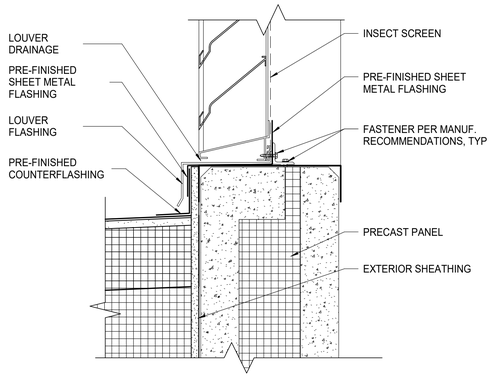

**NOTE:** COORDINATE JAMB SEALANT CONDITION WITH SILL PAN FLASHING END DAMS. PROVIDE BACKER ROD AND SEALANT BOTH SIDES AS SHOWN. FULL-HEIGHT JAMB FLASHING NOT REQUIRED UNLESS REQUIRED BY APPROVED WINDOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.

2 STOREFRONT WINDOW JAMB/TRANSOM/JAMB
3" = 1'-0"

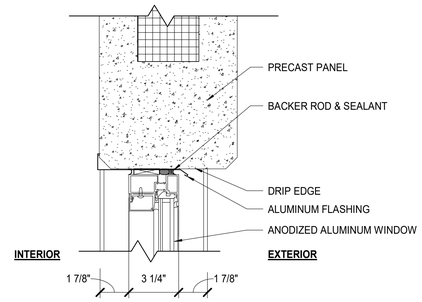



4 STOREFRONT WINDOW HEAD AND SILL
3" = 1'-0"

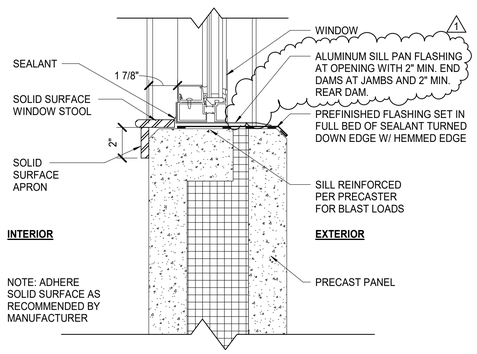



3 FLANGE MOUNT LOUVER
3" = 1'-0"




5 FIXED WINDOW HEAD/JAMB SIM
3" = 1'-0"




NOTE: PROVIDE REINFORCEMENT TO SUPPORT WINDOWS AGAINST BLAST LOADS. TYPE OF REINFORCEMENT IS AT PRECASTER'S OPTION.

6 FIXED WINDOW SILL AT PRECAST
3" = 1'-0"

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Date: MAY 2025
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Approved by: C. LANGUM
File name:
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U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
CONSTRUCTION DIVISION
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

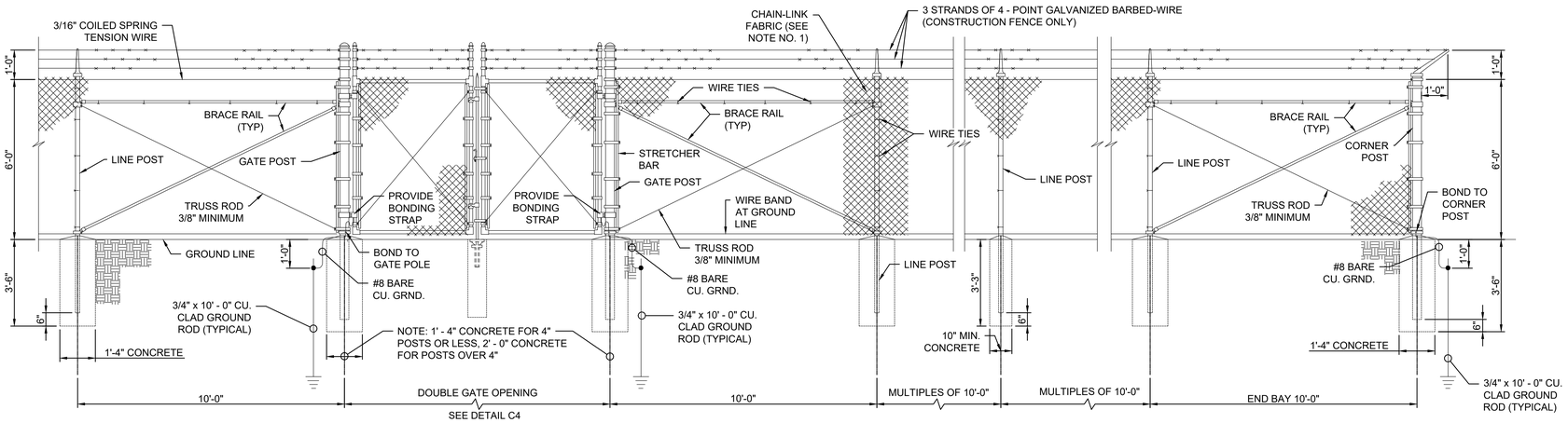
IBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

WINDOW TYPES

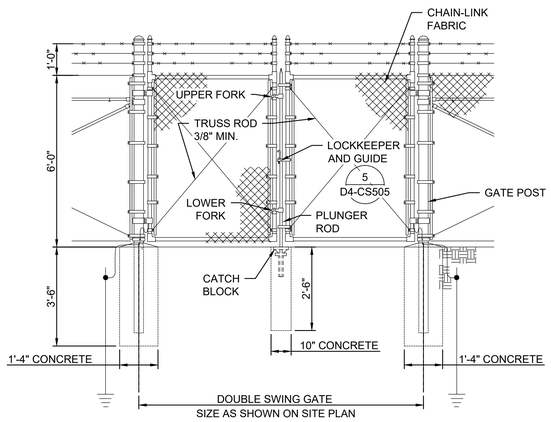
Sheet reference number
D4-A-604
Sheet of

Cover No.

8/6/2026 2:25:21 PM




## 1 CHAIN-LINK FABRIC FENCE
N.T.S.



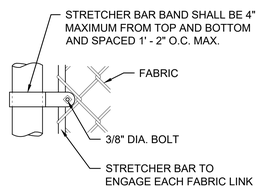

## 4 DOUBLE SWING GATE
N.T.S.

## SHEET NOTES

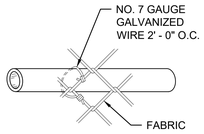
1. ALL FABRIC SHALL BE GALVANIZED NO. 9 GAUGE WIRE, WOVEN IN A 2" MESH. TOP AND BOTTOM EDGES SHALL BE TWISTED AND BARBED.
2. ALL PIPE SHALL BE STANDARD WEIGHT PIPE.
3. ALL FITTINGS SHALL BE GALVANIZED TO MATCH CHAIN-LINK FABRIC.
4. 2
5. UPON REMOVAL OF THE FENCE, THE AREA SHALL BE RESTORED TO ITS ORIGINAL OR BETTER CONDITION.
6. PROVIDE AND INSTALL BROWN FABRIC TEMPORARY CONSTRUCTION PRIVACY SCREENING INSIDE OF ALL CONSTRUCTION FENCES.
7. BARBED-WIRE EXTENSION ARM SHALL EXTEND INTO CONSTRUCTION AREA, PROVIDING SECURITY TO LACKLAND AFB.
8. THERE SHALL BE NO GAP BETWEEN THE BOTTOM OF THE FENCE AND THE GROUND LINE.
9. SWING GATES SHALL BE CONSTRUCTED WITH DROP RODS, PADLOCKS, LATCH ASSEMBLY AND GATE KEEPERS EXCEPT AS NOTED.
10. ALL GATE FRAMES SHALL MEET THE MINIMUM REQUIREMENTS OF ASTM F900 1.90" NOMINAL (ROUND) OR 2.00" NOMINAL (SQUARE). GATE FRAMES SHALL BE OF WELDED CONSTRUCTION OR SHALL BE ASSEMBLED USING HEAVY FITTINGS. AT CONTRACTOR'S OPTION A WELDED HORIZONTAL BRACE MAY BE USED IN LIEU OF TRUSS RODS TO BRACE ALL-WELDED GATE FRAMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER RIGID CONSTRUCTION OF ALL GATES SUPPLIED.

| GATE POST SCHEDULE | |
|---|---|
| GATE LEAF WIDTH (NOMINAL) | OUTSIDE DIMENSION (NOMINAL) |
| 6' OR LESS | 2.875" OD<br>2.5" SQ |
| GREATER THAN 6' TO 12' | 4.0" OD |
| GREATER THAN 12' TO 18' | 6.625" OD |
| MORE THAN 18' | 8.625" OD |

| STEEL POST SCHEDULE | | | |
|---|---|---|---|
| USE AND SECTION | MINIMUM OUTSIDE DIMENSIONS (NOMINAL) | | |
| | FABRIC WIDTH 72" OR LESS | FABRIC WIDTH 84" TO 96" | FABRIC WIDTH 108" AND OVER |
| CORNER, END & PULL POSTS | | | |
| TUBULAR - ROUND | 2.375" O.D. | 2.875" O.D. | 4.00" O.D. |
| TUBULAR - SQUARE | 2.00" SQ. | 2.50" SQ. | 3.00" SQ. |
| C-SECTION (ROLL-FORMED) | 3.50" x 3.50" | 3.50" x 3.50" | ——— |
| LINE POST | | | |
| TUBULAR - ROUND | 1.90" O.D. | 2.375" O.D. | 2.875" O.D. |
| H - SQUARE | 2.25" x 1.70" | 2.25" x 1.70" | 2.25" x 1.70" |
| C-SECTION (ROLL-FORMED) | 1.875" x 1.625" | 2.25" x 1.70" | ——— |
| TOP, BOTTOM & BRACE RAILS | | | |
| TUBULAR - ROUND | 1.66" O.D. | | |
| TUBULAR - SQUARE | 1.50" SQ. | | |
| H - SQUARE | 1.625" x 1.50" | | |
| C-SECTION (ROLL-FORMED) | 1.625" x 1.25" | | |

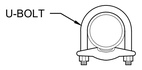



BAND FOR WIRE STRETCHING



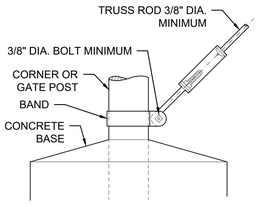

WIRE TIES FOR TOP OR BRACE RAIL

ELEVATION

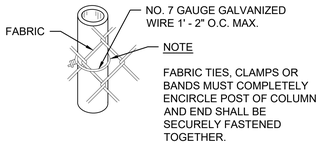



TOP VIEW

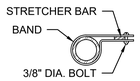
DETAIL OF BONDING TO GATE FRAMES OR SUPPORTING POST



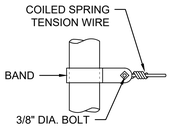

TRUSS ROD AND BAND



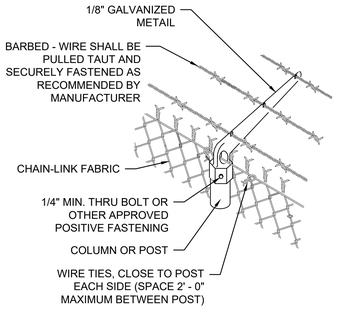

POST WIRE TIES



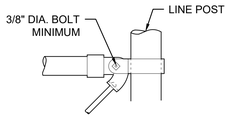

PLAN AT BANDS




END OR GATE POST



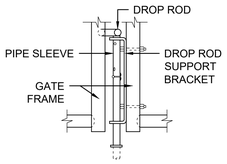

BARBED - WIRE EXTENSION ARM




CLAMP FOR TOP OR BRACE RAIL

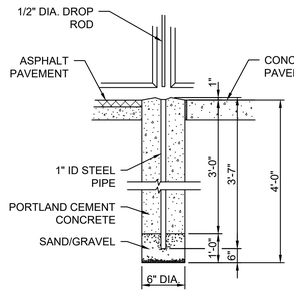
## 2 FASTENING DETAILS - SIMILAR FOR TUBULAR POST OR "H" COLUMNS
N.T.S.

PLAN



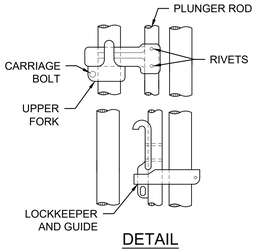

DETAIL

DROP ROD ASSEMBLY




DROP ROD FOUNDATION

DROP ROD PLAN

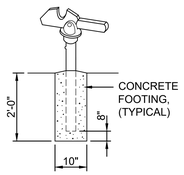



DETAIL

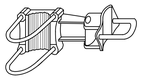
PLAN

DETAIL

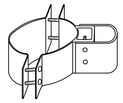
LATCH ASSEMBLY



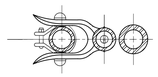

GATEKEEPER (TO HOLD GATE OPEN)



OFFSET HINGE



STANDARD HINGE



PLAN AT FORK

DOUBLE SWING GATE DETAILS

## 5 DOUBLE SWING GATE DETAILS
N.T.S.

US Army Corps of Engineers
Fort Worth District

STATE OF TEXAS
GEOFFREY E. LEAF
131589
LICENSED
PROFESSIONAL ENGINEER
08/04/2026

| No. | Description | Date | Action | D.O.No. |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | AUG 2026 | | |
| 1 | REVISED IAW AM0002 | JULY 2026 | | |

Designed by: G. LEAF
Date: MAY 2025
Rev.
Drawn by: E. CHAVEZ
Solicitation No. W912G026RA030
Reviewed by: J. HOLCOMBE
Contract No.
Submitted by: C. LANGUM
File name:
Plot date:
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY 4 (DCF4)
MPL S22/0527

CONSTRUCTION FENCE DETAILS

Sheet reference number
D4-CS505
Sheet of

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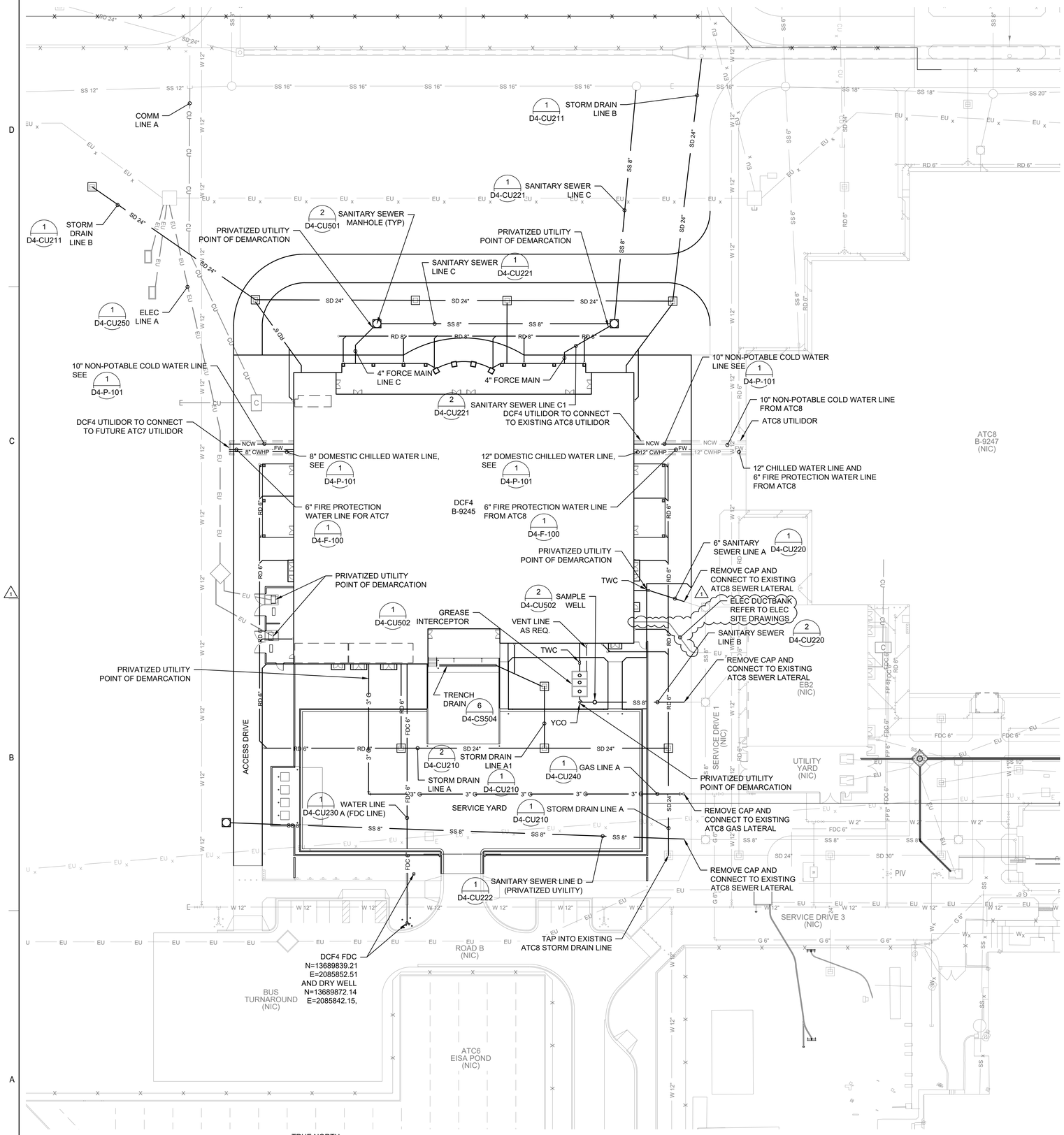
Cont No.




1 UTILITY SITE PLAN
SCALE: 1" = 30'
0 30' 60'

## SHEET NOTES

1. FOR STORM DRAIN WORK REFER TO SHEET D4-CG100 AND D4-CG101.
2. FOR ELECTRICAL WORK REFER TO SHEETS D4-ES101, D4-ES102, D4-ES103 AND D4-ES104.
3. FOR COMMUNICATIONS WORK REFER TO SHEETS D4-TS101 AND D4-TS102.
4. REFER TO PLAN AND PROFILE SHEETS FOR UTILITY LAYOUT INFO.
5. REFER TO SHEET D4-C-100 FOR CIVIL GENERAL NOTES, ABBREVIATIONS AND LEGEND.

US Army Corps of Engineers
Fort Worth District

STATE OF TEXAS
GEOFFREY E. LEAF
131589
LICENSED
PROFESSIONAL ENGINEER
TBPELS FIRM F-997
08/06/2026

| No. | Description | D.O.No. | Action | Date |
|---|---|---|---|---|
| 1 | REVISED HAV AM0003 | | | AUG 2026 |

Designed by: G. LEAF
Date: MAY 2025
Rev.
Dwn by: E. CHAVEZ
Solicitation No.: W9126G25RA020
Contract No.
Reviewed by: J. LOCKLAND
File name:
Plot date:
Plot scale: 1:1
Submitted by: C. LANGUM

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

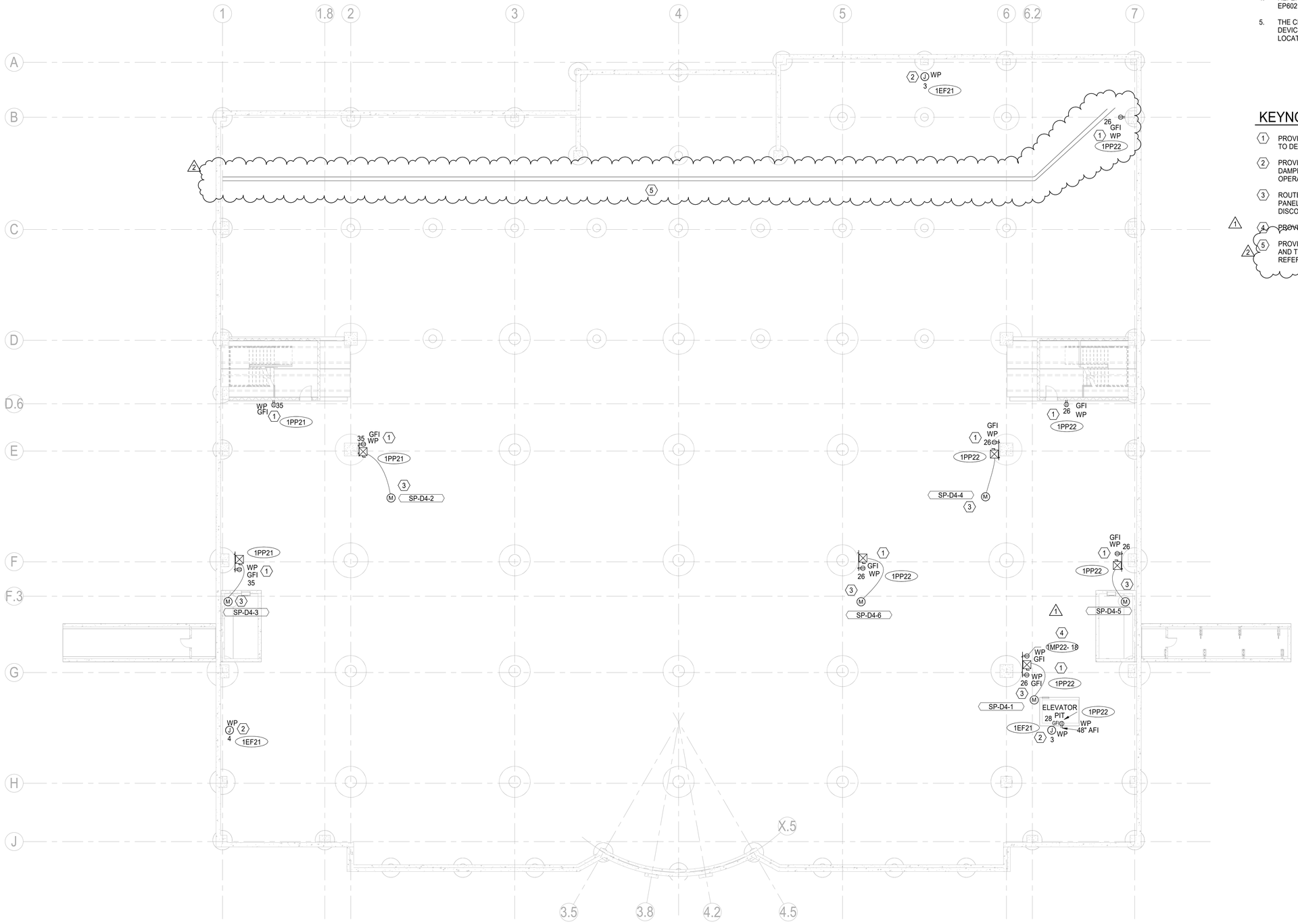
DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY 4 (DCF4)
MPL S220527

UTILITY SITE PLAN

Sheet reference number
D4-CU100
Sheet of

DESIGN FILE:
Corp No.




## 1 CRAWL SPACE POWER PLAN

3/32" = 1'-0"

8 6 4 2 0 8 16

PLAN NORTH

## SHEET NOTES

1. REFER TO SHEET D4-E-001 FOR ELECTRICAL GENERAL NOTES, ELECTRICAL SYMBOLS AND ABBREVIATIONS.
2. REFER TO SHEET D4-EP601 FOR ELECTRICAL ONE-LINE DIAGRAM.
3. REFER TO D4-EP600 SERIES DRAWINGS FOR ELECTRICAL POWER CONNECTION AND PANEL SCHEDULES.
4. REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE ON SHEET D4-EP602 FOR EQUIPMENT CIRCUITING.
5. THE CRAWL SPACE SHALL BE CONSIDERED AN OUTDOOR ENVIRONMENT. ALL DEVICES, DISTRIBUTIONS, ETC SHALL BE SUITABLE FOR OUTDOOR, DAMP LOCATION ENVIRONMENT.

## KEYNOTES

1. PROVIDE WEATHERPROOF IN-USE RECEPTACLE. REFER TO DETAIL 1/D4-EP501. LOCATE 24" ABOVE GRADE.
2. PROVIDE 120V CIRCUIT INDICATED TO FIRE/SMOKE DAMPER. REFER TO "FA" SERIES DRAWINGS FOR OPERATION OF DAMPER.
3. ROUTE POWER CIRCUIT IN RGS CONDUIT BACK TO PANEL AS INDICATED ON SCHEDULE. MOUNT SAFETY DISCONNECT SWITCH ON UNISTRUT FRAMING.
4. ~~PROVIDE RECEPTACLE FOR OIL MONITORING SYSTEM.~~
5. PROVIDE CONDUITS IN CRAWL SPACE CONNECTING EB2 AND TURNING UP INTO ATS IN ELECTRICAL ROOM. REFER TO D4-ES101 FOR SITE CONTINUATION.

US Army Corps of Engineers
Fort Worth District

STATE OF TEXAS
DANIEL P. HARRINGTON
113569
LICENSED PROFESSIONAL ENGINEER

THIS SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY DANIEL P. HARRINGTON P.E. 113569 ON 08 AUG 2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | | | AUG 2026 |
| 1 | REVISED IAW AM0002 | | | JULY 2026 |

Designed by: D. HARRINGTON
Date: MAY 2025
Rev.
Dwn by: J. CHAMPION
Solicitation No.: W912QR24A020
Contract No.
Reviewed by: K. BENNETT
Approved by: C. LANGUM
File name:
Plot date: 8/8/2026 11:44:57
Plot scale: 1:1

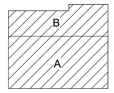
U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPI-S220527

CRAWL SPACE POWER PLAN




KEY PLAN

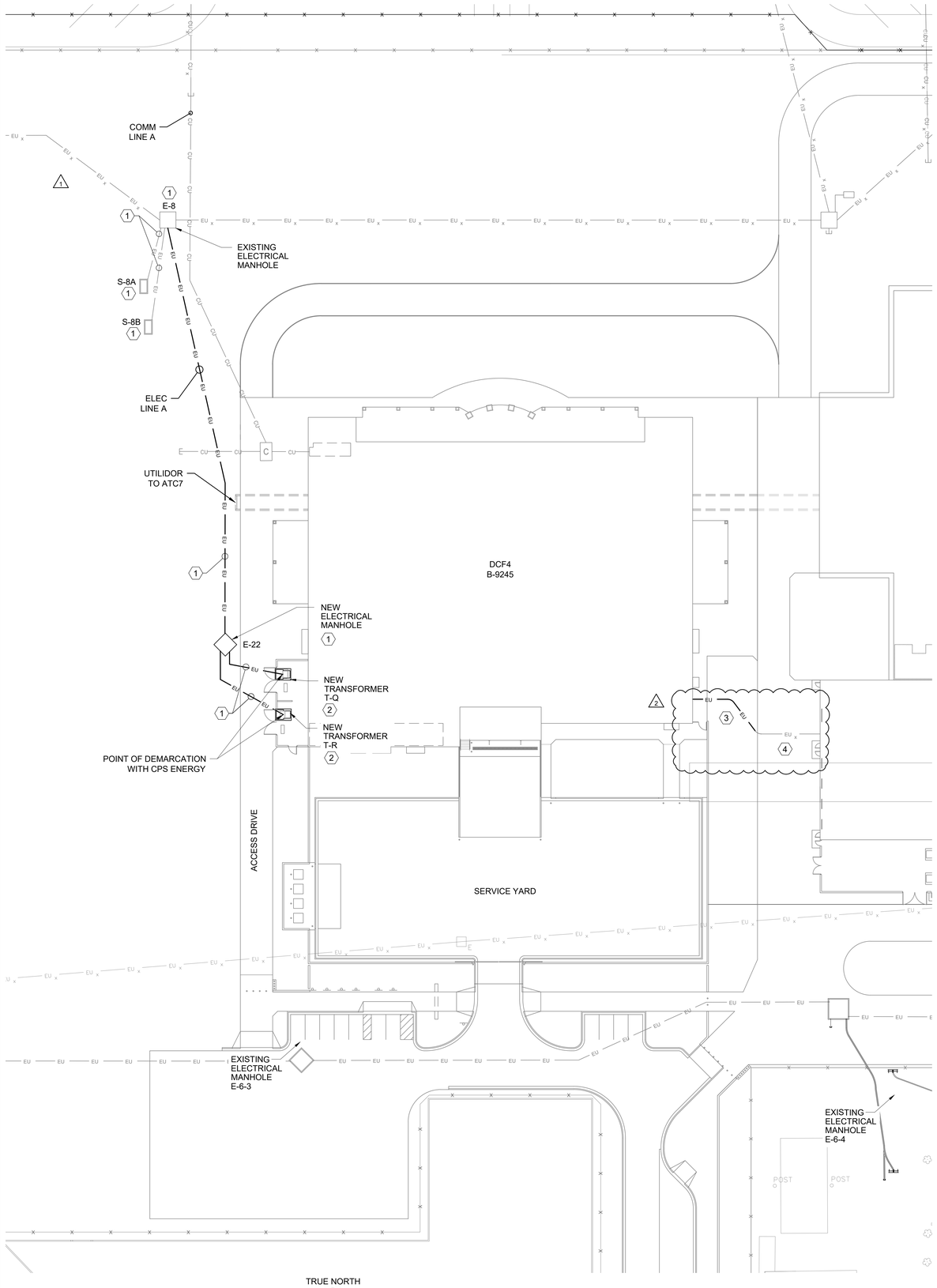
Sheet reference number

D4-EP100

Sheet of

Cont No.

8/6/2026 21:44:57




1 ELECTRICAL SITE PLAN
SCALE: 1" = 30'
0 30' 60'

TRUE NORTH

## SHEET NOTES

1. REFER TO D4-ES001 FOR SYMBOLS, LEGEND, AND ABBREVIATIONS.
2. REFER TO D4-ES601 FOR SITE ELECTRICAL SCHEDULES.
3. REFER TO D4-ES601 FOR SITE ELECTRICAL ONE-LINE DIAGRAM, TRANSFORMER SIZES, AND ADDITIONAL INFRASTRUCTURE INFORMATION.

## KEYNOTES

1. CPS DESIGNED, PROVIDED, AND INSTALLED EQUIPMENT, INFRASTRUCTURE, AND CABLING. ROUTING AND LOCATIONS SHOWN ARE SUGGESTED ROUTING AND ASSUMED LOCATIONS OF EXISTING STRUCTURES AND IS PROVIDED FOR INFORMATIONAL USES ONLY.
2. CPS PROVIDED AND INSTALLED TRANSFORMER. CONTRACTOR SHALL PROVIDE PAD AND TAP BOX. REFER TO 3/D4-ES502 AND 1/D4-ES501.
3. PROVIDE CONCRETE ENCASED DUCT BANK FROM DCF4 TO EXISTING EB2 DUCT BANK. REFER TO D4-ES504 AND D4-EP601.
4. APPROXIMATE ROUTING OF EB2 DUCT BANK. FIELD VERIFY FOR SPECIFIC LOCATION OF CONNECTION POINT.

US Army Corps of Engineers
Fort Worth District

STATE OF TEXAS
DANIEL P. HARRINGTON
113569
PROFESSIONAL ENGINEER

THIS SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY DANIEL P. HARRINGTON P.E. 113569 ON 08 AUG 2026

| No. | Description | Date |
|---|---|---|
| 2 | REVISED IAW AM0003 | AUG 2026 |
| 1 | REVISED IAW AM0002 | JULY 2026 |

| | |
|---|---|
| Designed by: D. HARRINGTON | Date: MAY 2025 |
| Dwn by: L. SMITH | Solicitation No. W912G2SRA020 |
| Reviewed by: K. KERNEY-ECF | Contract No. |
| Submitted by: C. LANGUM | File name: D4-ES101.dwg Plot date: Plot scale: 1:1 |

Rev.

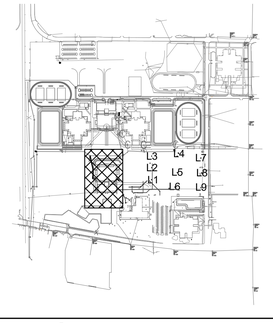
U.S. ARMY ENGINEER DISTRICT, FORT WORTH, PROJECT DELIVERY TEAM, FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

BRA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY 4 (DCF4)
MPL S220527

ELECTRICAL SITE PLAN

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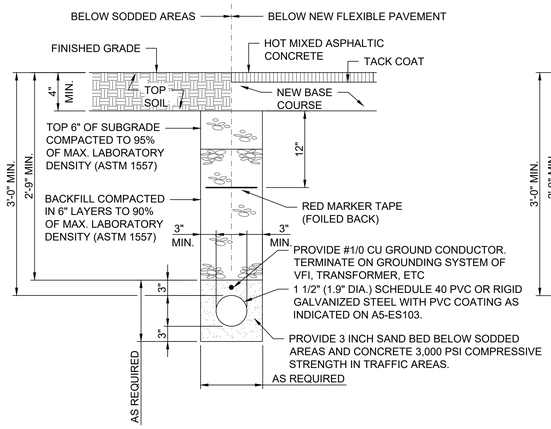


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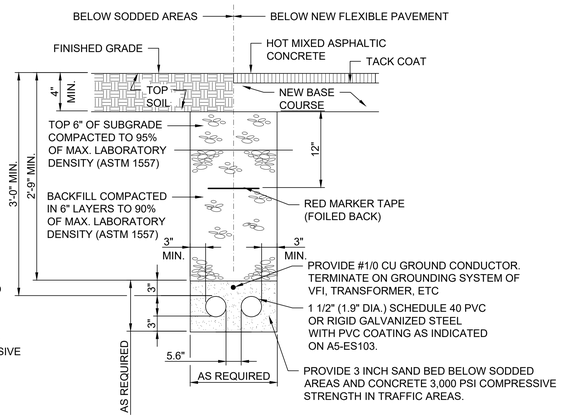


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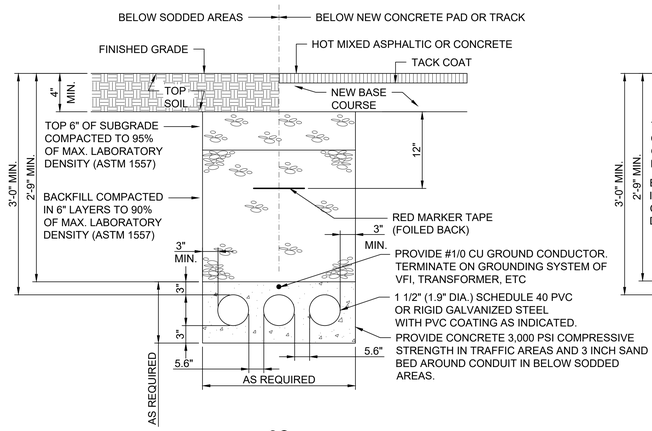


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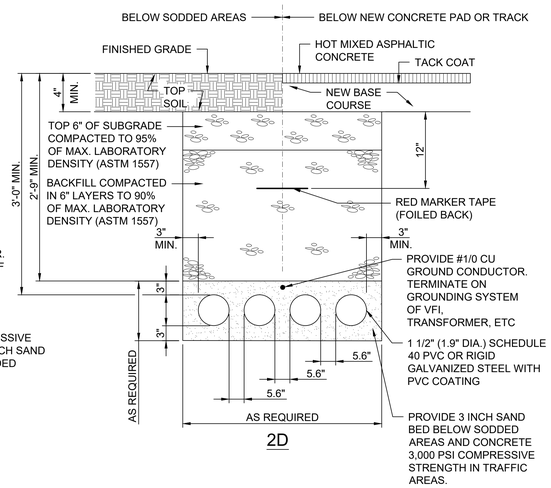


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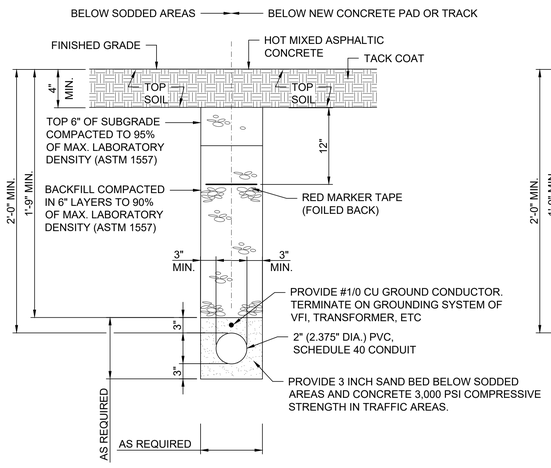


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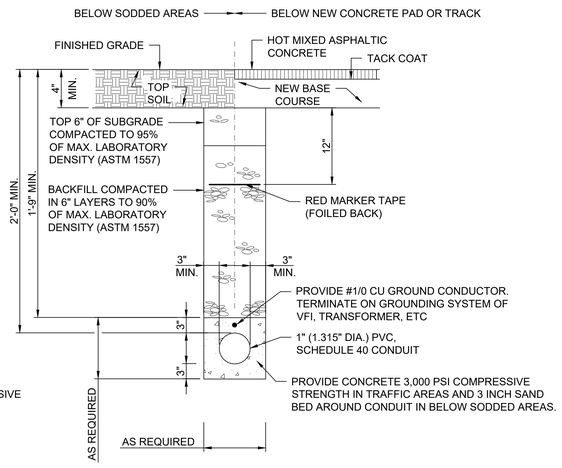


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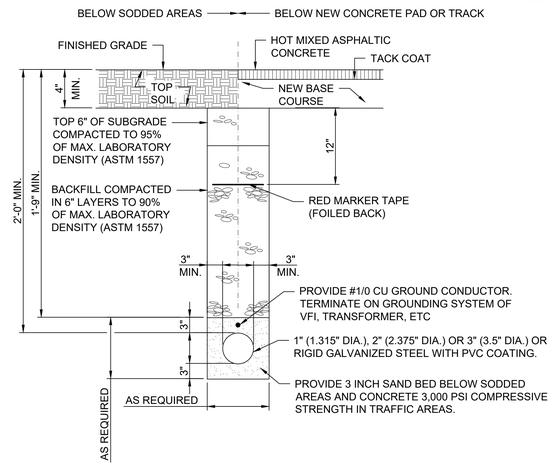


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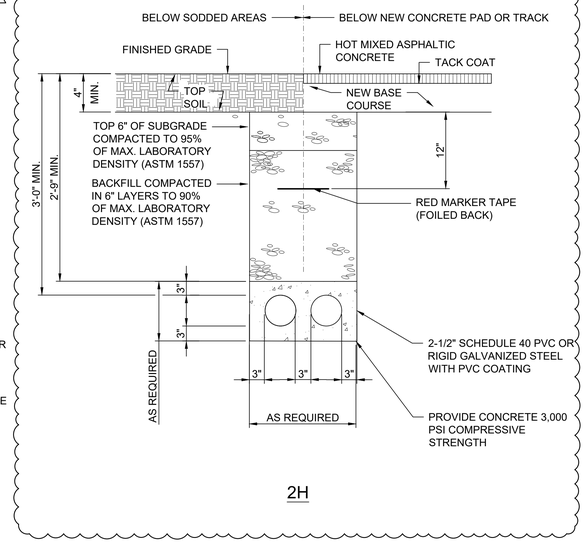


2H

## 1 CONCRETE ENCASED/SOIL SECONDARY/AREA/STREET LIGHTS

NO SCALE

US Army Corps of Engineers
Fort Worth District

STATE OF TEXAS
DANIEL P. HARRINGTON
113569
LICENSED PROFESSIONAL ENGINEER

THIS SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY DANIEL P. HARRINGTON P.E. 113569 ON 08 AUG 2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | | | AUG 2026 |

Designed by: D. HARRINGTON
Date: MAY 2025
Rev.
Drawn by: L. SMITH
Solicitation No.: W912GG25RA020
Contract No.
Reviewed by: R. JOHNSON
Submitted by: C. LANGUM
File name: D4-ES504.dwg
Plot date:
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CONTRACT DRAWINGS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY 4 (DCF4)
MPL S220527

ELECTRICAL DETAILS

Sheet reference number
D4-ES504
Sheet of

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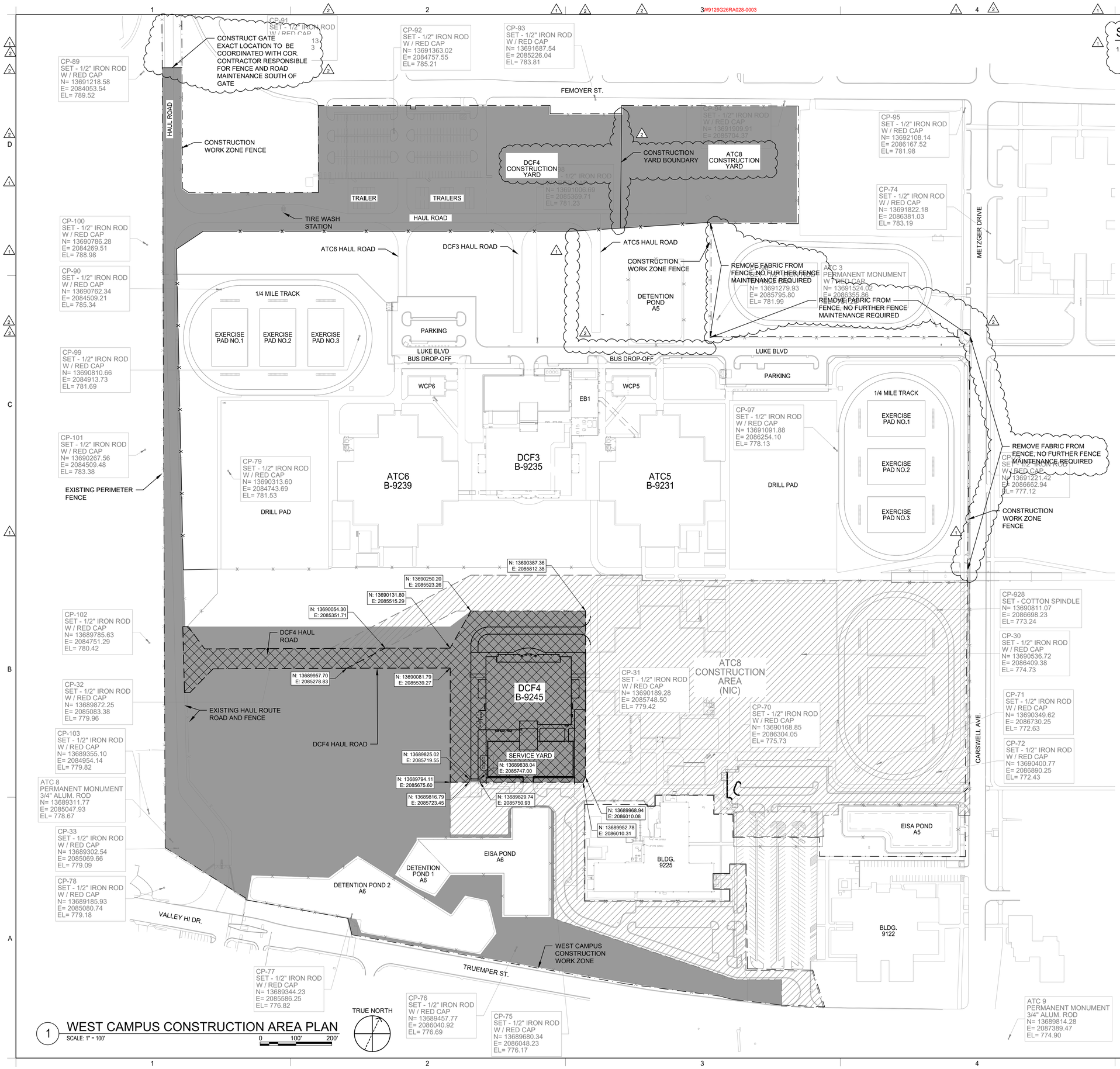



1 WEST CAMPUS CONSTRUCTION AREA PLAN

SCALE: 1" = 100'

0 100' 200'

## SHEET NOTES

1. CONTRACTOR IS RESPONSIBLE FOR ON-GOING MOWING AND FENCE-SCREEN MAINTENANCE.

## LEGEND

- DCF4 CONSTRUCTION AREA
- ATC8 CONSTRUCTION AREA (NIC)
- APPROXIMATE CONSTRUCTION LIMIT LINE
- DCF4 MOWING AND FENCE-SCREEN MAINTENANCE AREA

US Army Corps of Engineers
Fort Worth District

STATE OF TEXAS
GEOFFREY E. LEAF
131589
LICENSED
PROFESSIONAL ENGINEER
08/04/2026

| No. | Description | D.O.No. | Action | Date |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | | | AUG 2026 |
| 1 | REVISED IAW AM0002 | | | JULY 2026 |

Designed by: G. LEAF
Date: MAY 2025
Rev:
Dwn by: E. CHAVEZ
Solicitation No.: W912G26RA030
Rev. by: J. HAGGARD
Contract No.:
Submitted by: C. LANGUM
File name:
Plot date:
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

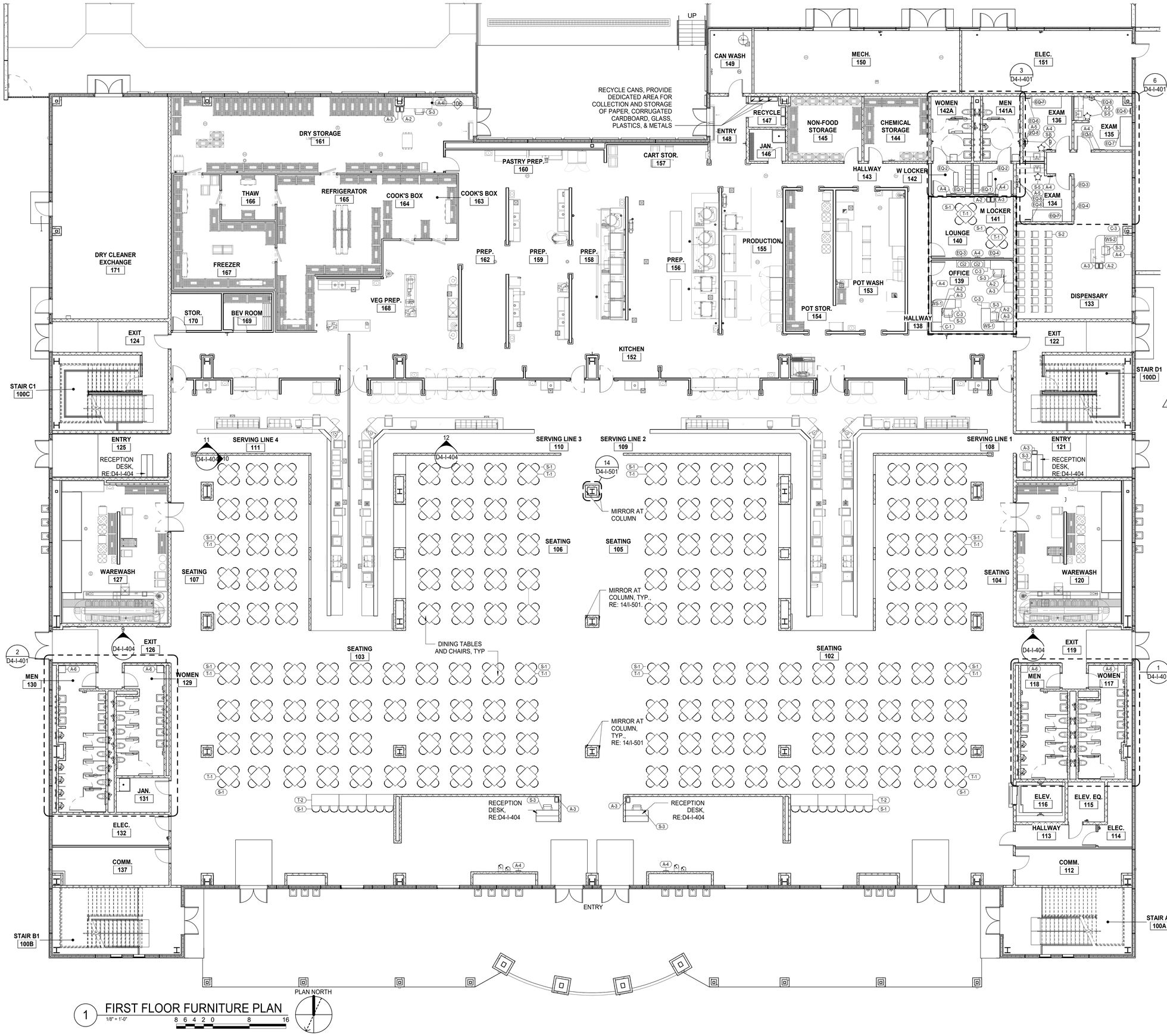
BESA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY 4 (DCF4)
MPL52/26527

WEST CAMPUS CONSTRUCTION AREA PLAN

Sheet reference number

D4-G-103

Sheet of




1 FIRST FLOOR FURNITURE PLAN
1/8" = 1'-0"

## SHEET NOTES

1. FURNITURE IS SHOWN FOR INFORMATION ONLY TO ILLUSTRATE ROOM LAYOUT AND FOR MECHANICAL AND ELECTRICAL COORDINATION.
2. REFER TO ELECTRICAL/ TELECOM / MECHANICAL FOR ADDITIONAL COORDINATION.
3. REFER TO KITCHEN DRAWINGS FOR KITCHEN EQUIPMENT AND LAYOUT.
4. REFER TO D4-I-601 FOR FINISH SELECTIONS.

## FURNITURE INFORMATION: TABLE AND SEATING

1. RECEPTION DESK TO BE INCLUDED IN CONTRACT RE: D4-I-404
2. REFER TO FINISHES ON FINISH SELECTION, SHEET D4-I-601.
3. FURNITURE PHYSICALLY ATTACHED TO THE BUILDING SHALL BE INCLUDED IN CONTRACT.
4. LOOSE FURNITURE, AS SUMMARIZED BELOW IN THE "FURNITURE INFORMATION" SHALL BE DENOTED BY NOT IN CONTRACT, "NIC".
5. CONTRACTOR FURNISHED CONTRACTOR INSTALLED (CFCI) ITEMS LISTED FOR REFERENCE

FIRST FLOOR - FURNITURE INFORMATION - NIC

| Type Mark | Type | Count |
|---|---|---|
| A-2 | Recycle Receptacle, NIC | 6 |
| A-3 | Trash Receptacle, NIC | 9 |
| A-4 | Wall Mounted Clock, CFCI | 11 |
| A-5 | Waste Receptacle w Lid | 3 |
| A-6 | Large Waste Receptacle | 6 |
| C-1 | Wardrobe, NIC | 3 |
| C-2 | 4 Drawer Lateral File, NIC | 2 |
| C-3 | File Pedestal, NIC | 5 |
| EQ-1 | Double Tier Lockers, CFCI | 12 |
| EQ-2 | Locker Room Bench, CFCI | 2 |
| EQ-3 | 4' Corkboard, CFCI | 2 |
| EQ-4 | 4' Whiteboard, CFCI | 2 |
| EQ-5 | Medical Chart Holder, CFCI | 3 |
| EQ-6 | Hazard Container, CFCI | 3 |
| EQ-7 | Exam Table, NIC | 3 |
| EQ-8 | Glove Box Holder, CFCI | 3 |
| S-1 | Dining Chair, NIC | 618 |
| S-2 | Waiting Chair, NIC | 30 |
| S-3 | Ergonomic Work Chair, NIC | 8 |
| S-5 | Medical Stool, NIC | 3 |
| T-1 | Square Dining Table, NIC | 150 |
| T-2 | Rectangular Table, NIC | 6 |
| WS-1 | L-Shaped Workstation, NIC | 3 |
| WS-2 | L-Shaped Workstation w Transaction Counter, NIC | 1 |
| WS-3 | Desk, NIC | 1 |

US Army Corps of Engineers
Fort Worth District

REGISTERED INTERIOR DESIGNER
TONY J. JOHNSON
12561
STATE OF TEXAS
08/05/2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | | | AUG 2026 |
| 1 | REVISED IAW AM0002 | | | JULY 2026 |

Designed by: A. RIVARD
Date: MAY 2025
Solicitation No.: W912DQ23RA020
Rev.
Dwn by: T. JOHNSON
Contract No.:
Reviewed by: J. ROTH
Submitted by: C. LANGUM
Approved by:
File name:
Plot date: 8/6/2026 11:31:26 AM
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, CORPS OF ENGINEERS FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

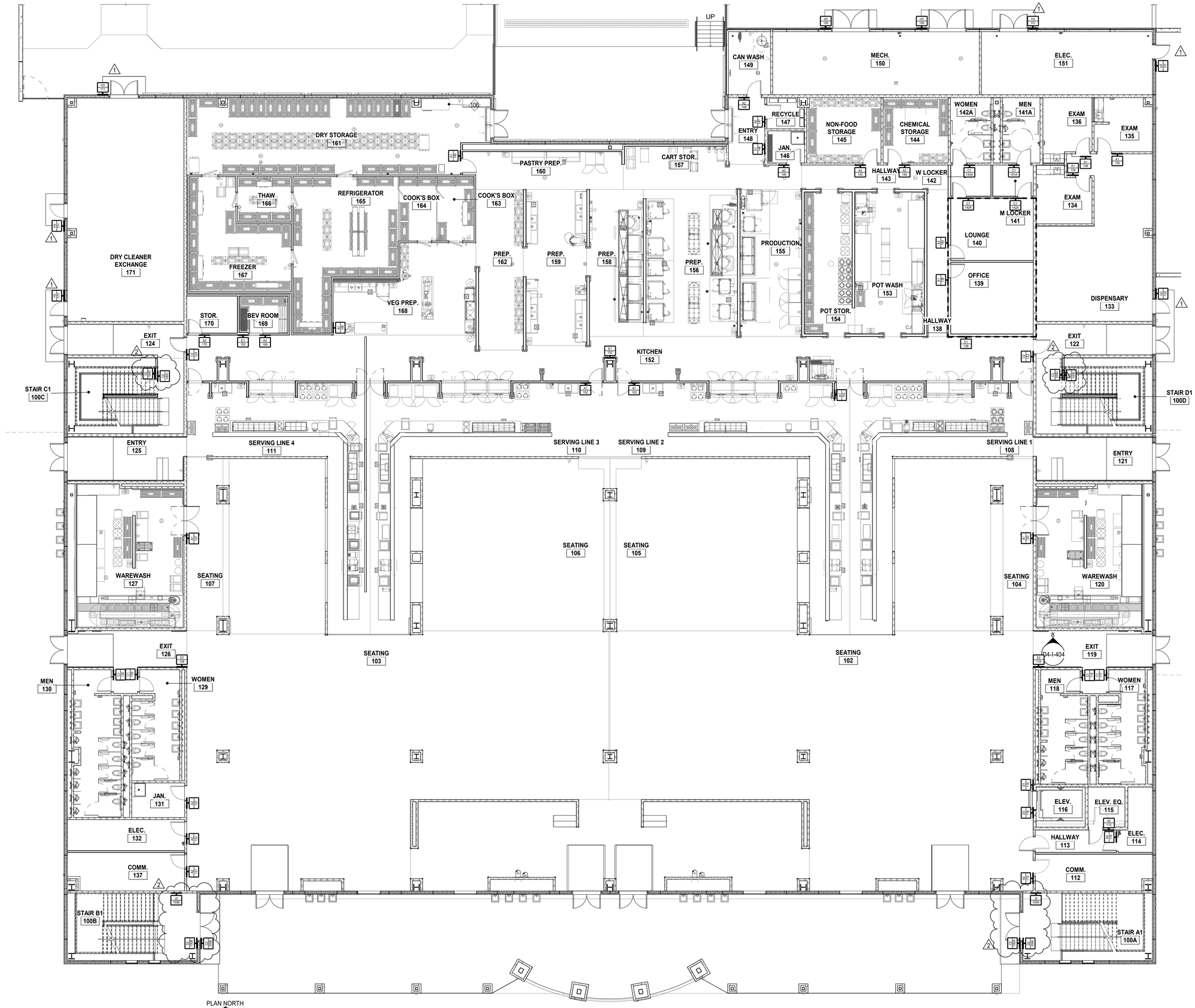
FIRST FLOOR FURNITURE PLAN

KEY PLAN

Sheet reference number
D4-I-101
Sheet of

Contr No.:

8/6/2026 11:31:26 AM




1 FIRST FLOOR SIGNAGE PLAN
1/8" = 1'-0"
8 6 4 2 0 8 16

## GENERAL SIGNAGE NOTES

1. FOR SIGNAGE DETAILS AND TYPES REFER TO D4-I-604.
2. FOR SIGNAGE LOCATIONS AND INFORMATION TO BE APPROVED BY USER REFER TO D4-I-605. REFER TO SID FOR SIGNAGE FINISHES.
3. LOCATE SIGNS ON WALL OUTSIDE OF ROOM. IF WALL SPACE IS LIMITED, ROOM SIGNAGE IS TO BE MOUNTED ON DOOR AT TYPICAL SIGNAGE HEIGHT.
4. SIGNAGE MESSAGE CONTENT SHALL BE COORDINATED WITH USERS.
5. SIGNAGE MESSAGE MAY NOT BE ABBREVIATED UNLESS MESSAGE WILL NOT FIT ON THE SIGN. PROPOSED SIGN ABBREVIATIONMUST BE APPROVED BY USERS.
6. ALL LETTERING SHALL BE TREBUCHET MS BOLD.
7. PROVIDE SIGN TYPE D3 AT INSIDE EACH STAIR AT EACH FLOOR LANDING INDICATING FLOOR LEVEL (TACTILE), IDENTIFICATION OF STAIR (STAIR A OR B), "EXIT AT LEVEL 1" AND AN ARROW POINTING IN DIRECTION OF FIRST FLOOR PLUS BOTTOM TERMINUS "BOTTOM LEVEL 1", UPPER TERMINUS "TOP LEVEL 3". STAIRS SHALL ALSO SAY "NO ROOF ACCESS". ARRANGEMENT OF SIGNS FROM TOP TO BOTTOM SHALL BE AS FOLLOWS: STAIR IDENTIFICATION IN MINIMUM 1" HIGH LETTERS; NO ROOF ACCESS IN MINIMUM 1" HIGH LETTERS, FLOOR LEVEL IN MIDDLE OF SIGN MINIMUM 5" HIGH NUMBERS; TERMINUS LEVELS IN 1" HIGH LEVELS AT BOTTOM OF SIGN. SIGN LOCATION SHALL BE 60" AFF AND VISIBE BOTH WHEN THE DOOR IS OPEN AND CLOSED.
8. DOOR MFG. SHALL PROVIDE LABEL ON FIRE RATED DOORS STATING SATING INFORMATION FOR DOOR ASSEMBLE.
9. COMPLY WITH UFC 3-120-01 FOR SPECIFIC SIGNAGE REQUIREMENTS.
10. REFER TO SPECS FOR SIGNAGE FINISHES AND INFORMATION.

US Army Corps of Engineers
Fort Worth District

REGISTERED INTERIOR DESIGNER
TONY J. JOHNSON
12561
STATE OF TEXAS
08/05/2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | | | AUG 2026 |
| 1 | REVISED IAW AM0002 | | | JULY 2026 |

Designed by: A. RIVARD
Dwn by: T. JOHNSON
Reviewed by: M. OTTO
Submitted by: C. LANGUM
Date: MAY 2025
Solicitation No.: W912KG25RA020
Contract No.:
File name:
Plot date: 8/4/2026 9:51:32 AM
Plot scale: 1:1
Rev.

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPS.220527

FIRST FLOOR SIGNAGE PLAN

Sheet reference number
D4-I-107
Sheet of

Contr No.

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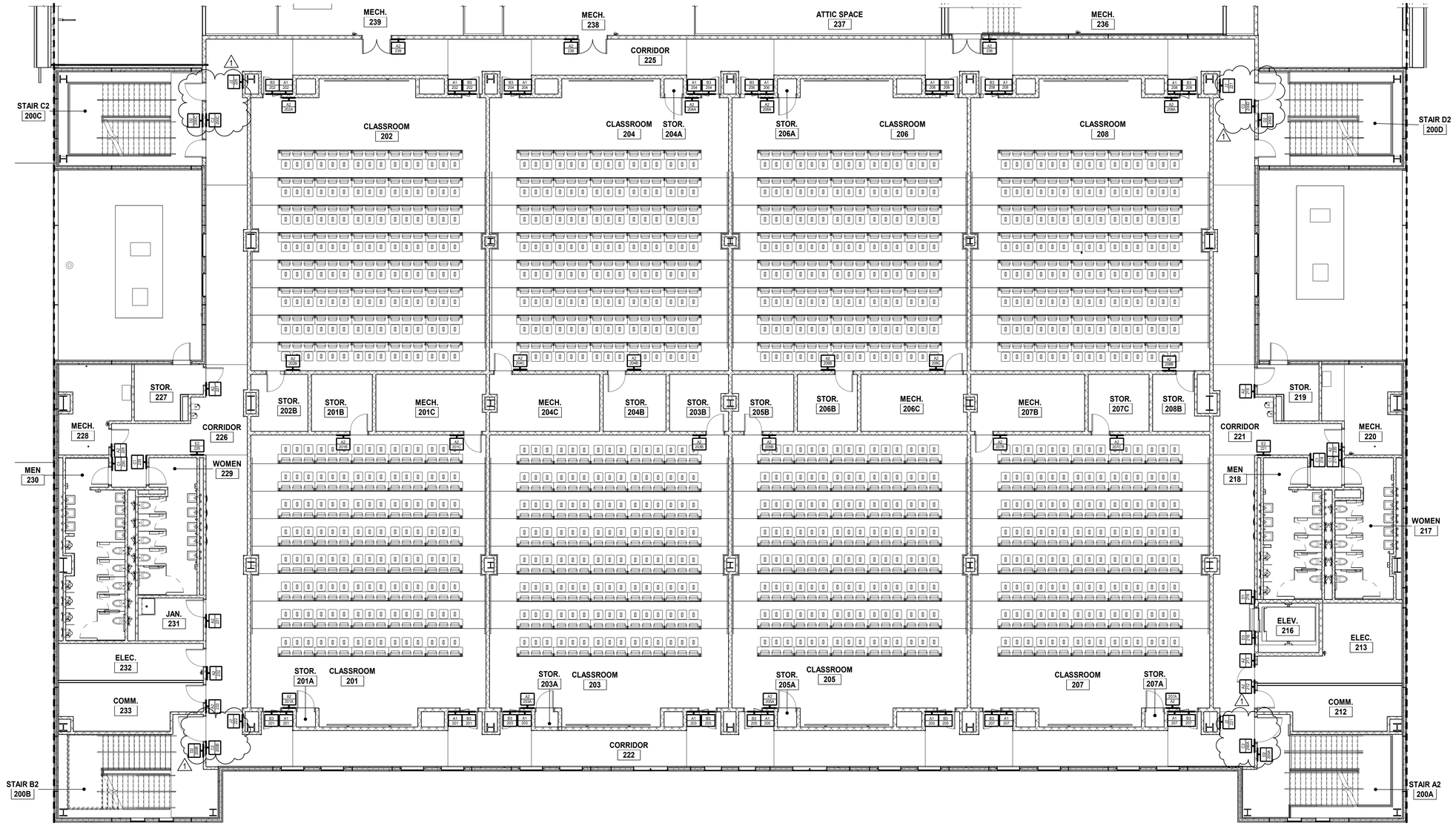



1 SECOND FLOOR SIGNAGE PLAN
1/8" = 1'-0"

8 6 4 2 0 8 16

PLAN NORTH

## GENERAL SIGNAGE NOTES

1. FOR SIGNAGE DETAILS AND TYPES REFER TO D4-I-604.
2. FOR SIGNAGE LOCATIONS AND INFORMATION TO BE APPROVED BY USER REFER TO D4-I-605. REFER TO SID FOR SIGNAGE FINISHES.
3. LOCATE SIGNS ON WALL OUTSIDE OF ROOM. IF WALL SPACE IS LIMITED, ROOM SIGNAGE IS TO BE MOUNTED ON DOOR AT TYPICAL SIGNAGE HEIGHT.
4. SIGNAGE MESSAGE CONTENT SHALL BE COORDINATED WITH USERS.
5. SIGNAGE MESSAGE MAY NOT BE ABBREVIATED UNLESS MESSAGE WILL NOT FIT ON THE SIGN. PROPOSED SIGN ABBREVIATIONMUST BE APPROVED BY USERS.
6. ALL LETTERING SHALL BE TREBUCHET MS BOLD.
7. PROVIDE SIGN TYPE D3 AT INSIDE EACH STAIR AT EACH FLOOR LANDING INDICATING FLOOR LEVEL (TACTILE), IDENTIFICATION OF STAIR (STAIR A OR B), "EXIT AT LEVEL 1" AND AN ARROW POINTING IN DIRECTION OF FIRST FLOOR PLUS BOTTOM TERMINUS "BOTTOM LEVEL 1", UPPER TERMINUS "TOP LEVEL 3". STAIRS SHALL ALSO SAY "NO ROOF ACCESS". ARRANGEMENT OF SIGNS FROM TOP TO BOTTOM SHALL BE AS FOLLOWS: STAIR IDENTIFICATION IN MINIMUM 1" HIGH LETTERS; NO ROOF ACCESS IN MINIMUM 1" HIGH LETTERS, FLOOR LEVEL IN MIDDLE OF SIGN MINIMUM 5" HIGH NUMBERS; TERMINUS LEVELS IN 1" HIGH LEVELS AT BOTTOM OF SIGN. SIGN LOCATION SHALL BE 60" AFF AND VISIBE BOTH WHEN THE DOOR IS OPEN AND CLOSED.
8. DOOR MFG. SHALL PROVIDE LABEL ON FIRE RATED DOORS STATING SATING INFORMATION FOR DOOR ASSEMBLE.
9. COMPLY WITH UFC 3-120-01 FOR SPECIFIC SIGNAGE REQUIREMENTS.
10. REFER TO SPECS FOR SIGNAGE FINISHES AND INFORMATION.

US Army Corps of Engineers
Fort Worth District

REGISTERED INTERIOR DESIGNER
TONY J. JOHNSON
12561
STATE OF TEXAS
08/05/2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | | | AUG 2026 |

Designed by: A. RIVARD
Date: MAY 2025
Rev.
Dwn by: T. JOHNSON
Solicitation No.: W912GG25RA020
Reviewed by: N. SOTO
Contract No.:
Submitted by: C. LANGAM
File name:
Plot date: 8/4/2026 10:01:41 AM
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH ATTN: CESWF-PDS-C FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

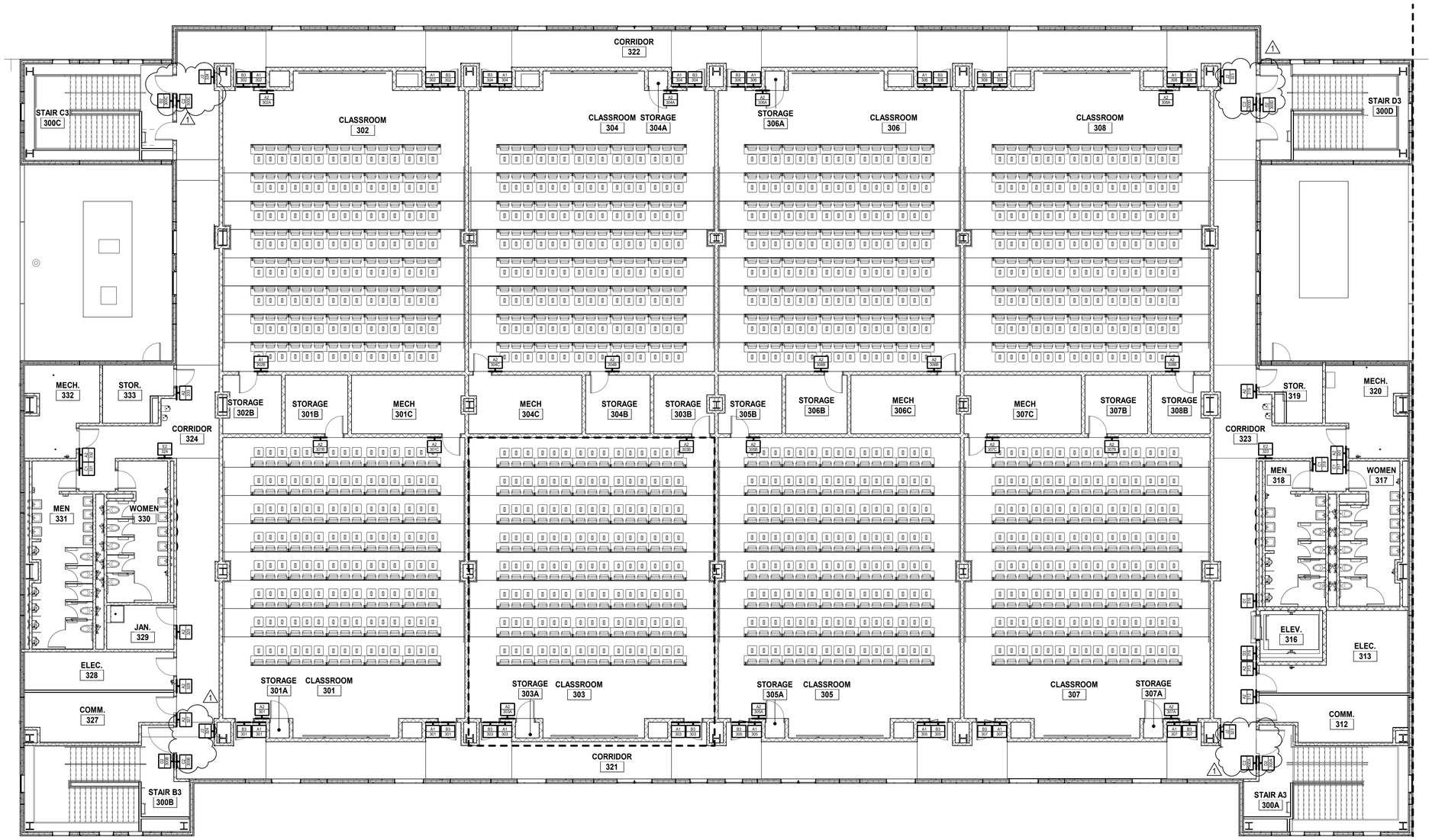
JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

SECOND FLOOR SIGNAGE PLAN

Sheet reference number
D4-I-108
Sheet of

Cost No.

8/4/2026 10:01:41 AM




1 THIRD FLOOR SIGNAGE PLAN
1/8" = 1'-0"

8 6 4 2 0 8 16

PLAN NORTH

# GENERAL SIGNAGE NOTES

1. FOR SIGNAGE DETAILS AND TYPES REFER TO D4-I-604.
2. FOR SIGNAGE LOCATIONS AND INFORMATION TO BE APPROVED BY USER REFER TO D4-I-605. REFER TO SID FOR SIGNAGE FINISHES.
3. LOCATE SIGNS ON WALL OUTSIDE OF ROOM. IF WALL SPACE IS LIMITED, ROOM SIGNAGE IS TO BE MOUNTED ON DOOR AT TYPICAL SIGNAGE HEIGHT.
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8. DOOR MFG. SHALL PROVIDE LABEL ON FIRE RATED DOORS STATING SATING INFORMATION FOR DOOR ASSEMBLE.
9. COMPLY WITH UFC 3-120-01 FOR SPECIFIC SIGNAGE REQUIREMENTS.
10. REFER TO SPECS FOR SIGNAGE FINISHES AND INFORMATION.

US Army Corps of Engineers
Fort Worth District

REGISTERED INTERIOR DESIGNER
TONY J. JOHNSON
12561
STATE OF TEXAS
08/05/2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 1 | REVISED IAW AN0003 | | | AUG 2026 |

Designed by: A. RIVARD
Date: MAY 2025
Rev:
Dwn by: T. JOHNSON
Solicitation No.: W912R25RA020
Contract No.:
Reviewed by: N. ACOSTA
Submitted by: C. LANDUM
File name:
Plot date: 8/4/2026 10:05:16 AM
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

THIRD FLOOR SIGNAGE PLAN

Sheet reference number
D4-I-109
Sheet of

Cont No.

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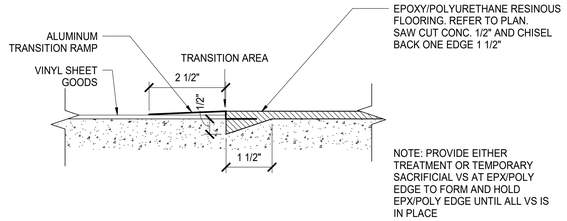
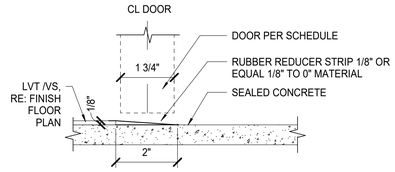
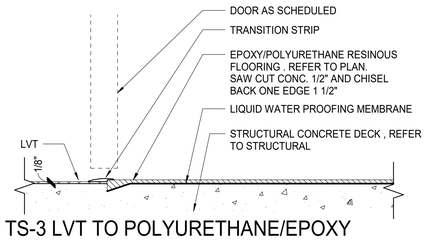


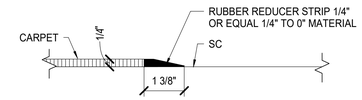

1 TS-1 VS TO POLYURETHANE/EPOXY FLOORING TRANSITION
6" = 1'-0"



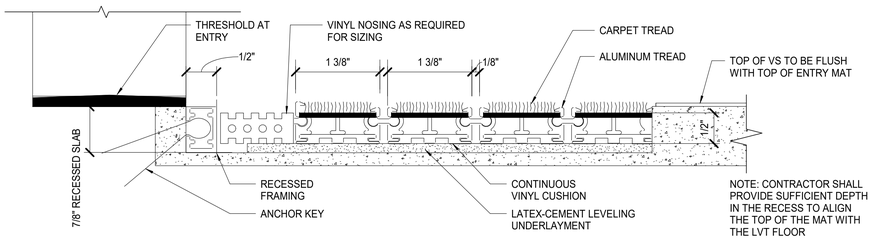

2 TS-2 LVT/VS TO SEALED CONCRETE FLOORING TRANSITION
6" = 1'-0"



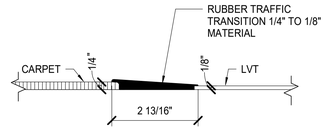

3 TS-3 LVT TO POLYURETHANE/EPOXY FLOORING TRANSITION
3" = 1'-0"



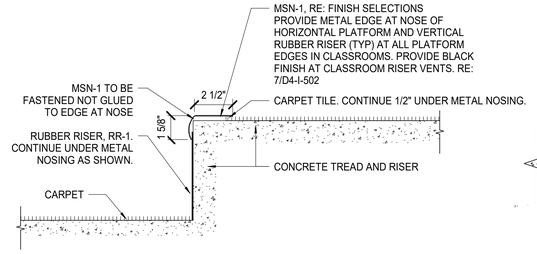

4 TS-4 CARPET TO SEALED CONCRETE FLOORING TRANSITION
6" = 1'-0"



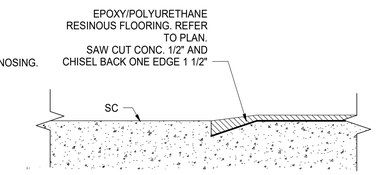

5 TS-5 RECESSED ENTRY MAT SECTION
N.T.S.



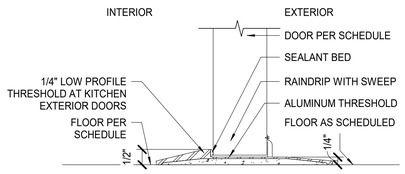

6 TS-6 CARPET TO LVT / VCT FLOORING TRANSITION
6" = 1'-0"



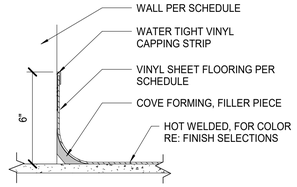

7 TS-7 RISER/PLATFORM NOSE DETAIL
3" = 1'-0"



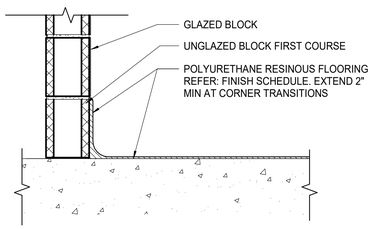

8 TS-8 POLYURETHANE/EPOXY TO SC FLOORING TRANSITION
6" = 1'-0"



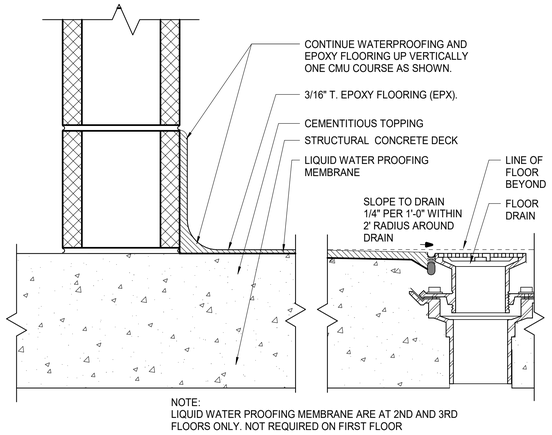

9 TS-9 EXTERIOR THRESHOLD DETAIL
6" = 1'-0"




10 VINYL SHEET FLOORING COVE BASE DETAIL
3" = 1'-0"

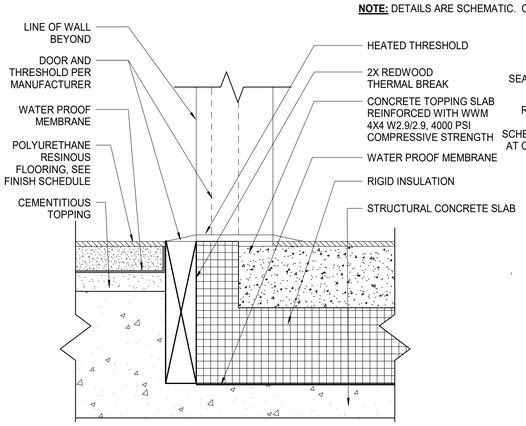



11 POLYURETHANE RESINOUS FLOOR TERMINATION
1 1/2" = 1'-0"

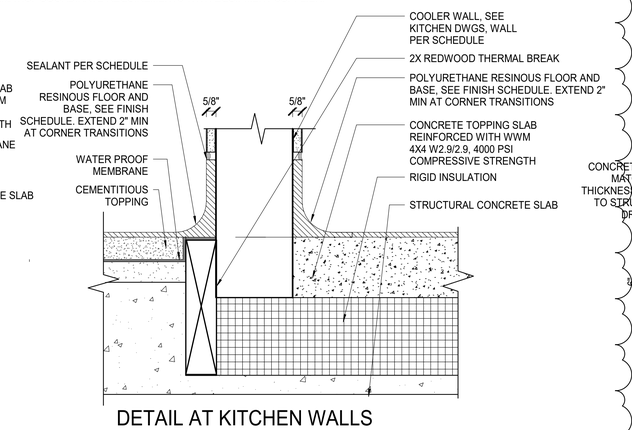



12 RECESSED FLOOR DETAIL AT RESTROOM (EPOXY FLOORING)
3" = 1'-0"

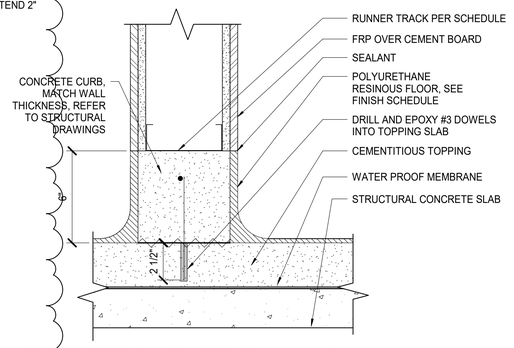
**NOTE:** DETAILS ARE SCHEMATIC. COORDINATE REQUIREMENTS WITH EQUIPMENT SUPPLIER.



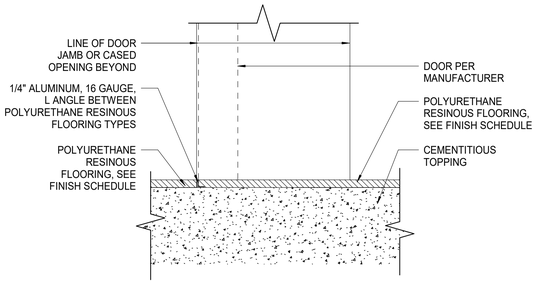

13 POLYURETHANE RESINOUS FLOOR
3" = 1'-0"




14 DETAIL AT KITCHEN WALLS POLYURETHANE RESINOUS
3" = 1'-0"




15 CURB DETAIL AT KITCHEN WALLS
3" = 1'-0"




16 POLY-1 AND POLY-2 TRANSITION
6" = 1'-0"

US Army Corps of Engineers
Fort Worth District

REGISTERED INTERIOR DESIGNER
TONI J. JOHNSON
12561
STATE OF TEXAS
08/05/2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | | | AUG 2026 |

Designed by: A. RIVARD
Date: MAY 2025
Rev.
Own by: T. JOHNSON
Solicitation No.: W9126G22RA020
Reviewed by: K.E. SCOTT
Contract No.:
Approved by: C. LANGUM
File name:
Plot date: 8/7/2026 8:31:18 AM
File scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

INTERIOR DETAILS

Sheet reference number
D4-I-502
Sheet of

Cont No.

8/7/2026 8:31:18 AM

# ROOM FINISH SCHEDULE

| ROOM NO. | ROOM NAME | FLOOR | BASE | WALL FINISH NORTH | WALL FINISH EAST | WALL FINISH SOUTH | WALL FINISH WEST | CEILING MATERIAL | CEILING FINISH | GENERAL NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| Not Placed | | | | | | | | | | |
| 172 | Room | | | | | | | | | |
| 173 | EXTERIOR YARD | | | | | | | | | |
| 202A | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 208A | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| FIRST FLOOR | | | | | | | | | | |
| 100A | STAIR A1 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 100B | STAIR B1 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 100C | STAIR C1 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 100D | STAIR D1 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 101 | LOBBY | VS-2/ VS-3 | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB/ACT-1 | P-6/NA | |
| 102 | SEATING | VS-2/ VS-3 | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB/ACT-1 | P-6/NA | |
| 103 | SEATING | VS-2/VS-3/MAT-1 | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 104 | SEATING | VS-2/ VS-3 | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB/ACT-1 | P-6/NA | |
| 105 | SEATING | VS-2/VS-3 | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB/ACT-1 | P-6/NA | |
| 106 | SEATING | VS-2/ VS-3 | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB/ACT-1 | P-6/NA | |
| 107 | SEATING | VS-2/VS-3/MAT-1 | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB/ACT-1 | P-6/NA | |
| 108 | SERVING LINE 1 | POLY-1 | POLY-1 | FRP-1/GLB-1,2,3 | FRP-1 | FRP-1 | FRP-1 - GLB-1,2,3 | GWB | P-6 | |
| 109 | SERVING LINE 2 | POLY-1 | POLY-1 | FRP-1/GLB-1,2,3 | FRP-1/GLB-1,2,3 | FRP-1 | FRP-1 | GWB | P-6 | |
| 110 | SERVING LINE 3 | POLY-1 | POLY-1 | FRP-1/GLB-1,2,3 | FRP-1 | FRP-1 | FRP-1 - GLB-1,2,3 | GWB | P-6 | |
| 111 | SERVING LINE 4 | POLY-1 | POLY-1 | FRP-1/GLB-1,2,3 | FRP-1/GLB-1,2,3 | FRP-1 | FRP-1 | GWB | P-6 | |
| 112 | COMM. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 113 | HALLWAY | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 114 | ELEC. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 115 | ELEV. EQ. | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | EXP | NA | EXTEND POLY-2 8" UP WALL |
| 116 | ELEV. | - | - | - | - | - | - | - | - | SEE SPECS |
| 117 | WOMEN | EPX-1 | EPX-1 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 118 | MEN | EPX-1 | EPX-1 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 119 | EXIT | VS-2/MAT-1 | VS-2 | GLB-1 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 120 | WAREWASH | POLY-2 | POLY-2 | GLB-1 | FRP-1 | GLB-1 | FRP-1/GLB-1 | CB | FRP-1 | |
| 121 | ENTRY | VS-2 / MAT-1 | VS-2 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 122 | EXIT | SC/ MAT-1 | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 124 | EXIT | SC / MAT-1 | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 125 | ENTRY | VS-2 / MAT-1 | VS-2 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 126 | EXIT | VS-2 / MAT-1 | VS-2 | GLB-1 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 127 | WAREWASH | POLY-2 | POLY-2 | GLB-1 | GLB-1/FRP-1 | GLB-1 | FRP-1 | CB | FRP-1 | |
| 129 | WOMEN | EPX-1 | EXP-1 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 130 | MEN | EPX-1 | EXP-1 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 131 | JAN. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB | NA | |
| 132 | ELEC. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 133 | DISPENSARY | LVT-3 | RB-1 | P-6 | P-6 | P-4 | P-6 | ACT-1 | NA | |
| 134 | EXAM | VCT-1 | RB-1 | P-6 | P-6 | P-4 | P-6 | ACT-1 | NA | |
| 135 | EXAM | VTC-1 | RB-1 | P-4 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 136 | EXAM | VTC-1 | RB-1 | P-4 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 137 | COMM. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 138 | HALLWAY | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | GWB | P-6 | |
| 139 | OFFICE | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 140 | LOUNGE | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 141 | M LOCKER | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-4 | GWB | P-6 | |
| 141A | MEN | POLY-2 | POLY-2 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 142 | W LOCKER | POLY-2 | POLY-2 | P-6 | P-4 | P-6 | P-6 | GWB | P-6 | |
| 142A | WOMEN | POLY-2 | POLY-2 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 143 | HALLWAY | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | GWB | P-6 | |
| 144 | CHEMICAL STORAGE | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 145 | NON-FOOD STORAGE | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 146 | JAN. | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 147 | RECYCLE | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 148 | ENTRY | POLY-2 | POLY-2 | P-9 | P-9 | P-6 | P-6 | GWB | P-6 | |
| 149 | CAN WASH | POLY-2 | POLY-2 | HBC-1 | HBC-1 | HBC-1 | HBC-1 | CB | HBC-1 | |
| 150 | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 151 | ELEC. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 152 | KITCHEN | POLY-1 | POLY-1 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | GWB | P-6 | |
| 153 | POT WASH | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | CB | FRP-1 | |
| 154 | POT STOR. | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | GWB | P-6 | |
| 155 | PRODUCTION | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | GWB | P-6 | |
| 156 | PREP. | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | CB | HBC-1 | |
| 157 | CART STOR. | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | GWB | P-6 | |
| 158 | PREP. | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | CB | HBC-1 | |
| 159 | PREP. | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | GWB | P-6 | |
| 160 | PASTRY PREP. | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | GWB | P-6 | |
| 161 | DRY STORAGE | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | GWB | P-6 | |
| 162 | PREP. | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | GWB | P-6 | |
| 163 | COOK'S BOX | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | MANUF | - | |
| 164 | COOK'S BOX | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | MANUF | - | |
| 165 | REFRIGERATOR | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | MANUF | P-6 | |
| 166 | THAW | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | MANUF | - | |

FOR CEILING HEIGHTS RE: D4-A-114 & D4-A-115

# ROOM FINISH SCHEDULE

| ROOM NO. | ROOM NAME | FLOOR | BASE | WALL FINISH NORTH | WALL FINISH EAST | WALL FINISH SOUTH | WALL FINISH WEST | CEILING MATERIAL | CEILING FINISH | GENERAL NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| 167 | FREEZER | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | MANUF | - | |
| 168 | VEG PREP. | POLY-2 | POLY-2 | FRP-1 | FRP-1 | FRP-1 | FRP-1 | GWB | P-6 | |
| 169 | BEV ROOM | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 170 | STOR. | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 171 | DRY CLEANER EXCHANGE | POLY-2 | POLY-2 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| SECOND FLOOR | | | | | | | | | | |
| 200A | STAIR A2 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 200B | STAIR B2 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 200C | STAIR C2 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 200D | STAIR D2 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 201 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 AP-1 / AP-2 | P-6 | P-6 AP-1 / AP-2 | ACT-1 | NA | |
| 201A | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 201B | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 201C | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 202 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 AP-1 / AP-2 | P-6 | P-6 AP-1 / AP-2 | ACT-1 | NA | |
| 202B | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 203 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 AP-1 / AP-2 | P-6 | P-6 AP-1 / AP-2 | ACT-1 | NA | |
| 203A | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 203B | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 204 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 AP-1 / AP-2 | P-6 | P-6 AP-1 / AP-2 | ACT-1 | NA | |
| 204A | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 204B | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 204C | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 205 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 AP-1 / AP-2 | P-6 | P-6 AP-1 / AP-2 | ACT-1 | NA | |
| 205A | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 205B | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 206 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 AP-1 / AP-2 | P-6 | P-6 AP-1 / AP-2 | ACT-1 | NA | |
| 206A | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 206B | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 206C | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 207 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 AP-1 / AP-2 | P-6 | P-6 AP-1 / AP-2 | ACT-1 | NA | |
| 207A | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 207B | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 207C | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 208 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 AP-1 / AP-2 | P-6 | P-6 AP-1 / AP-2 | ACT-1 | NA | |
| 208B | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 212 | COMM. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 213 | ELEC. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 216 | ELEV. | - | - | - | - | - | - | - | - | SEE SPECS |
| 217 | WOMEN | EPX-1 | EPX-1 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 218 | MEN | EPX-1 | EPX-1 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 219 | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 220 | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 221 | CORRIDOR | LVT-2 / LVT-1 | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 222 | CORRIDOR | LVT-2 / LVT-1 | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 225 | CORRIDOR | LVT-2 / LVT-1 | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 226 | CORRIDOR | LVT-2 / LVT-1 | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 227 | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 228 | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 229 | WOMEN | EPX-1 | EXP-1 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 230 | MEN | EPX-1 | EXP-1 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 231 | JAN. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 232 | ELEC. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 233 | COMM. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 235 | ATTIC SPACE | NA | NA | NA | NA | NA | NA | EXP | NA | |
| 236 | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 237 | ATTIC SPACE | NA | NA | NA | NA | NA | NA | EXP | NA | |
| 238 | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 239 | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 240 | ATTIC SPACE | NA | NA | NA | NA | NA | NA | EXP | NA | |

US Army Corps of Engineers
Fort Worth District

REGISTERED INTERIOR DESIGNER
TONY J. JOHNSON
12561
STATE OF TEXAS
08/05/2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | | | AUG 2026 |
| 1 | REVISED IAW AM0002 | | | JULY 2026 |

Designed by: A. RIVARD
Date: MAY 2025
Rev:
Dwn by: T. JOHNSON
Solicitation No.: W9126G25RA020
Reviewed by: M. ROSTO
Contract No.
Submitted by: C. LANGUM
File name: Plot date: 8/5/2026 3:16:22 PM
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

FINISH SCHEDULE

Sheet reference number
D4-I-602
Sheet of

Cont No.

8/6/2026 3:16:22 PM

# ROOM FINISH SCHEDULE CONTINUED

| ROOM NO. | ROOM NAME | FLOOR | BASE | WALL FINISH NORTH | WALL FINISH EAST | WALL FINISH SOUTH | WALL FINISH WEST | CEILING MATERIAL | CEILING FINISH | GENERAL NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| THIRD FLOOR | | | | | | | | | | |
| 300A | STAIR A3 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | P-6 | EXP / 1HR RATED CEILING |
| 300B | STAIR B3 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | P-6 | EXP / 1HR RATED CEILING |
| 300C | STAIR C3 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | P-6 | EXP / 1HR RATED CEILING |
| 300D | STAIR D3 | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | P-6 | EXP / 1HR RATED CEILING |
| 301 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 / AP-1 / AP-2 | P-6 | P-6 / AP-1 / AP-2 | ACT-1 | NA | |
| 301A | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 301B | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 301C | MECH | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 302 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 / AP-1 / AP-2 | P-6 | P-6 / AP-1 / AP-2 | ACT-1 | NA | |
| 302B | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 303 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-7 / AP-1 / AP-2 | P-6 | P-7 / AP-1 / AP-2 | ACT-1 | NA | |
| 303A | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 303B | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 304 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 / AP-1 / AP-2 | P-6 | P-6 / AP-1 / AP-2 | ACT-1 | NA | |
| 304A | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 304B | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 304C | MECH | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 305 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 / AP-1 / AP-2 | P-6 | P-6 / AP-1 / AP-2 | ACT-1 | NA | |
| 305A | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 305B | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 306 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 / AP-1 / AP-2 | P-6 | P-6 / AP-1 / AP-2 | ACT-1 | NA | |
| 306A | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 306B | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 306C | MECH | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | EXP | NA | |
| 307 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 / AP-1 / AP-2 | P-6 | P-6 / AP-1 / AP-2 | ACT-1 | NA | |
| 307A | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | P-6 | NA | |
| 307B | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | P-6 | NA | |
| 307C | MECH | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | P-6 | NA | |
| 308 | CLASSROOM | CPT-1 | RB-2 | P-6 | P-6 / AP-1 / AP-2 | P-6 | P-6 / AP-1 / AP-2 | ACT-1 | NA | |
| 308B | STORAGE | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 312 | COMM. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | - | - | |
| 313 | ELEC. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 316 | ELEV. | - | - | - | - | - | - | - | - | SEE SPECS |
| 317 | WOMEN | EPX-1 | EPX-1 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 318 | MEN | EPX-1 | EPX-1 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GLB-1,2,3 | GWB | P-6 | |
| 319 | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 320 | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 321 | CORRIDOR | LVT-2 / LVT-5 | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 322 | CORRIDOR | LVT-2 / LVT-5 | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 323 | CORRIDOR | LVT-2 / LVT-5 | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 324 | CORRIDOR | LVT-2 / LVT-5 | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 327 | COMM. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | - | - | |
| 328 | ELEC. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 329 | JAN. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |
| 330 | WOMEN | EPX-1 | EPX-1 | GLB-1 | GLB-1 | GLB-1 | GLB-1 | GWB | P-6 | |
| 331 | MEN | EPX-1 | EPX-1 | GLB-1 | GLB-1 | GLB-1 | GLB-1 | GWB | P-6 | |
| 332 | MECH. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | GWB | P-6 | |
| 333 | STOR. | SC | RB-1 | P-6 | P-6 | P-6 | P-6 | ACT-1 | NA | |

FOR CEILING HEIGHTS RE: D4-A-118

US Army Corps of Engineers
Fort Worth District

REGISTERED INTERIOR DESIGNER
TONY J. JOHNSON
12561
STATE OF TEXAS

08/05/2026

| No. | Description | Date | Action | D.O. No. |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | AUG 2026 | | |
| 1 | REVISED IAW AM0002 | JULY 2026 | | |

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CONTRACT DRAWINGS
FORT WORTH, TEXAS

Designed by: A. RIVARD
Date: MAY 2025
Rev.
Dwn by: T. JOHNSON
Solicitation No.: W912KG25RA020
Contract No.
Reviewed by: J. LEWIS
Submitted by: C. LANGUM
File name:
Plot date: 8/6/2026 3:12:18 PM
Plot scale: 1:1

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

FINISH SCHEDULE

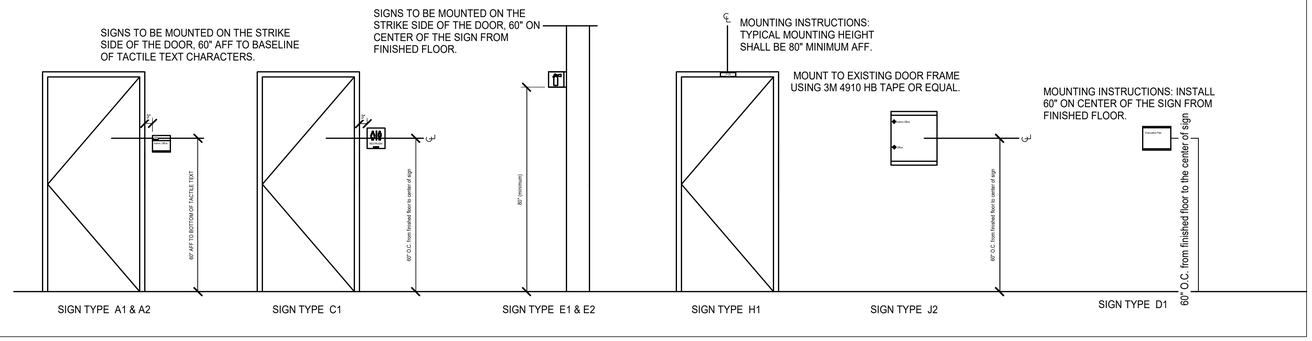
Sheet reference number
D4-I-603

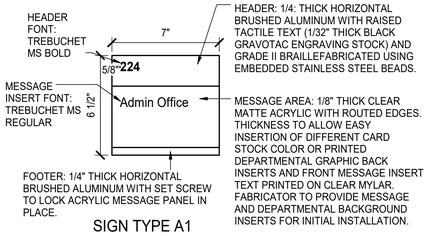
Sheet of

Cont No.

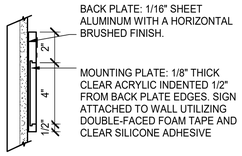
8/6/2026 3:12:18 PM

# TYPICAL SIGN MOUNTING HEIGHT ELEVATION VIEW:



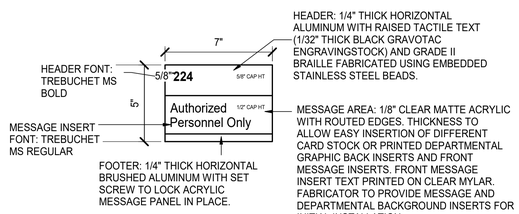




SIGN TYPE A1

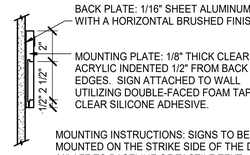



SIDE VIEW

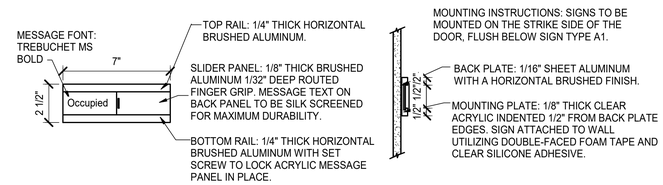
PRIMARY ROOM IDENTIFICATION




SIGN TYPE A2

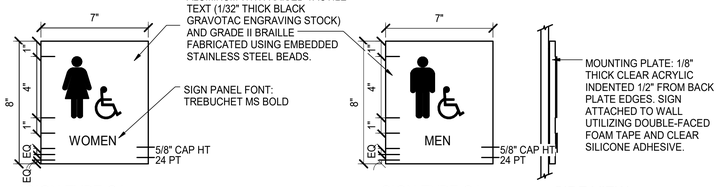



SIDE VIEW




SIGN TYPE B3 SIDE VIEW

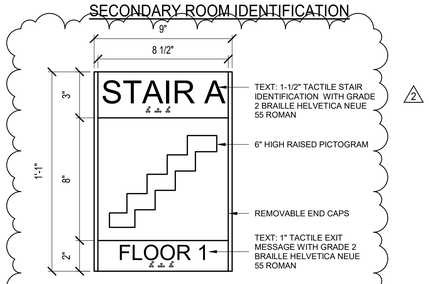
OPTIONAL "IN-USE" SLIDER



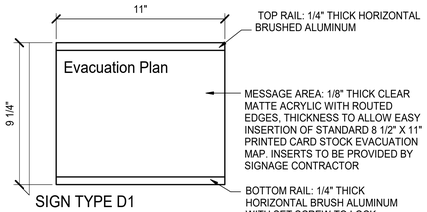

SIGN TYPE C1 SIGN TYPE C1 SIDE VIEW

RESTROOMS

SECONDARY ROOM IDENTIFICATION

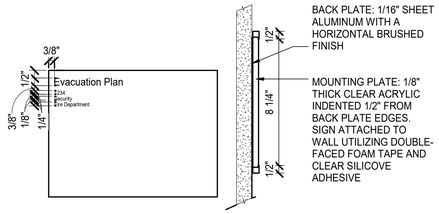



SIGN TYPE C2 STAIR IDENTIFIER

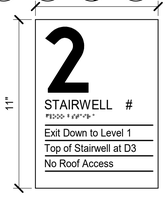



SIGN TYPE D1

EVACUATION MAP




SIDE VIEW

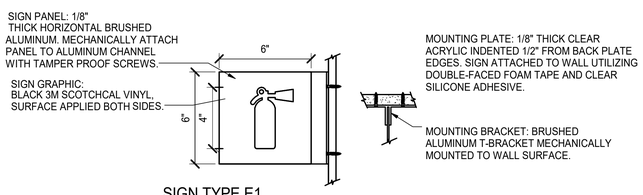



SIGN TYPE D2

STAIRWELLS

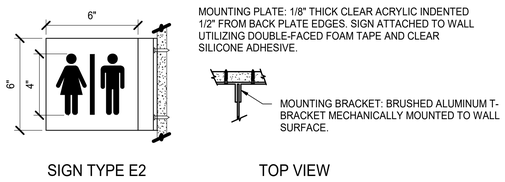
SIGN TYPE D3

EVACUATION



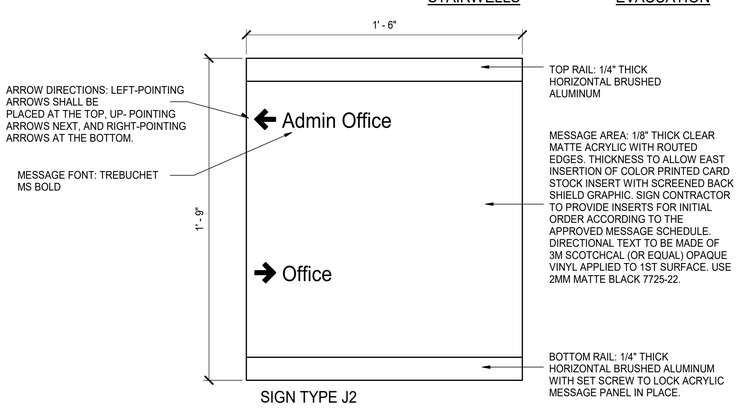

SIGN TYPE E1 TOP VIEW

FLAG MOUNTED



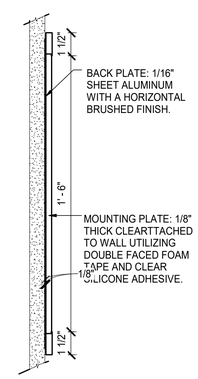

SIGN TYPE E2 TOP VIEW

FLAG MOUNT RESTROOM UNISEX

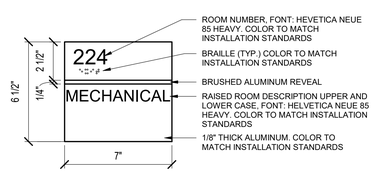



SIGN TYPE J2

SMALL WALL MOUNTED DIRECTIONALS




SIDE VIEW




EXTERIOR ROOM IDENTIFIERS

1 SIGNAGE TYPES

3" = 1'-0"

6 4 2 0 6

2 SIGN TYPE H3

US Army Corps of Engineers
Fort Worth District

REGISTERED INTERIOR DESIGNER TONY J. JOHNSON 12561 STATE OF TEXAS

08/05/2026

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | | | AUG 2026 |
| 1 | REVISED IAW AM0002 | | | JULY 2026 |

Designed by: A. ROVARD
Date: MAY 2025
Rev.
Dwn by: T. JOHNSON
Solicitation No. W9126G25RA020
Reviewed by: H. SOTO
Contract No.
Supervised by: C. LANGUM
File name:
PW date: 8/5/2026 9:57:37 AM
Print scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH ATTN: CESWF-PDS-C FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPS.220527

SIGNAGE TYPES

Sheet reference number

D4-I-604

Sheet of

Cover No.

8/4/2026 9:57:37 AM

## SIGNAGE SCHEDULE

| Room: Number | SIGN NUMBER | SIGN TYPE | SIGNAGE TEXT | COMMENTS |
|---|---|---|---|---|
| 100A | 100A | J2 | Directory | |
| 100A | 100A | D2 | Stairwell A | |
| 100A | 100A | C2 | Stairwell A | |
| 100B | 100B | D2 | Stairwell B | |
| 100B | 100B | J2 | Directory | |
| 100B | 100B | C2 | Stairwell B | |
| 100C | 100C | C2 | Stairwell C | |
| 100C | 100C | D2 | Stairwell C | |
| 100D | 100D | C2 | Stairwell D | |
| 100D | 122 | D2 | Stairwell D | |
| 102 | 116 | D1 | Evacuation Map | |
| 102 | 116 | D3 | In Case of Fire | |
| 102 | 112 | A2 | Communications Room | |
| 103 | 131 | A2 | Janitorial Closet | |
| 103 | 132 | A2 | Electrical Room | |
| 103 | 137 | A2 | Communications Room | |
| 104 | 120 | A1 | Warewash | |
| 107 | 127 | A1 | Warewash | |
| 109 | 156 | A1 | Food Prep | |
| 109 | 155 | A1 | Production and Pot Wash | |
| 110 | 158 | A1 | Food Prep | |
| 113 | 115 | A2 | Elevator Equipment | |
| 113 | 114 | A2 | Electrical Room | |
| 119 | 118 | C1 | Men's Restroom | |
| 119 | 117 | C1 | Women's Restroom | |
| 126 | 130 | C1 | Men's Restroom | |
| 126 | 129 | C1 | Women's Restroom | |
| 133 | 136 | A1 | Exam | |
| 133 | 135 | A1 | Exam | |
| 133 | 134 | A1 | Exam | |
| 133 | 133 | H3 | Dispensary | |
| 138 | 140 | A2 | Lounge | |
| 138 | 139 | A1 | Office | |
| 140 | 142 | C1 | Women's Locker Room | |
| 140 | 141 | C1 | Men's Locker Room | |
| 141 | 141A | C1 | Men's Restroom | |
| 142 | 142A | C1 | Women's Restroom | |
| 143 | 145 | A2 | Non Food Storage | |
| 143 | 144 | A2 | Chemical Storage | |
| 148 | 149 | A2 | Can Wash | |
| 148 | 147 | A2 | Recycle | |
| 150 | 150 | H3 | Mechanical Room | |
| 150 | 150 | H3 | Mechanical Room | |
| 151 | 151 | H3 | Electrical Room | |
| 151 | 151 | H3 | Electrical Room | |
| 152 | 122 | C2 | Stairwell / Exit to Outdoors | |
| 157 | 146 | A2 | Janitorial Closet | |
| 161 | 160 | A1 | Pastry Prep | |
| 168 | 168 | A1 | Vegetable Prep | |
| 169 | 169 | A2 | Beverage Room | |
| 170 | 170 | A2 | Storage | |
| 171 | 171 | H3 | Dry Cleaner | |
| 171 | 171 | H3 | Dry Cleaner | |
| 171 | 171 | H3 | Dry Cleaner | |

## SIGNAGE SCHEDULE

| Room: Number | SIGN NUMBER | SIGN TYPE | SIGNAGE TEXT | COMMENTS |
|---|---|---|---|---|
| 200A | 200A | D2 | Stairwell A | |
| 200A | 200A | C2 | Stairwell A | |
| 200B | 200B | C2 | Stairwell B | |
| 200B | 200B | D2 | Stairwell B | |
| 200C | 200C | C2 | Stairwell C | |
| 200C | 200C | D2 | Stairwell C | |
| 200D | 200D | C2 | Stairwell D | |
| 200D | 200D | D2 | Stairwell D | |
| 201 | 201B | A2 | Storage | |
| 201 | 201C | A2 | Storage | |
| 201 | 201A | A2 | Storage | |
| 202 | 202A | A2 | Storage | |
| 202 | 202B | A2 | Storage | |
| 203 | 203B | A2 | Storage | |
| 203 | 203A | A2 | Storage | |
| 204 | 204A | A2 | Storage | |
| 204 | 204B | A2 | Storage | |
| 204 | 204C | A2 | Mechanical Room | |
| 205 | 205B | A2 | Storage | |
| 205 | 205A | A2 | Storage | |
| 206 | 206A | A2 | Storage | |
| 206 | 206C | A2 | Mechanical Room | |
| 206 | 206B | A2 | Storage | |
| 207 | 207C | A2 | Storage | |
| 207 | 207B | A2 | Mechanical Room | |
| 207 | 207A | A2 | Storage | |
| 208 | 208A | A2 | Storage | |
| 208 | 208B | A2 | Storage | |
| 221 | 218 | C1 | Men's Restroom | |
| 221 | 220 | A2 | Mechanical Room | |
| 221 | 217 | C1 | Women's Restroom | |
| 221 | 221 | J2 | Direction | |
| 221 | 216 | D3 | In Case of Fire | |
| 221 | 216 | D1 | Evacuation Map | |
| 221 | 219 | A2 | Storage | |
| 221 | 213 | A2 | Communications Room | |
| 221 | 214 | A2 | Electrical Room | |
| 221 | 221 | J2 | Direction | |
| 222 | 201 | A1 | Classroom | |
| 222 | 201 | A1 | Classroom | |
| 222 | 203 | A1 | Classroom | |
| 222 | 203 | A1 | Classroom | |
| 222 | 205 | A1 | Classroom | |
| 222 | 205 | A1 | Classroom | |
| 222 | 207 | A1 | Classroom | |
| 222 | 207 | A1 | Classroom | |
| 222 | 201 | B3 | Classroom | |
| 222 | 201 | B3 | Classroom | |
| 222 | 203 | B3 | Classroom | |
| 222 | 201 | B3 | Classroom | |
| 222 | 201 | B3 | Classroom | |
| 222 | 205 | B3 | Classroom | |
| 222 | 207 | B3 | Classroom | |
| 222 | 207 | B3 | Classroom | |
| 225 | 238 | A2 | Mechanical Room | |
| 225 | 239 | A2 | Mechanical Room | |
| 225 | 236 | A2 | Mechanical Room | |
| 225 | 208 | A1 | Corridor | |
| 225 | 208 | A1 | Classroom | |
| 225 | 206 | A1 | Classroom | |
| 225 | 206 | A1 | Classroom | |
| 225 | 204 | A1 | Classroom | |
| 225 | 204 | A1 | Classroom | |
| 225 | 202 | A1 | Classroom | |
| 225 | 202 | A1 | Classroom | |
| 225 | 202 | B3 | Classroom | |
| 225 | 202 | B3 | Classroom | |
| 225 | 204 | B3 | Classroom | |
| 225 | 204 | B3 | Classroom | |
| 225 | 206 | B3 | Classroom | |
| 225 | 206 | B3 | Classroom | |
| 225 | 208 | B3 | Classroom | |
| 225 | 208 | B3 | Classroom | |
| 226 | 227 | A2 | Storage | |
| 226 | 231 | A2 | Janitorial Closet | |
| 226 | 232 | A2 | Electrical Room | |
| 226 | 232 | A2 | Communications Room | |
| 226 | 228 | A2 | Mechanical Room | |
| 226 | 229 | C1 | Women's Restroom | |
| 226 | 232 | A2 | Communications Room | |
| 226 | 226 | J2 | Directions | |

## SIGNAGE SCHEDULE

| Room: Number | SIGN NUMBER | SIGN TYPE | SIGNAGE TEXT | COMMENTS |
|---|---|---|---|---|
| 300A | 300A | D2 | Stairwell A | |
| 300A | 300A | C2 | Stairwell A | |
| 300B | 300B | D2 | Stairwell B | |
| 300B | 300B | C2 | Stairwell B | |
| 300C | 300C | C2 | Stairwell C | |
| 300C | 300C | D2 | Stairwell C | |
| 300D | 300D | D2 | Stairwell D | |
| 300D | 300D | C2 | Stairwell D | |
| 301 | 301A | A2 | Storage | |
| 301 | 301B | A2 | Storage | |
| 301 | 301C | A2 | Mechanical Room | |
| 302 | 302B | A2 | Storage | |
| 302 | 302A | A2 | Storage | |
| 303 | 303A | A2 | Storage | |
| 303 | 303B | A2 | Storage | |
| 304 | 304C | A2 | Storage | |
| 304 | 304B | A2 | Storage | |
| 304 | 304A | A2 | Storage | |
| 305 | 305A | A2 | Storage | |
| 305 | 305B | A2 | Storage | |
| 306 | 306B | A2 | Storage | |
| 306 | 306B | A2 | Storage | |
| 306 | 306A | A2 | Storage | |
| 307 | 201A | A2 | Storage | |
| 307 | 307B | A2 | Storage | |
| 307 | 307C | A2 | Mechanical Room | |
| 308 | 308B | A2 | Storage | |
| 308 | 308A | A2 | Classroom | |
| 321 | 301 | A1 | Classroom | |
| 321 | 301 | A1 | Classroom | |
| 321 | 303 | A1 | Classroom | |
| 321 | 303 | A1 | Classroom | |
| 321 | 305 | A1 | Classroom | |
| 321 | 305 | A1 | Classroom | |
| 321 | 307 | A1 | Classroom | |
| 321 | 307 | A1 | Classroom | |
| 321 | 301 | B3 | Classroom | |
| 321 | 301 | B3 | Classroom | |
| 321 | 303 | B3 | Classroom | |
| 321 | 303 | B3 | Classroom | |
| 321 | 305 | B3 | Classroom | |
| 321 | 305 | B3 | Classroom | |
| 321 | 307 | B3 | Classroom | |
| 321 | 307 | B3 | Classroom | |
| 322 | 302 | A1 | Classroom | |
| 322 | 302 | A1 | Classroom | |
| 322 | 304 | A1 | Classroom | |
| 322 | 304 | A1 | Classroom | |
| 322 | 306 | A1 | Classroom | |
| 322 | 306 | A1 | Classroom | |
| 322 | 308 | A1 | Classroom | |
| 322 | 308 | A1 | Classroom | |
| 322 | 302 | B3 | Classroom | |
| 322 | 302 | B3 | Classroom | |
| 322 | 304 | B3 | Classroom | |
| 322 | 304 | B3 | Classroom | |
| 322 | 306 | B3 | Classroom | |
| 322 | 308 | B3 | Classroom | |
| 322 | 308 | B3 | Classroom | |
| 323 | 312 | A2 | Stairwell A | |
| 323 | 313 | A2 | Stairwell A | |
| 323 | 316 | D1 | Evacuation Map | |
| 323 | 316 | D3 | In Case of Fire | |
| 323 | 313 | C1 | Women's Restroom | |
| 323 | 320 | A2 | Mechanical Room | |
| 323 | 218 | C1 | Men's Restroom | |
| 323 | 319 | A2 | Storage | |
| 323 | 323 | J2 | Direction | |
| 323 | 323 | J2 | Direction | |
| 324 | 329 | A2 | Janitorial Closet | |
| 324 | 328 | A2 | Janitorial Closet | |
| 324 | 327 | A2 | Janitorial Closet | |
| 324 | 332 | A2 | Mechanical Room | |
| 324 | 331 | C1 | Men's Restroom | |
| 324 | 330 | C1 | Women's Restroom | |
| 324 | 333 | A2 | Storage | |
| 324 | 324 | J2 | Directions | |
| 324 | 324 | J2 | Directions | |

US Army Corps of Engineers
Fort Worth District

REGISTERED INTERIOR DESIGNER
TONY J. JOHNSON
12561
STATE OF TEXAS
08/05/2026

| NO. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | | | AUG 2026 |

Designed by: A. RIVARD
Date: MAY 2025
Solicitation No.: W912GG25RA020
Contract No.:
Drawn by: T. JOHNSON
Reviewed by: M.E. SCOTT
Approved by: C. LANGUM
File name:
Plot date: 8/3/2026 4:37:46 PM
Plot scale: 1:1
Rev.

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CONTRACT DESIGN
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPSL220527

SIGNAGE SCHEDULE

Sheet reference number
D4-I-605
Sheet of

Contr No.

8/3/2026 4:37:56 PM

US Army Corps of Engineers
Fort Worth District

## KITCHEN EQUIPMENT SCHEDULE

| ITEM NO | QTY | EQUIPMENT CATEGORY | REMARKS |
|---|---|---|---|
| 1 | 1 | CAN WASHER | |
| 2 | 1 | SPARE NUMBER | |
| 3 | 2 | OPEN HOSE REEL | |
| 4 | 1 | SINK, MOP | SPECIFIED BY M.E. |
| 5 | 9 | RACK, DUNNAGE | |
| 6 | 3 | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 7 | 1 | SHELF, UTILITY, WALL MOUNT | |
| 8 | 1 | RACK, MOP | |
| 9 | 4 | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 10 | 3 | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 11 | 2 | EYE WASH | SPECIFIED BY M.E. |
| 12 | 2 | RACK, DUNNAGE | |
| 13 | 1 | POT RACK, WALL TYPE | |
| 14 | 2 | DISPOSER, GARBAGE | |
| 15 | 20 | SINK, HAND, WALL MOUNT | |
| 16 | 1 | WAREWASHER, POWER WASH | |
| 17 | 1 | WAREWASHER, RACK CONVEYOR | |
| 17A | 2 | BOOSTER HEATER & FILTER | |
| 18 | 1-LOT | CORNER GUARD | STAINLESS STEEL |
| 19 | 3 | CART, UTILITY | |
| 20 | 1 | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 21 | 1 | WAREWASHER, POWER WASH | |
| 22 | 1 | UTENSIL WASH, DOOR TYPE | |
| 22A | 1 | BOOSTER HEATER & FILTER | |
| 23 | 1 | CART, UTILITY | |
| 24 | 1 | HOOD, CONDENSATE | |
| 25 | 1 | SPARE NUMBER | |
| 26 | 1 | HOOD, CONDENSATE | |
| 27 | 1 | SOILED, DISH TABLE | |
| 28 | 1 | CLEAN, DISH TABLE | |
| 29 | 2 | DOLLY, FOUR WHEEL | |
| 30 | 2 | DOLLY, DISHRACK | |
| 31 | 2 | DOLLY, DISHRACK | |
| 32 | 6 | Dispenser, Self-Leveling Plate, Unheated | |
| 33 | 2 | HOOD, CONDENSATE | |
| 34 | 1 | SOILED, DISH TABLE | |
| 35 | 1 | SPARE NUMBER | |
| 36 | 8 | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 37 | 1 | SPARE NUMBER | |
| 38 | 2 | REFRIGERATOR, REACH-IN | |
| 39 | 1 | SPARE NUMBER | |
| 40 | 3 | HOOD, EXHAUST | |
| 40A | 1 | FIRE SUPPRESSION SYSTEM | |
| 40B | 1 | CONTROL PANEL, HOOD, WATER WASH | VERIFY LOCATION |
| 41 | 3 | KETTLE, STEAM JACKETED | |
| 42 | 1 | FREEZER, REACH-IN | |
| 43 | 1 | SPARE NUMBER | |
| 44 | 1 | SPARE NUMBER | |
| 45 | 1 | FLOOR TROUGH | W/ S/S FLOOR PLAN |
| 46 | 1-LOT | S/S WALL FLASHING | |
| 47 | 1 | STAND, EQUIPMENT | CASTERS |

## KITCHEN EQUIPMENT SCHEDULE

| ITEM NO | QTY | EQUIPMENT CATEGORY | REMARKS |
|---|---|---|---|
| 48 | 2 | GRIDDLE, GAS | |
| 49 | 1 | FILLER, POT | |
| 50 | 1 | FLOOR TROUGH | |
| 51 | 2 | WORKTABLE W/ SINK | |
| 52 | 2 | POT RACK, TABLE MOUNT | |
| 53 | 1 | SPARE NUMBER | |
| 54 | 3 | DOUBLE-DECK CONVECTION OVEN | CASTERS |
| 55 | 1-LOT | S/S WALL FLASHING | |
| 56 | 1 | SPARE NUMBER | |
| 57 | 1 | SPARE NUMBER | |
| 58 | 2 | GRIDDLE, GAS | |
| 59 | 1 | SPARE NUMBER | |
| 60 | 2 | FILTER | |
| 61 | 1 | STAND, EQUIPMENT | CASTERS |
| 62 | 1 | FILLER, POT | |
| 63 | 2 | HOOD, EXHAUST | |
| 63A | 1 | FIRE SUPPRESSION SYSTEM | |
| 63B | 1 | CONTROL PANEL, HOOD, WATER WASH | VERIFY LOCATION |
| 64 | 2 | CART, UTILITY | |
| 65 | 4 | RACK, TRAY | |
| 66 | 1 | SPARE NUMBER | |
| 67 | 1 | SPARE NUMBER | |
| 68 | 2 | HOOD, EXHAUST | |
| 68A | 1 | FIRE SUPPRESSION SYSTEM | |
| 68B | 1 | CONTROL PANEL, HOOD, WATER WASH | VERIFY LOCATION |
| 69 | 6 | COMBI OVEN-STEAMER | DOUBLE STACK |
| 70 | 1 | SPARE NUMBER | |
| 71 | 1-LOT | S/S WALL FLASHING | |
| 72 | 2 | FLOOR TROUGH, ANTI-SPLASH | W S/S FLOOR PAN |
| 73 | 4 | TILT SKILLET | |
| 74 | 3 | FILLER, KETTLE & POT | |
| 75 | 1 | S/S WALL FLASHING | |
| 76 | 1 | KETTLE STEAM JACKETED | |
| 77 | 2 | HOOD, EXHAUST | |
| 77A | 1 | FIRE SUPPRESSION SYSTEM | |
| 77B | 1 | CONTROL PANEL, HOOD | VERIFY LOCATION |
| 78 | 1 | SPARE NUMBER | |
| 79 | 1 | SHELF, WALL MOUNT | |
| 80 | 1 | SINK, 2 COMPARTMENT | |
| 81 | 1 | CAN OPENER | |
| 82 | 1 | STAND, EQUIPMENT | |
| 83 | 1 | CAN CRUSHER | |
| 84 | 2 | SLICER, FOOD | |
| 85 | 2 | STAND, EQUIPMENT | |
| 86 | 1 | SINK, 2 COMPARTMENT | |
| 87 | 1 | SHELF, WALL MOUNT | |
| 88 | 1 | SPARE NUMBER | |
| 89 | 1 | ICE MAKER W/O BIN | |
| 90 | 1 | BIN, ICE DISPENSING, W/ TRANS. | |
| 91 | 1 | FILTER | |
| 92 | 1 | SPARE NUMBER | |
| 93 | 1 | SPARE NUMBER | |

## KITCHEN EQUIPMENT SCHEDULE

| ITEM NO | QTY | EQUIPMENT CATEGORY | REMARKS |
|---|---|---|---|
| 94 | 1 | SPARE NUMBER | |
| 95 | 1 | FLOOR THROUGH | |
| 96 | 2 | SINK, 2 COMPARTMENT | |
| 97 | 2 | SHELF, WALL MOUNT | |
| 98 | 1 | SPARE NUMBER | |
| 99 | 1 | SPARE NUMBER | |
| 100 | 1 | SPARE NUMBER | |
| 101 | 1 | SPARE NUMBER | |
| 102 | 1 | REFRIGERATOR, REACH-IN | |
| 103 | 1 | SINK, 1 COMPARTMENT | |
| 104 | 2 | WALL, SHELF | |
| 105 | 1 | DESK | BY OWNER |
| 106 | 1 | DESK | BY OWNER |
| 107 | 1 | SPARE NUMBER | |
| 108 | 1 | SPARE NUMBER | |
| 109 | 1 | TABLE, WORK | |
| 110 | 1 | SCALE, RECEIVING | |
| 111 | 1 | SPARE NUMBER | |
| 112 | 1 | SPARE NUMBER | |
| 113 | 1 | SPARE NUMBER | |
| 114 | 1-LOT | HIGH DENSITY SHELVING | |
| 115 | 1-LOT | RACK, DUNNAGE | |
| 116 | 2 | RACK, CAN | |
| 117 | 1-LOT | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 118 | 1 | SPARE NUMBER | |
| 119 | 1 | SPARE NUMBER | |
| 120 | 1 | WALK-IN, COOLER/ FREEZER COMBI | |
| 121 | 1-LOT | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 122 | 1 | SPARE NUMBER | |
| 123 | 1 | SPARE NUMBER | |
| 124 | 1 | SPARE NUMBER | |
| 125 | 1-LOT | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 126 | 1 | REFRIGERATION RACK SYSTEM | |
| 126A | 1 | COIL, COOK | |
| 126B | 1 | COIL, REFRIGERATOR | |
| 126C | 2 | COIL, REFRIGERATOR | |
| 126D | 3 | COIL & HEATER, FREEZER | |
| 126E | 1 | DRAIN LINE HEAT TAPE, COIL THAW | |
| 127 | 1 | SPARE NUMBER | |
| 128 | 1-LOT | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 129 | 2 | RACK, TRAY | |
| 130 | 1-LOT | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 131 | 1-LOT | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 132 | 1 | SPARE NUMBER | |
| 133 | 1 | SPARE NUMBER | |
| 134 | 1 | SHELVING SODA | BY OWNER |
| 135 | 2 | RACK, TRAY | |
| 136 | 1-LOT | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 137 | 2 | SHELVING, MOBILE, PLASTIC, LOUVERED | |
| 138 | 2 | RACK, DUNNAGE | |
| 139 | 1 | SALAD DRYER | |
| 140 | 2 | PEELER, POTATO, VEGETABLE | |

## KITCHEN EQUIPMENT SCHEDULE

| ITEM NO | QTY | EQUIPMENT CATEGORY | REMARKS |
|---|---|---|---|
| 141 | 1 | SPARE NUMBER | |
| 142 | 1 | SPARE NUMBER | |
| 143 | 1 | SPARE NUMBER | |
| 144 | 1 | SPARE NUMBER | |
| 145 | 1 | TABLE, WORK | |
| 146 | 3 | BIN, INGREDIENT | |
| 147 | 1 | FOOD PROCESSOR | |
| 148 | 1 | SPARE NUMBER | |
| 149 | 1 | TABLE, WORK | |
| 150 | 1 | POT RACK, CEILING MOUNT | |
| 151 | 1 | FOOD CUTTER | |
| 152 | 1 | SHELF, WALL MOUNT | |
| 153 | 3 | BIN, INGREDIENT | |
| 154 | 1 | FOOD, PROCESSOR | |
| 155 | 1 | MIXER, FLOOR | |
| 156 | 1 | SLICER, FOOD | |
| 157 | 1 | STAND, EQUIPMENT | |
| 158 | 1 | SINK, SCULLERY, 2 COMP | |
| 159 | 1 | SPARE NUMBER | |
| 160 | 1 | TENDERIZER | |
| 161 | 1 | SINK, SCULLERY, 2 COMP | |
| 162 | 1 | DISPOSER, GARBAGE | |
| 163 | 1 | SPARE NUMBER | |
| 164 | 1 | SPARE NUMBER | |
| 165 | 1 | SPARE NUMBER | |
| 166 | 1 | SPARE NUMBER | |
| 167 | 17 | DISPENSER, PLATE, SELF LEVELING UNHEATED | |
| 168 | 1 | BLAST CHILLER/SHOCK FREEZER(SELF-CONTAINED) | |
| 169 | 1 | SPARE NUMBER | |
| 170 | 2 | PREP TABLE W/ SINK | |
| 171 | 3 | CABINET, HEATED, PASS-THRU | MOBILE |
| 172 | 4 | TRAY SLIDE | |
| 173 | 8 | FOOD WARMER | |
| 174 | 2 | REFRIGERATOR, REACH-IN | MOBILE |
| 175 | 2 | REFRIGERATOR, PASS-THRU | MOBILE |
| 176 | 8 | DROP-IN, HOT WELLS | |
| 177 | 4 | SNEEZE GUARD, SELF SERVE | W/ S/S FRAME AND TOP |
| 178 | 4 | DROP-IN, COLD PAN | |
| 179 | 4 | SNEEZE GUARD, SELF SERVE | W/ S/S FRAME AND TOP |
| 180 | 1 | SPARE NUMBER | |
| 181 | 8 | DROP-IN, BREAD DISPENSER | |
| 182 | 4 | DISPENSER, SELF-LEVELING PLATE | |
| 183 | 4 | WARMER, DRAWER TYPE | |
| 184 | 4 | TOASTER, CONVEYOR | |
| 185 | 4 | DISPENSER, BOWL | |
| 186 | 4 | DROP-IN, SOUP WELLS | |
| 187 | 4 | DISPENSER, BOWL | |
| 188 | 1 | SPARE NUMBER | |
| 189 | 4 | CABINET, COOK & HOLD | |

## KITCHEN EQUIPMENT SCHEDULE

| ITEM NO | QTY | EQUIPMENT CATEGORY | REMARKS |
|---|---|---|---|
| 190 | 4 | SNEEZE GUARD, SELF SERVE | W/ S/S FRAME AND TOP |
| 191 | 4 | SNEEZE GUARD, SELF SERVE | W/ S/S FRAME AND TOP |
| 192 | 4 | DROP-IN, COLD PAN | |
| 193 | 12 | DISPENSER, TUMBLER, GLASS CUP | |
| 194 | 1 | SPARE NUMBER | |
| 195 | 1 | SPARE NUMBER | |
| 196 | 4 | THROUGH & DRAIN | |
| 197 | 4 | FILLER, GLASS | |
| 198 | 4 | DISPENSER, GLASS/ CUP | |
| 199 | 8 | DISPENSER, BEVERAGE | |
| 200 | 4 | FILTER | |
| 201 | 4 | DISPENSER, MILK | BY OWNER |
| 202 | 4 | STAINLESS STEEL COUNTER | |
| 203 | 1 | SPARE NUMBER | |
| 204 | 1 | SPARE NUMBER | |
| 205 | 1 | SPARE NUMBER | |
| 206 | 4 | COFFEE MAKER | BY OWNER |
| 207 | 4 | FILTER, SCALE INHIBITOR | |
| 208 | 1 | SPARE NUMBER | |
| 209 | 1 | SPARE NUMBER | |
| 210 | 3 | REFRIGERATOR, REACH-IN | MOBILE |
| 211 | 1 | SPARE NUMBER | |
| 212 | 2 | REFRIGERATOR, PASS THRU | MOBILE |
| 213 | 3 | CABINET, HEATED, PASTHRU | MOBILE |
| 214 | 1 | SPARE NUMBER | |
| 215 | 2 | PREP TABLE W/ SINK | |
| 216 | 1 | SPARE NUMBER | |
| 217 | 1 | SPARE NUMBER | |
| 218 | 6 | SHELVING, WIRE | |
| 219 | 1 | SPARE NUMBER | |
| 220 | 2 | 'L' SHAPED DISHTABLE | |
| 221 | 2 | DISPENSER, SELF-LEVELING | |
| 222 | 1 | SPARE NUMBER | |
| 223 | 2 | TABLE, WORK | |
| 224 | 1 | SPARE NUMBER | |
| 225 | 1 | SPARE NUMBER | |
| 226 | 1-LOT | CAN, TRASH | BY OWNER |
| 227 | 2 | DISPENSER, SELF LEVELING | |
| 228 | 1 | SPARE NUMBER | |
| 229 | 4 | DISPENSER, SELF-LEVELING | |
| 230 | 2 | PASS THRU WINDOW | |
| 231 | 1 | SPARE NUMBER | |
| 232 | 2 | DISPOSER, GARBAGE | |
| 233 | 2 | PLATE & CUP HOLDER | |
| 234 | 2 | TRAY ACCUMULATOR | |
| 235 | 4 | DOLLY, DISHRACK | |
| 236 | 4 | DOLLY, DISHRACK | |
| 237 | 4 | DOLLY, FOUR WHEEL | |
| 238 | 4 | SHELVING, WIRE | |
| 239 | 1 | SPARE NUMBER | |
| 240 | 1 | SPARE NUMBER | |
| 241 | 2 | HOOD, CONDENSATE | |
| 242 | 2 | WAREWASHER, FLIGHT TYPE | |
| 243 | 1 | SPARE NUMBER | |
| 244 | 1 | SPARE NUMBER | |
| 245 | 8 | DISPENSER, SELF-LEVELING TRAY & SILVER | |

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | | | AUG 2026 |

Designed by: P. METELLUS
Dwn by: J. QUISPE
Reviewed by: A. VILLAPONTEL
Submitted by: C. LANGUM
Date: MAY 2025
Solicitation No.: W912KG25RA020
Contract No.:
File name:
Plot date: Thursday 2:35:32 PM
Plot scale: 1:1
Rev.

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

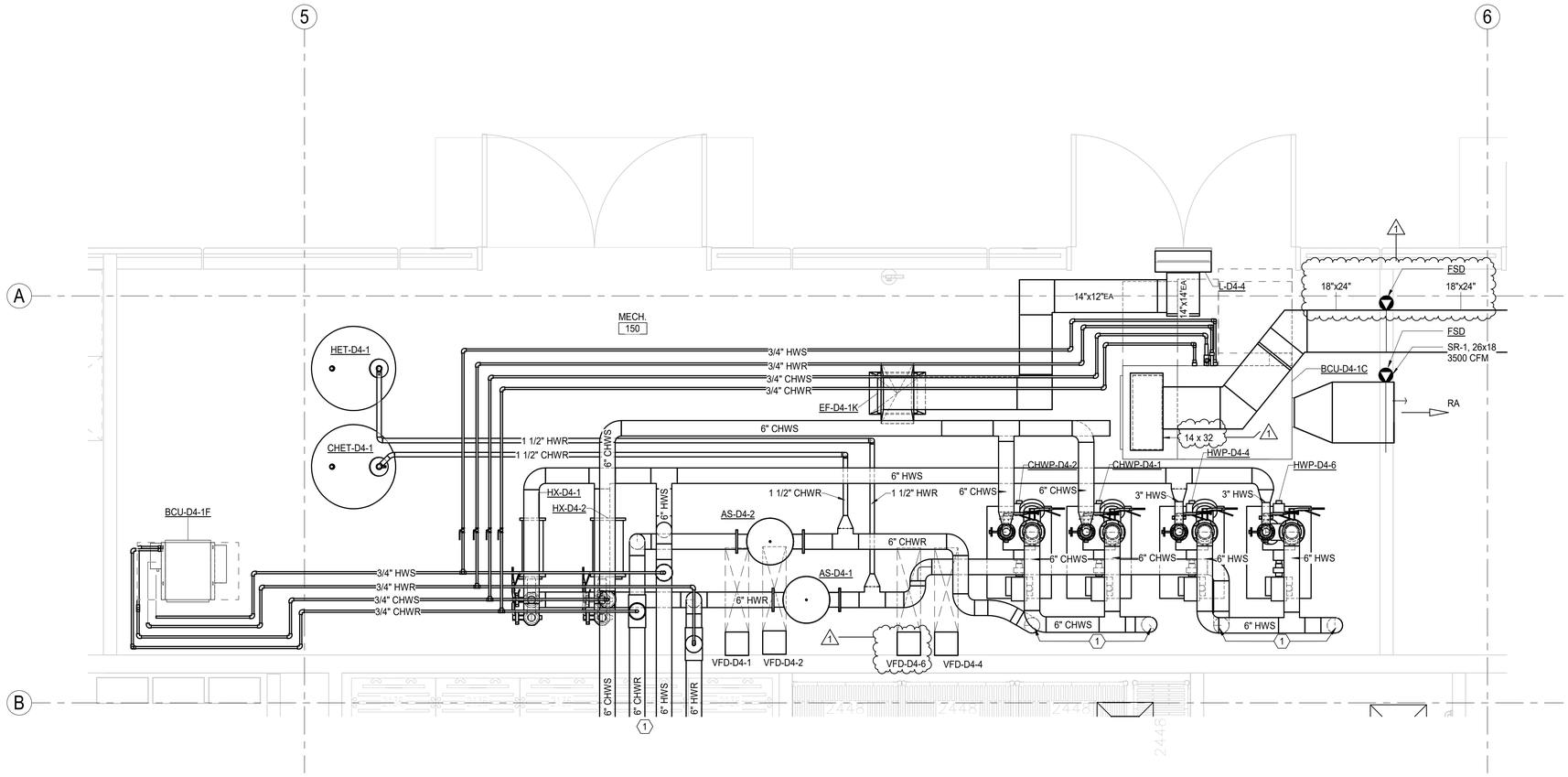
JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPLS9537375A

KITCHEN SCHEDULE

Sheet reference number
D4-KA101A
Sheet of

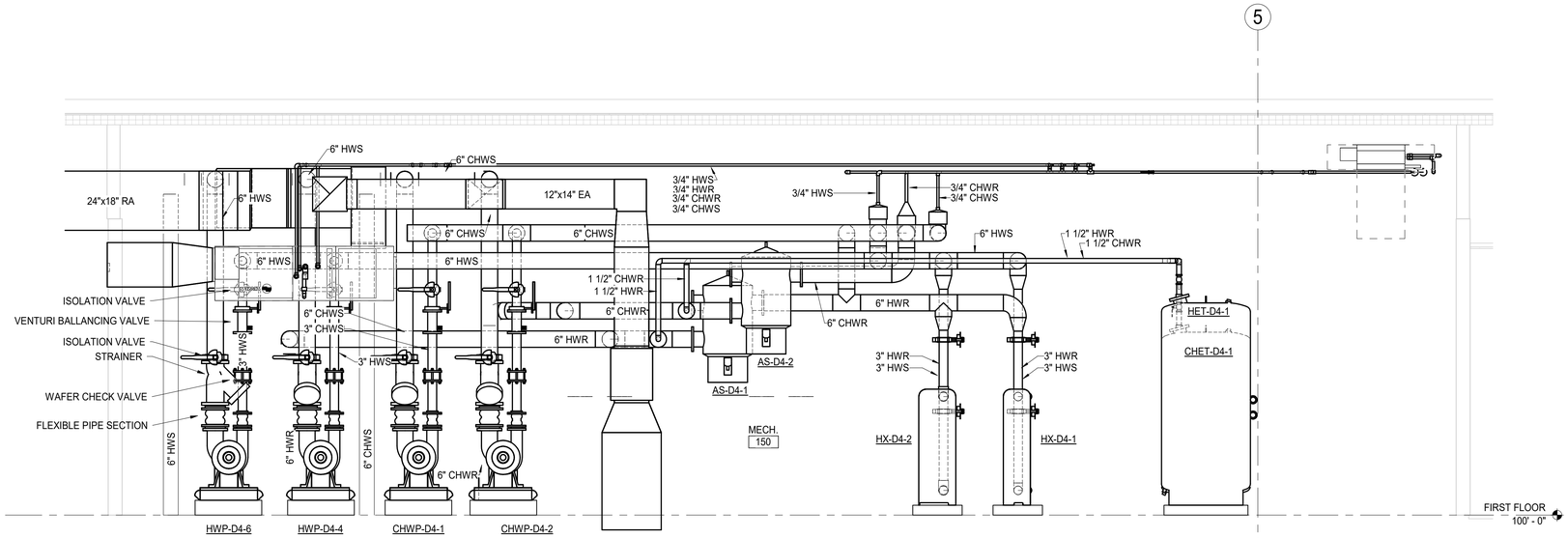
Cont No.

7/31/2026 2:35:32 PM




1 ENLARGED MECHANICAL ROOM 150 PLAN
1/2" = 1'-0"

PLAN NORTH




2 MECHANICAL ROOM 150 SECTION
1/2" = 1'-0"

## SHEET NOTES

1. SEE EQUIPMENT BUILDING (EB) PACKAGE FOR ASSOCIATED, ESSENTIAL EQUIPMENT PROVIDED UNDER THAT CONTRACT.
2. REFERENCE SHEET D4-P102 FOR CHILLED WATER AND HOT WATER CONNECTIONS FROM THE UTILIDOR.
3. REFER TO FLOW DIAGRAMS FOR MORE INFORMATION.
4. AT PRECAST PANEL WALLS, COORDINATE LOUVER SIZE AND LOCATION WITH PRECAST MANUFACTURER.
5. SEE PLUMBING DRAWINGS FOR PLUMBING PIPING. COORDINATE WITH PLUMBING PIPING TO ENSURE ADIQUATE EQUIPMENT MAINTENANCE CLEARANCES

## KEYNOTES

1. 6" CHW AND 6" HW FROM CRAWLSPACE, SEE SHEET D4-M300. SEE SHEET D4-M100 FOR CHILLED WATER AND HOT WATER CONNECTIONS FROM THE UTILIDOR.

US Army Corps of Engineers
Fort Worth District

GEORGIA REGISTERED No. 027885 PROFESSIONAL ENGINEER DESIDERIO HERNANDEZ

AUGUST 6, 2026

| No. | Description | Date | Action | D.O. No. |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | AUG 2026 | | |

Designed by: D. HERNANDEZ
Date: MAY 2025
Rev.
Dwn by: M. TAYLOR
Solicitation No.: W912KG25RA020
Contract No.
Reviewed by: B. SCHLAPKO
Submitted by: C. LANGUM
File name:
Plot date: 8/6/2026 5:39:59 PM
Plot scale: 1:1

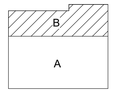
U.S. ARMY ENGINEER DISTRICT, CONTRACT OFFICE FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPL-S220527

ENLARGED MECHANICAL ROOM PLANS




KEY PLAN

Sheet reference number
D4-M-400
Sheet of

Cont No.

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## KEYNOTES

1. DOUBLE BALL JOINT TYPE EXPANSION JOINT. SEE DETAIL 3/D4-P-502
2. PLUMBING PIPING FROM UTILIDOR MAINS. MECHANICAL AND FIRE PROTECTION PIPING SHOWN FOR COORDINATION. REFER TO MECHANICAL AND FP PLANS FOR MORE INFORMATION
3. ROUTE PIPING UP TIGHT TO STRUCTURE TO ALLOW A MAINTENANCE PATH BELOW PIPING
4. SEE CIVIL PLANS FOR CONTINUATION
5. NOT USED
6. ROUTE COMBINATION WASTE AND VENT PIPING AT 4% SLOPE TO GET BELOW DOUBLE TEE WEB. TRANSITION PIPING TO 1% SLOPE TO VENT AND TO WASTE MAIN. SEE DETAIL 8/D4-P501
7. SEE ISOMETRICS 1/D4-P-901 AND 2/D4-P-901 FOR BRANCH LINE SIZES
8. SEE ISOMETRICS 3/D4-P-901 AND 4/D4-P-901 FOR BRANCH LINE SIZES
9. 4" SS BELOW GRADE FROM 4" AD-1
10. SET BALANCING VALVE TO 2.0 GPM

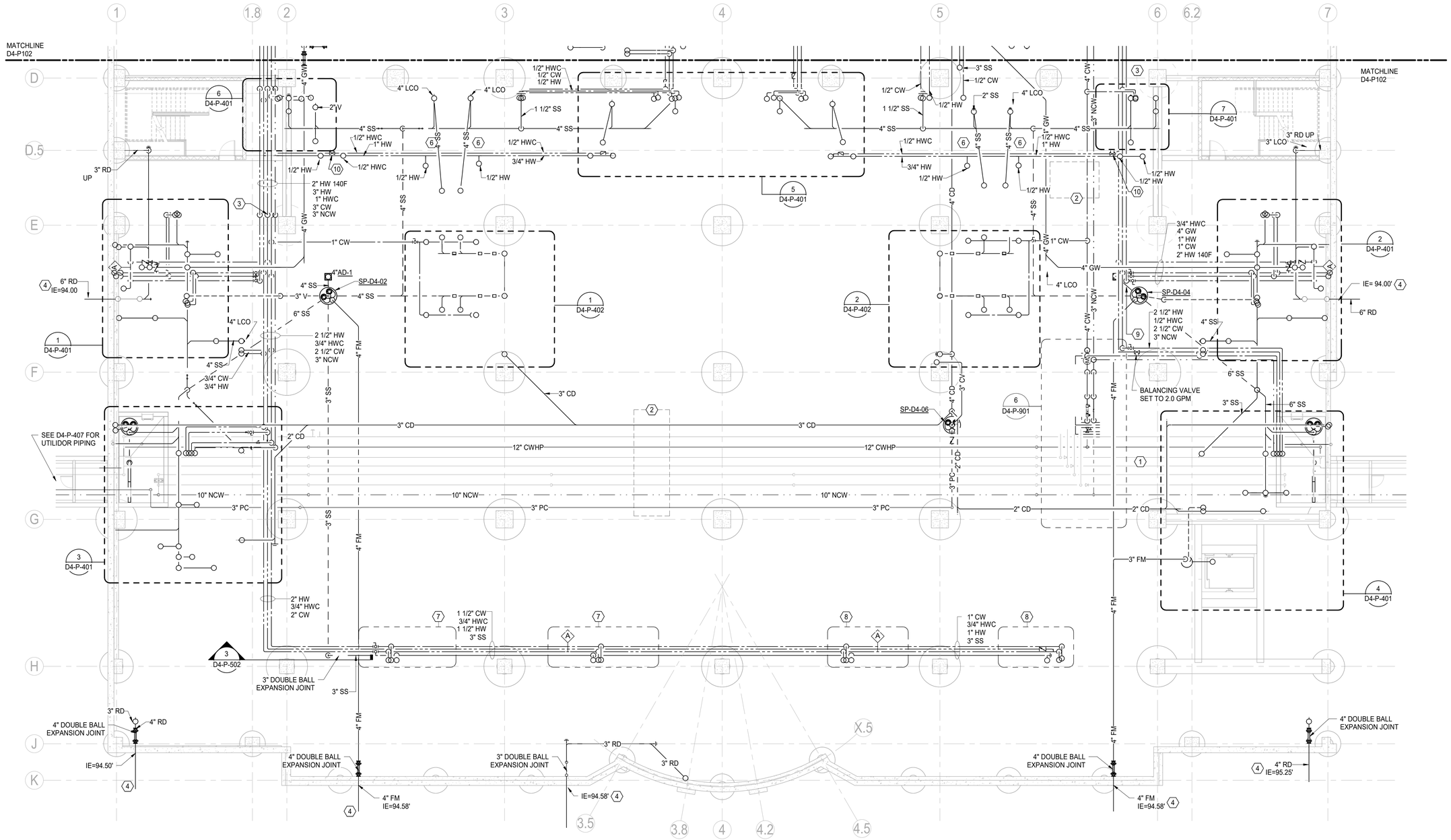
## SHEET NOTES

1. ALL INVERT ELEVATIONS ARE BASED ON A FIRST FLOOR FINISHED ELEVATION OF 100' 0" AND IS EQUAL TO CIVIL FINISHED FLOOR ELEVATION OF 784.5'
2. NO PIPING SHALL BE PLACED CLOSER THAN 18" ABOVE MUD SLAB EXCEPT WHERE VERTICAL PIPE PENETRATE SLAB
3. HYDRONIC AND FIRE PROTECTION PIPING SHOWN FOR COORDINATION

US Army Corps of Engineers
Fort Worth District

GEORGIA REGISTERED No. 027885 PROFESSIONAL ENGINEER DESIDERIO HERNANDEZ

AUGUST 6, 2026




1 CRAWL SPACE PLUMBING PLAN - AREA A
1/8" = 1'-0"

PLAN NORTH

8 6 4 2 0 8 16

KEY PLAN

| No. | Description | Date | Action | D.O. No. |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | AUG 2026 | | |

Designed by: K. McGLOTHLIN
Date: MAY 2025
Rev.
Dwn by: K. McGLOTHLIN
Solicitation No.: W9126G24RA020
Reviewed by: D. HERNANDEZ
Contract No.:
Submitted by: C. LANGUM
File name:
Plot date: 8/6/2026 5:09 PM
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPLS220527

CRAWL SPACE PLUMBING PLAN - AREA A

Sheet reference number
D4-P-101
Sheet of

Cover No.

8/6/2026 5:10:09 PM

## KEYNOTES

1. CONDENSATE DRAIN VENT SHALL NOT BE CONNECTED TO SANITARY VENT TO PREVENT CONDENSATE FROM CONTAMINATION
2. SEE PLUMBING ISOMETRICS 1/D4-P-902 AND 1/D4-P-903 FOR MORE BRANCH LINE SIZES
3. SEE PLUMBING ISOMETRIC 1/D4-P-903 FOR MORE INFORMATION ON WASTE LINES OF WEST RESTROOM LAVS AND URINAL
4. SEE PLUMBING ISOMETRICS 1/D4-P-904 AND 1/D4-P-905 FOR MORE BRANCH LINE SIZES
5. SEE PLUMBING ISOMETRIC 2/D4-P-905 FOR MORE INFORMATION
6. SEE PLUMBING ISOMETRICS 5/D4-P-901 AND 6/D4-P-901 FOR MORE BRANCH LINE SIZES
7. COORDINATE GAS METER INSTALLATION WITH THE UTILITY PROVIDER. METER MUST BE INSTALLED BY THE UTILITY PROVIDER. THE INSTALLER MUST PROVIDE PULSE OUTPUT FROM METER THAT COMMUNICATES WITH THE BUILDING ENERGY MONITORING SYSTEM.
8. SEE DETAIL 6/D4-P-501 FOR MAIN WATER ENTRY PIPING DETAIL
9. SEE PLUMBING ISOMETRIC 2/D4-P-904 FOR MORE INFORMATION ON CONDENSATE DRAIN LINES ABOVE CEILING.

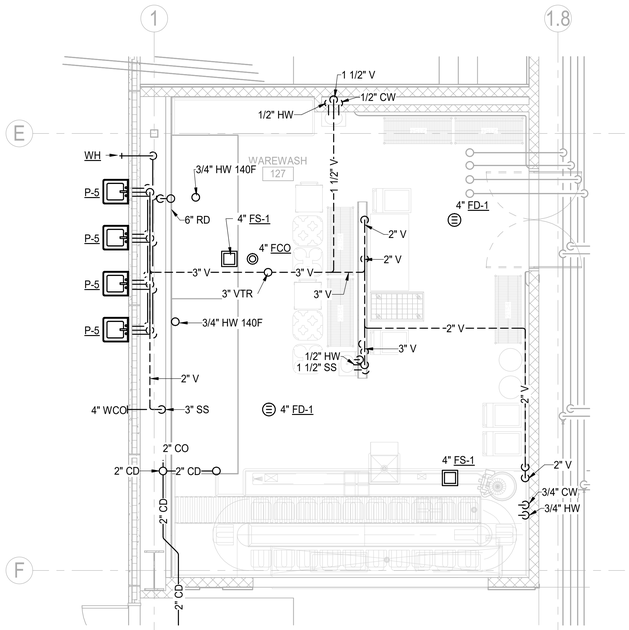
## GENERAL NOTES

1. CONNECTIONS SHOWN TO KITCHEN EQUIPMENT ARE BASED ON DESIGN BASIS EQUIPMENT SCHEDULED BY THE KITCHEN DESIGNER. THE CONTRACTOR SHALL COORDINATE ALL PLUMBING CONNECTIONS AND LOCATION BASED ON ACTUAL EQUIPMENT PURCHASED PRIOR TO INSTALLATION.

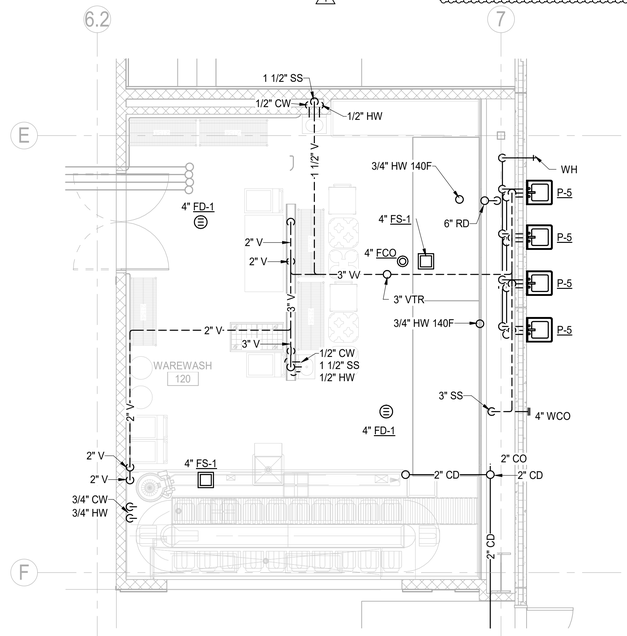
US Army Corps of Engineers
Fort Worth District

GEORGIA REGISTERED No. 027885 PROFESSIONAL ENGINEER DESIDERIO HERNANDEZ

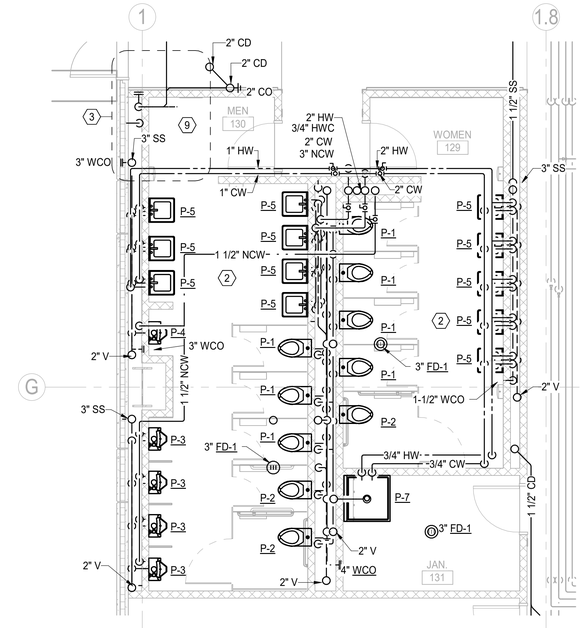
AUGUST 6, 2026



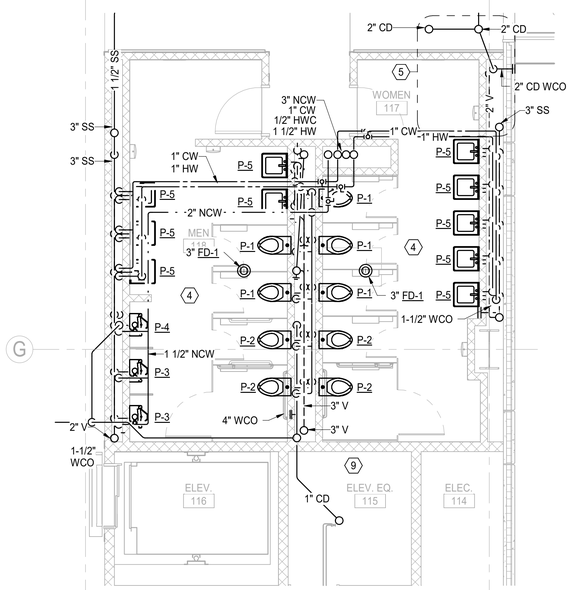

1 ENLARGED PLUMBING PLAN
1/4" = 1'-0"



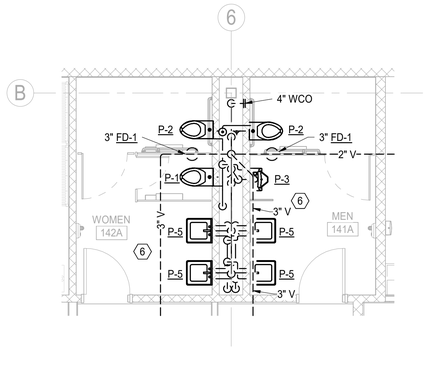

2 ENLARGED PLUMBING PLAN
1/4" = 1'-0"



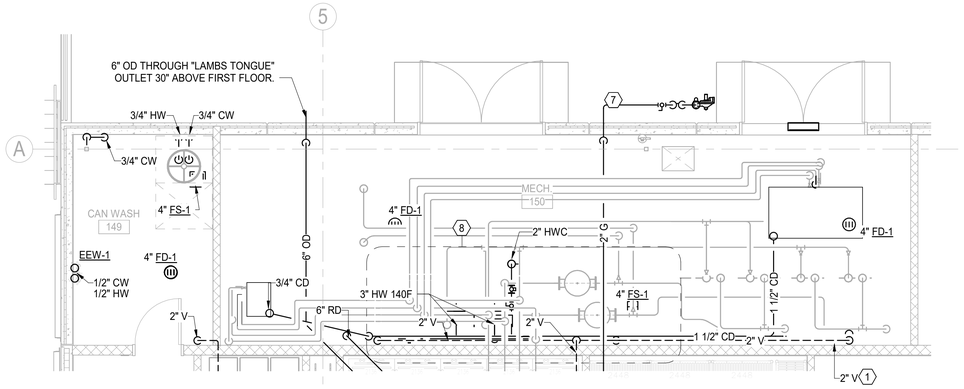

3 ENLARGED PLUMBING PLAN
1/4" = 1'-0"




4 ENLARGED PLUMBING PLAN
1/4" = 1'-0"




5 ENLARGED PLUMBING PLAN
1/4" = 1'-0"




6 ENLARGED MECHANICAL ROOM PLAN
1/4" = 1'-0"

| No. | Description | Date | Action | O.O. No. |
|---|---|---|---|---|
| 1 | REVISED JAV AM0003 | AUG 2026 | | |

Designed by: K. McGLOTHLIN
Date: MAY 2025
Rev.
Dwn by: K. McGLOTHLIN
Solicitation No. V912K22RA020
Contract No.
Reviewed by: D. HERNANDEZ
Submitted by: C. LANGUM
File name:
Plot date: 8/7/2026 9:54 AM
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
CONTRACT DOCUMENTS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX, WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPL.S220627

ENLARGED PLUMBING PLANS

Sheet reference number
D4-P-404
Sheet of

8/7/2026 9:54:52 AM

# PLUMBING FIXTURE SCHEDULE

| MARK | FIXTURE | DESCRIPTION | COMMENTS |
|---|---|---|---|
| TMV-1 | THERMOSTATIC MIXING VALVE | HIGH LOW, ASSE 1017 THERMOSTATIC MIXING VALVE WITH LARGE TYPE AND SMALL TYPE MIXING VALVES, WITH INTEGRAL CHECKSTOPS, WALL SUPPORT, AND OUTLET BALL VALVES FOR EACH. LOCKING TEMP REGULATORS,FACTORY ASSEMBLED AND TESTED. WITH ROUGH BRONZE FINISH. | |
| AD-1 | AREA DRAIN | PLAIN PATTERN WITH STAINLESS STEEL PERFORATED OR SLOTTED GRATE AND BOTTOM OUTLET. CAST IRON BODY, WITH MANUFACTURERS STANDARD COATING. EASY LIFT GRATE FOR CLEANING. OUTLET SUITABLE FOR INSIDE CAULKED CONNECTION TO DRAIN PIPE. DRAINS WILL CONFORM TO ASME A112.6.3. | |
| P-1 | WATER CLOSET, WALL MOUNTED | WALL HUNG, 1.28 GPF, 1-1/2" TOP SPUD, VITREOUS CHINA, ELONGATED RIM, FLUSH VALVE TOILET, WHITE OPEN FRONT SEAT W/O COVER | RIM HEIGHT 15" AFF |
| --- | WATER CLOSET FLUSH VALVE | 1.28 GPF, LEVER OPERATED EXPOSED MANUAL FLUSH VALVE FOR WALL MOUNTED, 1-1/2" TOP SPUD TOILETS, ADA COMPLIANT NON-HOLD OPEN HANDLE, NO EXTERNAL VOLUME ADJTMENT, RUBBER DIAPHRAGM W/ DUAL FIXED BYPASS | |
| P-2 | WATER CLOSET, WALL MOUNTED ADA | WALL HUNG, 1.28 GPF, 1-1/2" TOP SPUD, VITREOUS CHINA, ELONGATED RIM, FLUSH VALVE TOILET, WHITE OPEN FRONT SEAT W/O COVER | RIM HEIGHT 17" AFF |
| --- | WATER CLOSET FLUSH VALVE | 1.28 GPF, LEVER OPERATED EXPOSED MANUAL FLUSH VALVE FOR WALL MOUNTED, 1-1/2" TOP SPUD TOILETS, ADA COMPLIANT NON-HOLD OPEN HANDLE, NO EXTERNAL VOLUME ADJTMENT, RUBBER DIAPHRAGM W/ DUAL FIXED BYPASS | |
| P-3 | URINAL, WALL MOUNTED | 0.125 GPF, WHITE VITREOUS CHINA URINAL WITH WASHDOWN FLUSHING ACTION, 3/4" TOP SPUD | RIM HEIGHT 24" AFF |
| --- | | 0.125 GPF, MANUAL FLUSH VALVE FOR 3/4" TOP SPUD URINALS, ADA COMPLIANT NON-HOLD OPEN HANDLE, FIXED METERING BYPASS, NO EXTERNAL VOLUMN ADJUSTMENT, RUBBER DIAPHRAGM WITH DUAL FILTERED FIXED BYPASS | |
| P-4 | URINAL, WALL MOUNTED ADA | 0.125 GPF, WHITE VITREOUS CHINA URINAL WITH WASHDOWN FLUSHING ACTION, 3/4" TOP SPUD. MOUNT RIM 17" AFF | RIM HEIGHT 17" AFF |
| --- | | 0.125 GPF, MANUAL FLUSH VALVE FOR 3/4" TOP SPUD URINALS, ADA COMPLIANT NON-HOLD OPEN HANDLE, FIXED METERING BYPASS, NO EXTERNAL VOLUMN ADJUSTMENT, RUBBER DIAPHRAGM WITH DUAL FILTERED FIXED BYPASS | |
| P-5 | LAVATORY, WALL MOUNTED | WHITE VITREOUS CHINA LAVATORY, 4" ON CENTER FAUCET HOLES, 20" x 18-1/4", ABS UNDER SINK PIPING SKIRT | RIM HEIGHT 34" AFF |
| --- | LAVATORY FAUCET | SINGLE HOLE ELECTRONIC SENSOR OPERATED FAUCET, 0.5 GPM VANDAL PROOF NON-AERATING SPRAY, BRASS CONSTRUCTION WITH CHROME FINISH, THERMOSTATIC MIXING VALVE SET TO PROVIDE 110F WATER, FAUCET HOLE COVER PLATE | |
| P-6 | EXAM ROOM SINK - COUNTER MOUNTED | 18 GAUGE, TYPE 304 STAINLESS STEEL SINK, TOP MOUNT, 19" x 19" WITH SINGLE 7-1/2" DEEP BOWL. SINGLE FAUCET HOLE, INTEGRAL MIXING VALVE SET TO 110F WATER. | COUNTER MOUNTED |
| --- | SINK FAUCET | DECK MOUNTED SINGLE HOLE, SENSOR OPERATED, 0.5 GPM NON-AERATING SPRAY OUTLET, 5-1/4" GOOSENECK SPOUT | |
| P-7 | MOP SINK | FLOOR MOUNTED, MOLDED STONE MOP SERVICE BASIN, 24" x 24" x 10" | FLOOR MOUNTED |
| --- | SINK FAUCET | CHROME PLATED BRASS MOP BASIN FAUCET, VACUUM BREAKER, PAIL HOOK, WALL BRACE AND 3/4" HOSE THREAD | 36" AFF |
| P-8 | ELECTRIC WATER COOLER | WALL MOUNTED, BI-LEVEL, BARRIER-FREE STAINLESS STEEL WATER COOLER, 8.0 GPH WATER AT 50F, 18 GAUGE TYPE 304 STAINLESS STEEL BODY, ANTI-MICROBIAL SAFETY BUBBLER | ADA RIM HEIGHT 33 1/2" AFF |
| P-9 | CANTEEN FILL STATION | WALL MOUNTED, RECESSED WATER BOTTLE FILLING STATION, 8 GPH AMBIENT WATER, 18 GAUGE TYPE 300 STAINLESS STEEL AND ABS CONSTRUCTION, NO-TOUCH ACTIVATION, 20 SECOND SHUT-OFF TIMER | RIM HEIGHT 27" AFF |
| EEW-1 | EMERGENCY EYE WASH W/MIXING VALVE | WALL MOUNTED EYE WASH WITH FLIP TOP DUST COVERS. WALL MOUNTED TEMPERATURE AND PRESSURE BALLANCED MIXING VALVES WITH COLD WATER BYPASS | |
| HB | HOSE BIBB | CHROME FINISH ANTI-SIPHON WALL FAUCET WITH INTEGRAL VACUUM BREAKER, LOOSE TEE KEY OPERATION | 18" AFF |
| WH | WALL HYDRANT | CHROME AUTOMATIC DRAINING FREEZELESS WALL HYDRANT WITH INTEGRAL ANTI-SIPHON VACUUM BREAKER, LOOSE TEE KEY OPERATION | 18" AFF |
| FD-1 | FLOOR DRAIN | ROUND FLOOR DRAIN WITH CAST IRON BODY WITH ADJUSTABLE COLLAR, POLLISHED NICKEL BRONZE STRAINER, VANDAL-PROOF SECURED TOP | |
| FD-2 | FLOOR DRAIN | 4" X 12" RECTANGULAR FLOOR DRAIN WITH CAST IRON BODY WITH ADJUSTABLE COLLAR, TYPE J NICKEL BRONZE STRAINER, VANDAL-PROOF SECURED TOP | |
| FD-3 | FLOOR DRAIN | ROUND FLOOR DRAIN WTIH CAST IRON BODY WITH ADJUSTABLE COLLAR , TYPE I POLISHED NICLE BRONZE STRAINER WITH MIN 1' RIM ABOVE STRAINER, VANDAL-PROOF SECURED TOP | |
| FS-1 | FLOOR SINK | 12' X 12' X 8" DEEP FLOOR SINK, 304 STAINLESS STEEL BODY, NON-TILT LOOSE GRATE WITH ANTI-SPLACH INTERIOR DOME STRAINER | |
| TD-1 | TRENCH DRAIN | 48" X 6" WIDE PRE-SLOPED TRENCH DRAIN SYSTEM, STABILIZED POLYPROPYLENE CHANNELS WITH 4" NO-HUB BOTTOM OUTLET, REINFORCED SLOTTED STAINLESS STEEL CLASS E GRATE | |
| RD-1 | ROOF DRAIN | 15" DIAMETER MAIN ROOF DRAIN WITH LOW SILHOUETTE DOME, CAST RON BODY, MEMBERAIN AND FLASHING CLAMP, GRAVEL GUARD | |
| RD-2 | ROOF OVERFLOW DRAIN | 15" DIAMETER ROOF DRAIN AND 15" OVERFLOW DRAIN WITH COMBINATION MEMBRANE FLASHING CLAMP/GRAVEL GUARD, DOUBLE DECK PLATE AND LOW SILHOUETTE DOMES | |

**NOTES:**

1. FIXTURES, FLOOR DRAINS AND CLEANOUTS WILL BE BAA (BUY AMERICA ACT) COMPLIANT.

# PLUMBING FIXTURE CONNECTION SCHEDULE

| MARK | DESCRIPTION | SANITARY | VENT | COLD WATER | HOT WATER |
|---|---|---|---|---|---|
| P-1, P-2 | WATER CLOSETS, WALL MOUNTED | 4" | 2" | 1" | --- |
| P-3, P-4 | URINALS | 3" | 1-1/2" | 3/4" | --- |
| P-5 | LAVATORIES, WALL MOUNTED | 1-1/2" | 1-1/2" | 1/2" | 1/2" |
| P-6 | EXAM ROOM SINK | 1-1/2" | 1-1/4" | 1/2" | 1/2" |
| P-7 | MOP SINKS | 3" | 2" | 1/2" | 1/2" |
| P-8 | ELECTRIC WATER COOLER | 1-1/4" | 1-1/4" | 1/2" | --- |
| P-9 | CANTEEN FILL STATION | 1-1/2" | 1-1/2" | 1/2" | --- |
| HB | HOSE BIBB | --- | --- | 1/2" | --- |
| WH | WALL HYDRANT | --- | --- | 1/2" | --- |

# WATER HAMMER ARRESTOR SCHEDULE

| MARK | FIXTURE UNIT CAPACITY | PIPE SIZE | REMARKS |
|---|---|---|---|
| WHA-1 | 1 THRU 11 | 3/4" | PROVIDE ACCESS PANEL |
| WHA-2 | 12 THRU 32 | 1" | PROVIDE ACCESS PANEL |
| WHA-3 | 33 THRU 60 | 1" | PROVIDE ACCESS PANEL |
| WHA-4 | 61 THRU 113 | 1" | PROVIDE ACCESS PANEL |

**NOTE:** SIZE AND INSTALL WHA PER LATEST REVISION OF PDI-WH 201 STANDARD

# PUMP SCHEDULE

| MARK | SERVICE | CAPACITY (GPM) | TOT. HEAD (FT) | MOTOR RPM | MOTOR BHP | VOLT/PH/HZ | SUMP DIAMETER | SUMP DEPTH | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| CP-D4-01 | DOMESTIC HOT WATER CIRCULATOR | 26 | 65 | 3300 | 1/8 | 115 / 1 / 60 | | | |
| SP-D4-01 | ELEVATOR SUMP PUMP | 50 | 8 | 3450 | 1/2 | 115 / 1 / 60 | 3' - 0" | 3' - 0" | SUBMERSIBLE SUMP PUMP. INSTALL OIL MONITORING SYSTEM PER MANUFACTURER'S RECOMMENDATION |
| SP-D4-02 | CRAWL SPACE SEWAGE EJECTOR | 120 | 15 | 1150 | 1.0 EACH | 115 / 1 / 60 | 3' - 0" | 8' - 0" | SUBMERSIBLE DUPLEX SUMP PUMP, HIGH WATER ALARM |
| SP-D4-03 | A7 UTILIDOR PIT DRAINAGE | 30 | 15 | 1750 | 3/4 EACH | 115 / 1 / 60 | 3' - 0" | 4' - 0" | SUBMERSIBLE DUPLEX SUMP PUMP, HIGH WATER ALARM |
| SP-D4-04 | CRAWL SPACE SEWAGE EJECTOR | 120 | 15 | 1150 | 1.0 EACH | 115 / 1 / 60 | 3' - 0" | 8' - 0" | SUBMERSIBLE DUPLEX SUMP PUMP, HIGH WATER ALARM |
| SP-D4-05 | A8 UTILIDOR PIT DRAINAGE | 30 | 15 | 17 | 3/4 EACH | 115 / 1 / 60 | 3' - 0" | 4' - 0" | SUBMERSIBLE DUPLEX SUMP PUMP, HIGH WATER ALARM |
| SP-D4-06 | CRAWL SPACE CONDENSATE DRAIN PUMP | 30 | 12 | 1750 | 3/4 EACH | 115 / 1 / 60 | 3' - 0" | 3' - 0" | SUBMERSIBLE DUPLEX SUMP PUMP, HIGH WATER ALARM |

**NOTES:**

1. SUMP PUMPS, AND SEWAGE PUMPS ARE DUPLEX MODELS WITH REDUNDANT CAPACITY AND ALTERNATING CONTROLLERS. CONTROLLERS SHALL PROVIDE AUTOMATIC FAILOVER AND RUNTIME BALANCING. COORDINATE POWER CIRCUIT REQUIREMENTS FOR PUMPS AND CONTROLLERS.
2. ALL PUMP CONTROLLERS SHALL BE BACNET COMPATIBLE AND HAVE COMMUNICATION WITH EMCS SYSTEM

US Army Corps of Engineers
Fort Worth District

GEORGIA REGISTERED No. 027885 PROFESSIONAL ENGINEER DESIDERIO HERNANDEZ

AUGUST 6, 2026

| No. | Description | Date | Action | O.O. No. |
|---|---|---|---|---|
| 2 | REVISED IAW AM0003 | AUG 2026 | | |
| 1 | REVISED IAW AM0002 | JULY 2026 | | |

Designed by: K. McGLOTHLIN
Date: MAY 2025
Rev:
Dwn by: K. McGLOTHLIN
Solicitation No.: W912RG25RA020
Contract No.:
Reviewed by: D. HERNANDEZ, C. LANGUM
Approved by: D. HERNANDEZ
File name:
Plot date: 8/7/2026 10:12:44 AM
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPLS220527

PLUMBING SCHEDULES

Sheet reference number
D4-P-601

Sheet of

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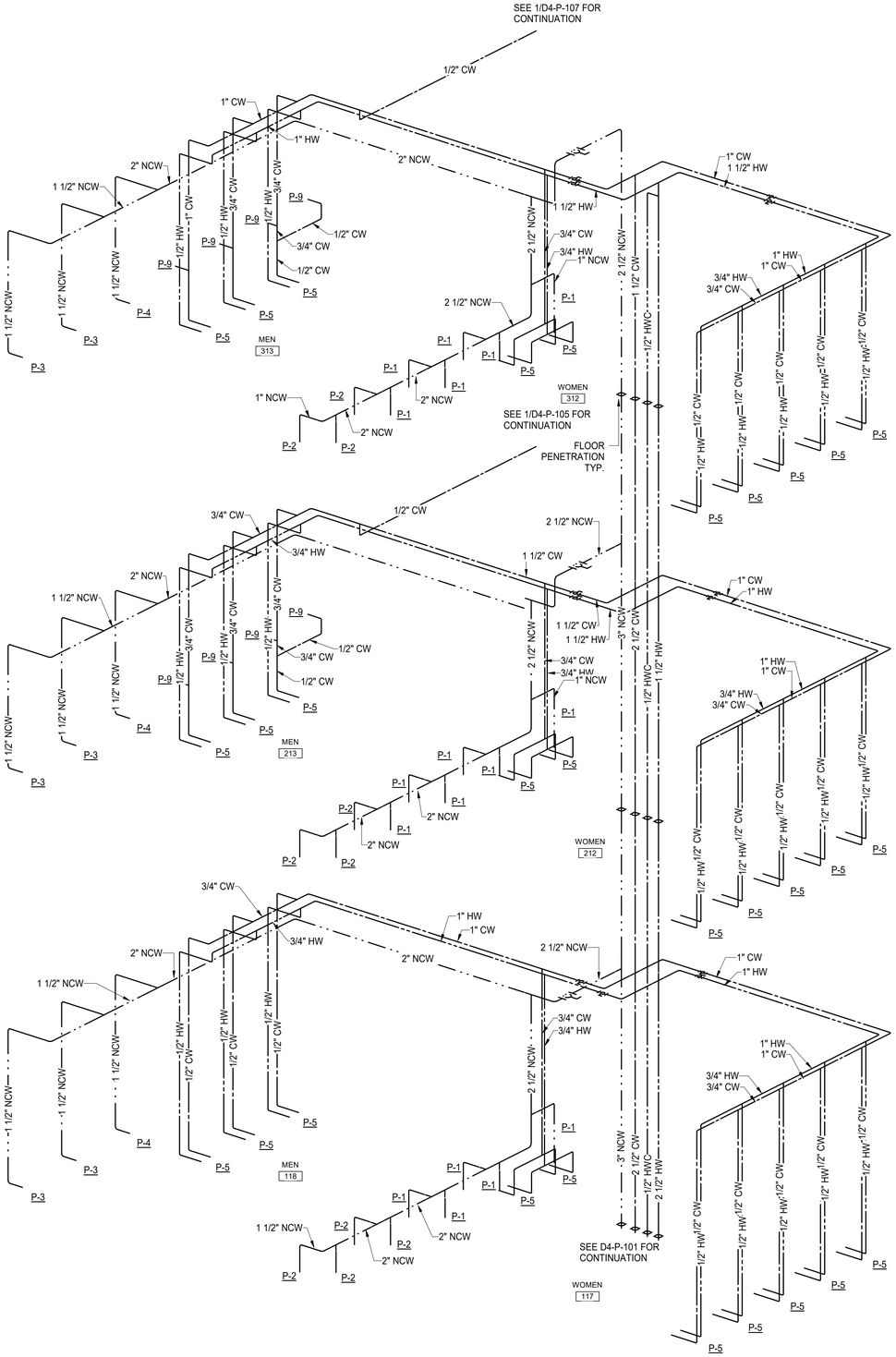
## SHEET NOTES

1. SHOCK ABSORBERS NOT SHOWN ON THIS VIEW, SHALL BE SIZE AND INSTALLED PER DETAIL 9/D4-P-501, SHECDULE SHEET D4-P-601, AND LATEST REVISION OF PDI-WH 201 STANDARD.
2. ALL SHOCK ABSORBERS SHALL BE INSTALLED CLOSE TO CELING, WITHIN WALLS OR CHASES, AND PROVIDED WITH ACCESS PANELS TO ALLOW FOR VALVE CLOSURE AND REMOVAL OF SHOCK ABSORBER.
3. SHOCK ABSORBERS (WATER HAMMER ARRESTERS) INSTALLED ABOVE CEILING SHALL BE POSITIONED IN ACCESSIBLE LOCATIONS WITH ACCESS PANELS PROVIDED AS NEEDED.

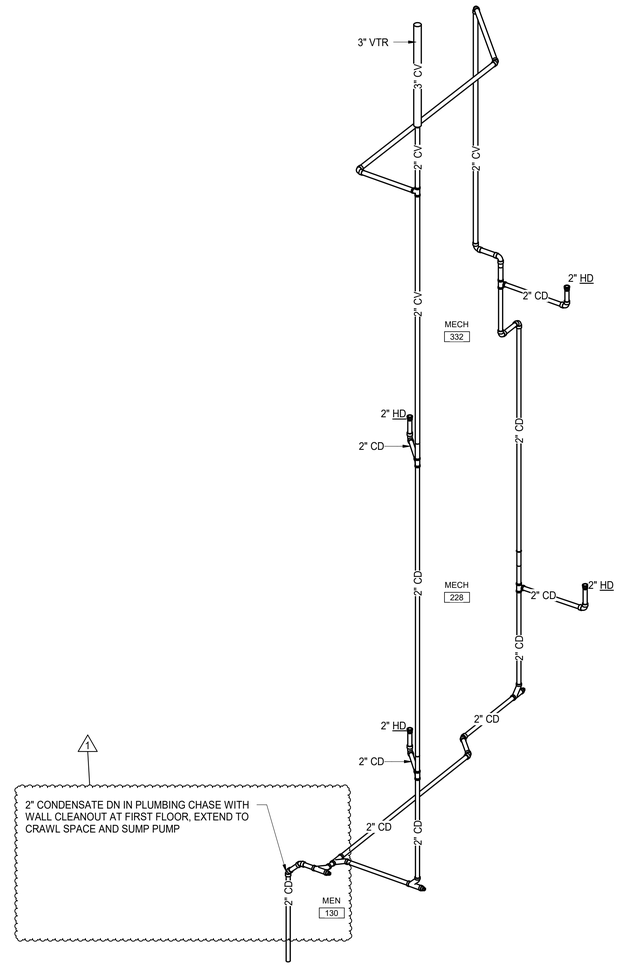
US Army Corps of Engineers
Fort Worth District

GEORGIA REGISTERED No. 027885 PROFESSIONAL ENGINEER DESIDERIO HERNANDEZ

AUGUST 03, 2026




1 EAST RESTROOM BLOCK PLUMBING ISOMETRIC
N.T.S.




2 PLUMBING ISOMETRIC
N.T.S.

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | | | AUG 2026 |

Designed by: K. McGLOTHLIN
Date: MAY 2025
Rev.
Own by: K. McGLOTHLIN
Solicitation No.: W912QR23RA020
Contract No.:
Reviewed by: R.J. CHERNAUSKEE
Submitted by: C. LANGUM
File name:
Plot date: 7/28/2026 4:05:07 PM
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPLS220527

PLUMBING ISOMETRICS

Sheet reference number
D4-P-904
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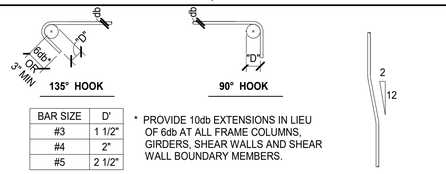
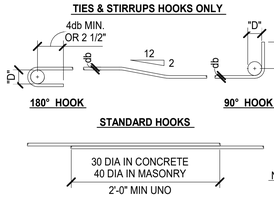



| BAR SIZE | D' |
|---|---|
| #3 | 1 1/2" |
| #4 | 2" |
| #5 | 2 1/2" |

* PROVIDE 10db EXTENSIONS IN LIEU OF 6db AT ALL FRAME COLUMNS, GIRDERS, SHEAR WALLS AND SHEAR WALL BOUNDARY MEMBERS.




| BAR SIZE | D' |
|---|---|
| #3 THRU #8 | 6d |
| #9 THRU #11 | 8d |
| #14 THRU #18 | 10d |

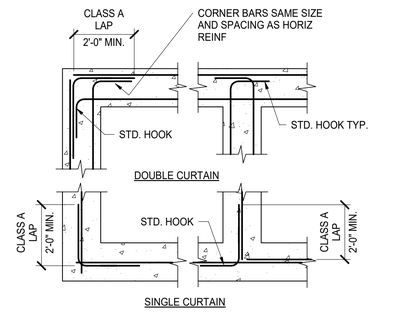
NOTE:
FOR TENSION SPLICE SEE 3/D4-S-501.

## 1 REINFORCING BAR BENDING DETAIL
N.T.S.

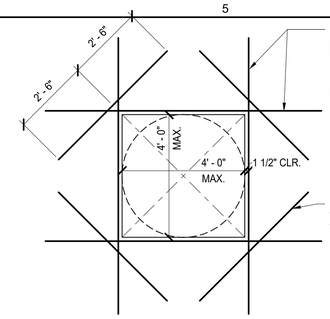
| BAR DESCRIPTION AND LOCATION IN STRUCTURE | CONCRETE STRENGTH psi | BAR SIZE → | #3 | | #4 | | #5 | | #6 | | #7 | | #8 | | #9 | | #10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LAP CLASS → | A | B | A | B | A | B | A | B | A | B | A | B | A | B | A | B |
| BAR WITH SPACING > $2d_b$ CLEAR COVER > $d_b$ OR BEAM & COLUMN BARS WITH SPACING > $d_b$ CLEAR COVER > $d_b$ | 3000 | TOP | 2'-0" | 2'-4" | 2'-5" | 3'-2" | 3'-0" | 3'-11" | 3'-7" | 4'-8" | 5'-3" | 6'-9" | 6'-0" | 7'-9" | 6'-9" | 8'-9" | 7'-7" | 9'-10" |
| | | BOTTOM | 2'-0" | 2'-0" | 2'-0" | 2'-5" | 2'-4" | 3'-0" | 2'-9" | 3'-7" | 4'-0" | 5'-3" | 4'-7" | 6'-0" | 5'-2" | 6'-9" | 5'-10" | 7'-7" |
| | 4000 | TOP | 2'-0" | 2'-1" | 2'-1" | 2'-9" | 2'-7" | 3'-5" | 3'-1" | 4'-1" | 4'-6" | 5'-11" | 5'-2" | 6'-9" | 5'-10" | 7'-7" | 6'-7" | 8'-6" |
| | | BOTTOM | 2'-0" | 2'-0" | 2'-0" | 2'-4" | 2'-0" | 2'-7" | 2'-5" | 3'-1" | 3'-6" | 4'-6" | 4'-0" | 5'-2" | 4'-6" | 5'-10" | 5'-1" | 6'-7" |
| | 5000 | TOP | 2'-0" | 2'-0" | 2'-0" | 2'-5" | 2'-4" | 3'-0" | 2'-10" | 3'-8" | 4'-1" | 5'-3" | 4'-8" | 6'-0" | 5'-3" | 6'-9" | 5'-11" | 7'-8" |
| | | BOTTOM | 2'-0" | 2'-0" | 2'-0" | 1'-11" | 1'-10" | 2'-4" | 2'-3" | 2'-10" | 3'-2" | 4'-1" | 3'-7" | 4'-8" | 4'-0" | 5'-3" | 4'-6" | 5'-11" |
| OTHER CASES | 3000 | TOP | 2'-9" | 3'-6" | 3'-7" | 4'-8" | 4'-6" | 5'-10" | 5'-5" | 7'-0" | 7'-10" | 10'-2" | 8'-11" | 11'-7" | 10'-1" | 13'-1" | 11'-4" | 14'-9" |
| | | BOTTOM | 2'-1" | 2'-9" | 2'-9" | 3'-7" | 3'-6" | 4'-6" | 4'-2" | 5'-5" | 6'-0" | 7'-10" | 6'-11" | 8'-11" | 7'-9" | 10'-1" | 8'-9" | 11'-4" |
| | 4000 | TOP | 2'-4" | 3'-1" | 2'-9" | 4'-0" | 3'-11" | 5'-1" | 4'-8" | 6'-1" | 6'-9" | 8'-10" | 7'-9" | 10'-1" | 8'-9" | 11'-4" | 8'-6" | 12'-9" |
| | | BOTTOM | 2'-0" | 2'-4" | 2'-5" | 3'-1" | 3'-0" | 3'-11" | 3'-7" | 4'-8" | 5'-3" | 6'-9" | 6'-0" | 7'-9" | 6'-9" | 8'-9" | 7'-7" | 9'-10" |
| | 5000 | TOP | 2'-1" | 2'-9" | 2'-10" | 3'-8" | 3'-6" | 4'-6" | 4'-2" | 5'-5" | 6'-1" | 7'-11" | 6'-11" | 9'-0" | 7'-10" | 10'-2" | 8'-10" | 11'-5" |
| | | BOTTOM | 2'-0" | 2'-1" | 2'-2" | 2'-10" | 2'-8" | 3'-6" | 3'-3" | 4'-2" | 4'-8" | 6'-1" | 5'-4" | 6'-11" | 6'-0" | 7'-10" | 6'-9" | 8'-10" |

NOTE:
1. USE THIS TABLE FOR BAR SPLICES UNLESS SPECIFICALLY DETAILED AND DIMENSIONED ON PLANS.
2. THIS SCHEDULE IS NOT APPLICABLE TO DUCTILE MOMENT FRAME MEMBERS RESISTING SEISMIC FORCES.
3. FOR TENSION DEVELOPMENT LENGTHS "Ld", USE CLASS "B" SPLICE LENGTHS.
4. ALL SPLICES SHALL BE CLASS "B" UNLESS NOTED OTHERWISE ON PLANS.
5. TOP BARS ARE HORIZONTAL REINFORCEMENT WITH MORE THAN 12" OF CONCRETE CAST BELOW BAR.
6. BOTTOM BARS ARE VERTICAL BARS, ALL HORIZONTAL WALL REINFORCEMENT, AND HORIZONTAL REINFORCEMENT WITH LESS THAN 12" OF CONCRETE CAST BELOW BARS.
7. COVER DESIGNATES CLEAR CONCRETE COVER FROM SPLICED BAR TO FACE OF MEMBER, SPACING DESIGNATES CLEAR DIMENSION BETWEEN SPLICED BARS.
8. SHEARWALLS WITH TWO CURTAINS OF REINFORCING SHALL NOT HAVE EACH CURTAIN OF HORIZONTAL BARS SPLICED AT SAME LOCATION.

## 3 SPLICE TABLE - GENERAL
N.T.S.




## 4 TYPICAL REINFORCING AT INTERSECTIONS OF FOOTINGS AND BEAMS
N.T.S.

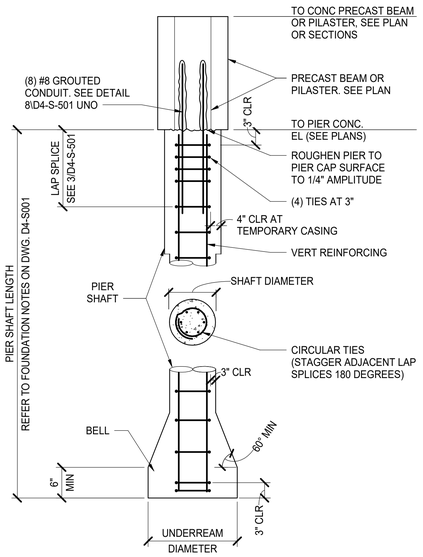



NOTE:
1. THIS DETAIL APPLIES TO CIRCULAR AND RECTANGULAR OPENINGS.
2. PROVIDE EXTRA BARS (NOT SHOWN) PARALLEL TO SIDES OF OPENING EQUAL TO AREA OF INTERRUPTED SLAB BARS, EXTEND FULL LENGTH OF SPAN.
3. THIS DETAIL IS TYPICAL AT OPENINGS UP TO 4'-0" MAX. DIMENSIONS UNLESS NOTED OTHERWISE ON PLANS.

## 5 SUPP REINF AT SMALL OPENING
N.T.S.

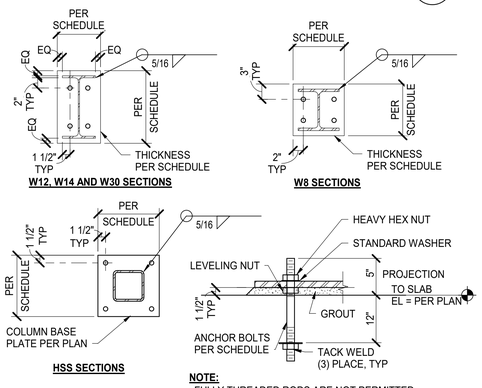
US Army Corps of Engineers
Fort Worth District

STATE OF TEXAS
PATRICK FINLEY
110906
LICENSED PROFESSIONAL ENGINEER
08/06/26




| PIER TYPE SCHEDULE | | | | |
|---|---|---|---|---|
| PIER TYPE | SHAFT DIAMETER | SHAFT REINFORCING VERT. | SHAFT REINFORCING TIES | UNDERREAM DIAMETER |
| I | 2 FT | (12) #10 | #4 AT 12" | 5 FT |
| II | 2 FT-6 IN | (16) #10 | #4 AT 12" | 6 FT - 6 IN |
| III | 3 FT | (19) #10 | #4 AT 12" | 8 FT |
| IV | 3FT-6IN | (25) #10 | #4 AT 11" | 9 FT |

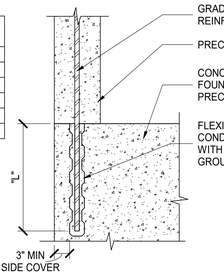
## 11 TYP DRILLED PIER
N.T.S.




NOTE:
FULLY THREADED RODS ARE NOT PERMITTED

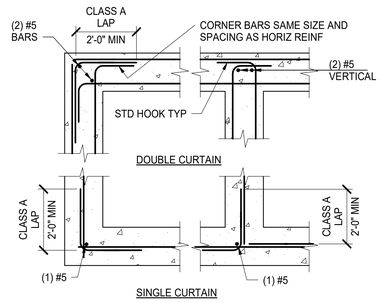
## 7 TYP ANCHOR BOLT AND BASE PLATES
N.T.S.

| BAR SIZE | BAR EMBEDMENT LENGTH "L" IN |
|---|---|
| 3 | 12 |
| 4 | 12 |
| 5 | 12 |
| 6 | 15 |
| 7 | 21 |
| 8 | 27 |

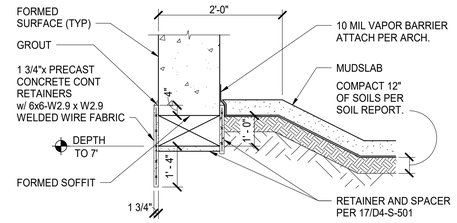



NOTE:
1. CONDUIT SHALL BE 24 GAUGE MIN AND PROVIDE A MINIMUM ANNULAR SPACE OF 1/2" AROUND REINFORCING BAR.
2. GROUT STRENGTH SHALL NOT BE LESS THAN SPECIFIED STRENGTH OF SURROUNDING CONCRETE NOR 5,000 PSI.
3. CONFINEMENT STEEL NOT SHOWN FOR CLARITY.
4. REMOVE ANY WATER FROM CONDUIT PRIOR TO GROUTING.

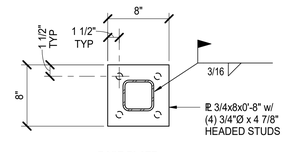
## 8 GROUTED CONDUIT ANCHOR
N.T.S.



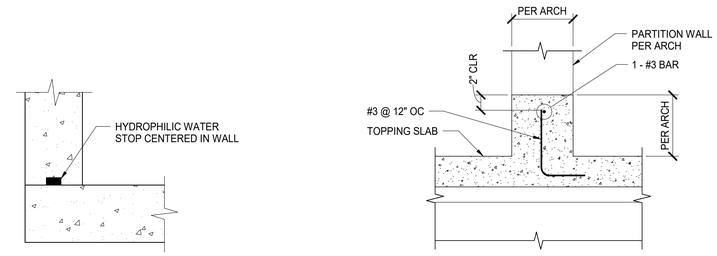

## 9 TYPICAL REINFORCING AT INTERSECTION OF WALLS
1" = 1'-0"




## 10 PRECAST RETAINER TO 7' DEPTH
N.T.S.



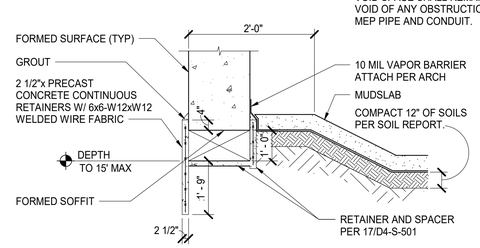

## 15 WELD PLATE DETAILS
N.T.S.



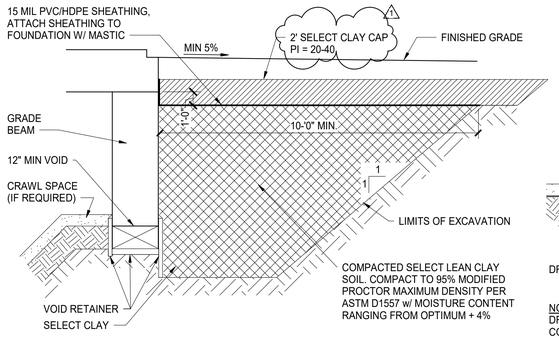

## 12 HYDROPHILIC WATER STOP
N.T.S.

## 13 TYPICAL CURB DETAIL

NOTE:
VOID SPACE SHALL REMAIN COMPLETELY VOID OF ANY OBSTRUCTIONS INCLUDING MEP PIPE AND CONDUIT.

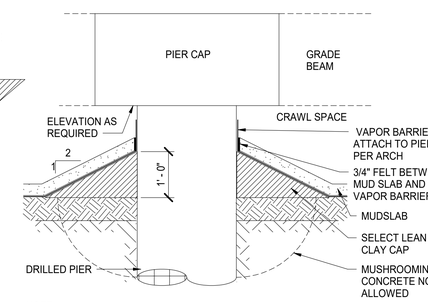



## 14 PRECAST RETAINER > 7' TO <15 FT DEPTH
N.T.S.




BASEMENT WALL BACKFILL DETAIL
NOT TO SCALE

NOTE:
1. NONEXPANSIVE FILL SHALL BE PLACED IN CONTROLLED LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS AND COMPACTED TO AT LEAST 95 PERCENT OF LABORATORY MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D 1557.
2. SELECT FILL SHALL BE PLACED IN CONTROLLED LIFTS NOT EXCEEDING 8 INCHES IN LOOSE THICKNESS AND COMPACTED TO AT LEAST 90 PERCENT OF LABORATORY MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D 1557.
3. REFER TO THE GOVERNMENT GEOTECHNICAL REPORT FOR NONEXPANSIVE FILL, SELECT FILL AND LEAN CLAY FILL MATERIAL DEFINITIONS AND REQUIREMENTS, AND FOR COMPLETE FILL AND SUBGRADE PREPARATION MINIMUM REQUIREMENTS.
4. PROVIDE CLAY CAP AT ELEVATOR RAM SIMILAR TO WHAT IS REQUIRED AT DRILLED PIER.
5. CONTRACTOR SHALL USE CAUTION WHEN REMOVING THE CASING AND PREVENT MUSHROOMING OF THE DRILLED PIER SOIL AND WATER FROM ENTERING THIS INSIDE OF THE FORM.

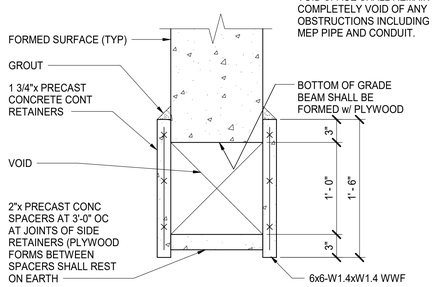



NOTE:
DRILLED PIERS NEED TO BE PLACED AS MONOLITHIC POUR. MUSHROOMING OF PIER CONCRETE IS NOT ALLOWED AT ANY TIME. THIS INCLUDES GRADE LEVEL.

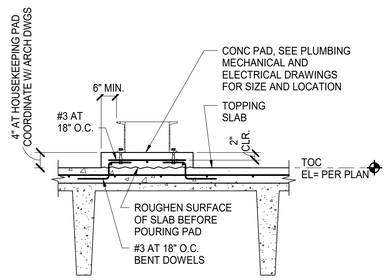
CLAY CAP DETAILS
NOT TO SCALE

## 20 TYPICAL BACKFILL DETAIL
N.T.S.

NOTE:
VOID SPACE SHALL REMAIN COMPLETELY VOID OF ANY OF ANY OBSTRUCTIONS INCLUDING MEP PIPE AND CONDUIT.




## 17 VOID RETAINER BLOCK
N.T.S.




## 18 HOUSEKEEPING PAD
N.T.S.

| REV. NO. | Description | Date | Action | D.O. No. |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | AUG 2026 | | |

Designed by: P. FINLEY
Date: MAY 2025
Solicitation No.: W912GS23RA020
Contract No.:
File name:
Plot date: 8/6/2026 9:29 AM
Plot scale: 1:1
Drawn by: M. LOWE
Reviewed by: A. VITSKUSER
Submitted by: C. LANGUM
Rev.

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

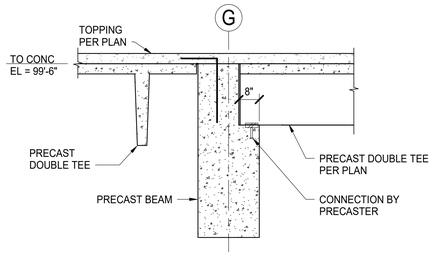
JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPLS220527

TYPICAL CONCRETE DETAILS

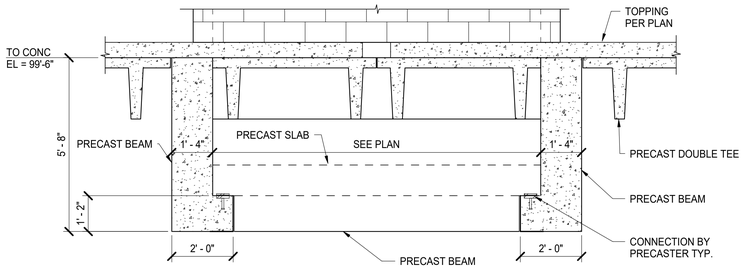
Sheet reference number
D4-S-501
Sheet of

Cover No.

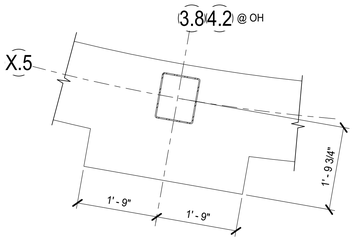
8/6/2026 9:29:34 AM



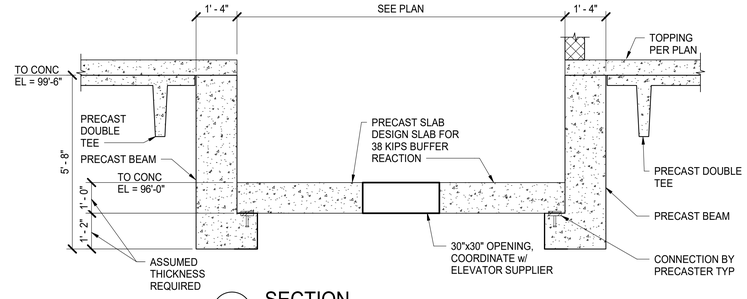

1 SECTION
1/2" = 1'-0"




3 SECTION
1/2" = 1'-0"



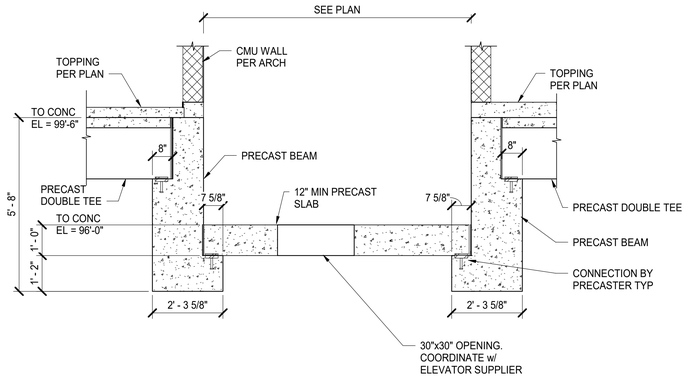

4 CURVED BEAM POP OUT
3/4" = 1'-0"




5 SECTION
1/2" = 1'-0"

US Army Corps of Engineers
Fort Worth District

STATE OF TEXAS
PATRICK FINLEY
110906
LICENSED PROFESSIONAL ENGINEER
08/06/26

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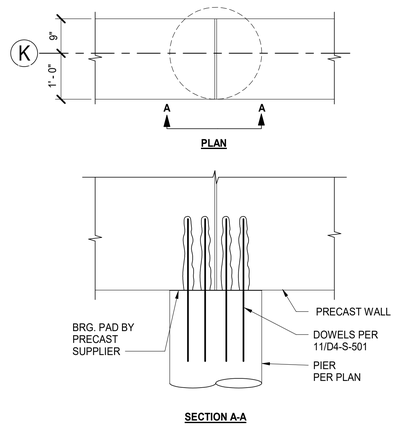
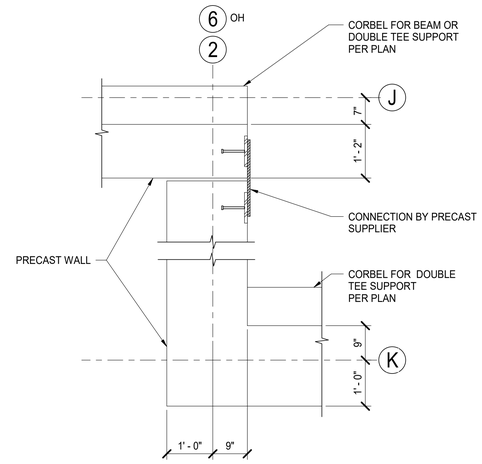
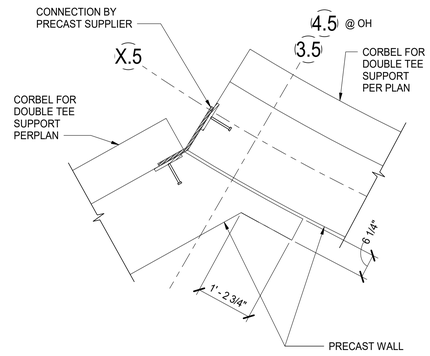



8 DETAIL
3/4" = 1'-0"




9 DETAIL
3/4" = 1'-0"

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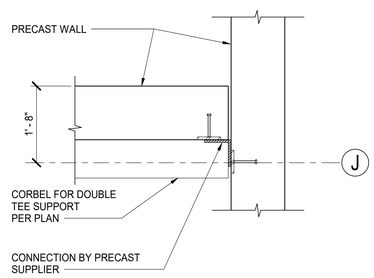


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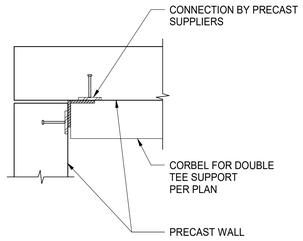


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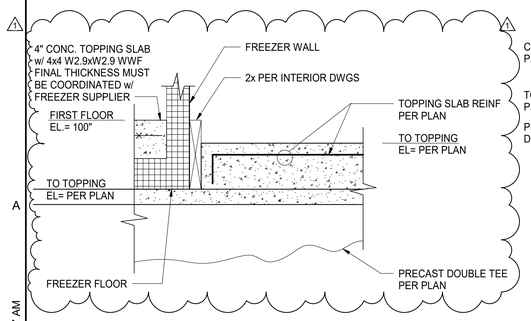
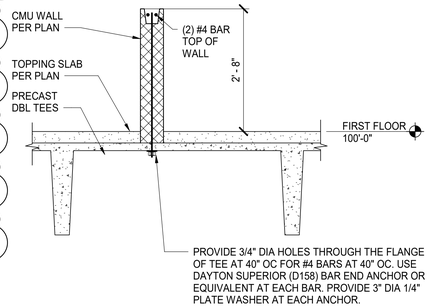
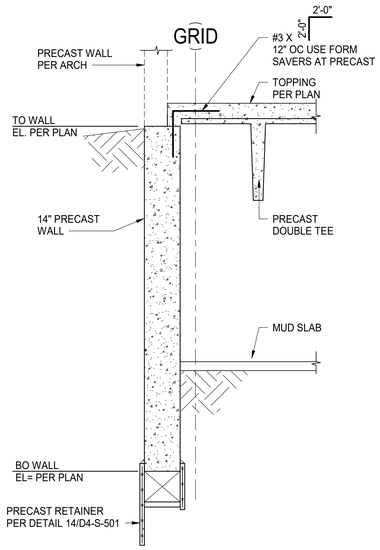
3/4" = 1'-0"




16 SECTION
1 1/2" = 1'-0"




17 CANTILEVER CMU WALL
3/4" = 1'-0"

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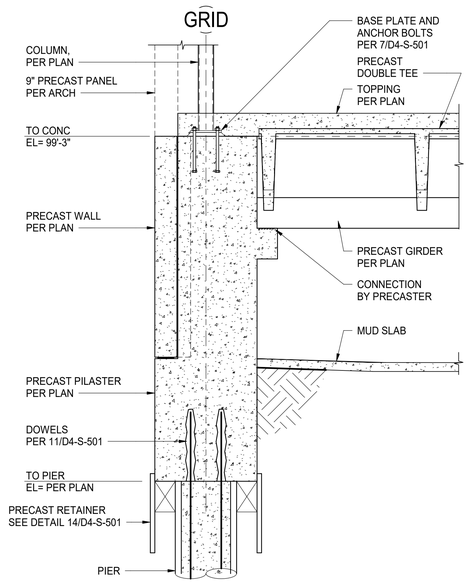


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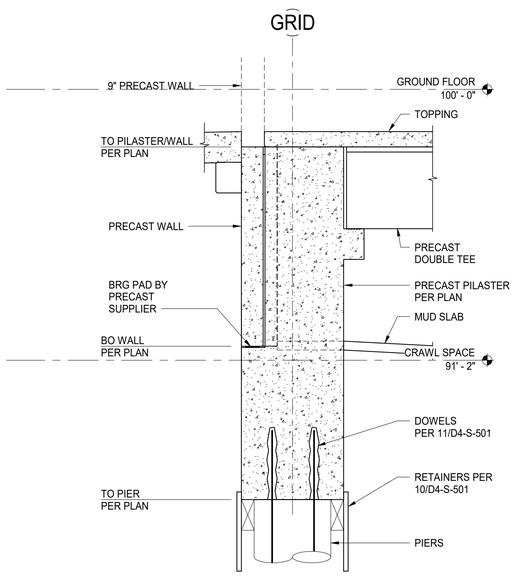



20 SECTION
1/2" = 1'-0"

| No. | Description | D.O. No. | Action | Date |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | | | AUG 2026 |

Rev.

Date: MAY 2025
Solicitation No.: W912QR25RA020
Contract No.:
File name:
Plot date: 8/6/2026 9:28:46 AM
Plot scale: 1:1

Designed by: P. FINLEY
Dwn by: M. LOWE
Reviewed by: J. HYDUKFER
Submitted by: C. LANGUM

U.S. ARMY ENGINEER DISTRICT, GALVESTON DISTRICT FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

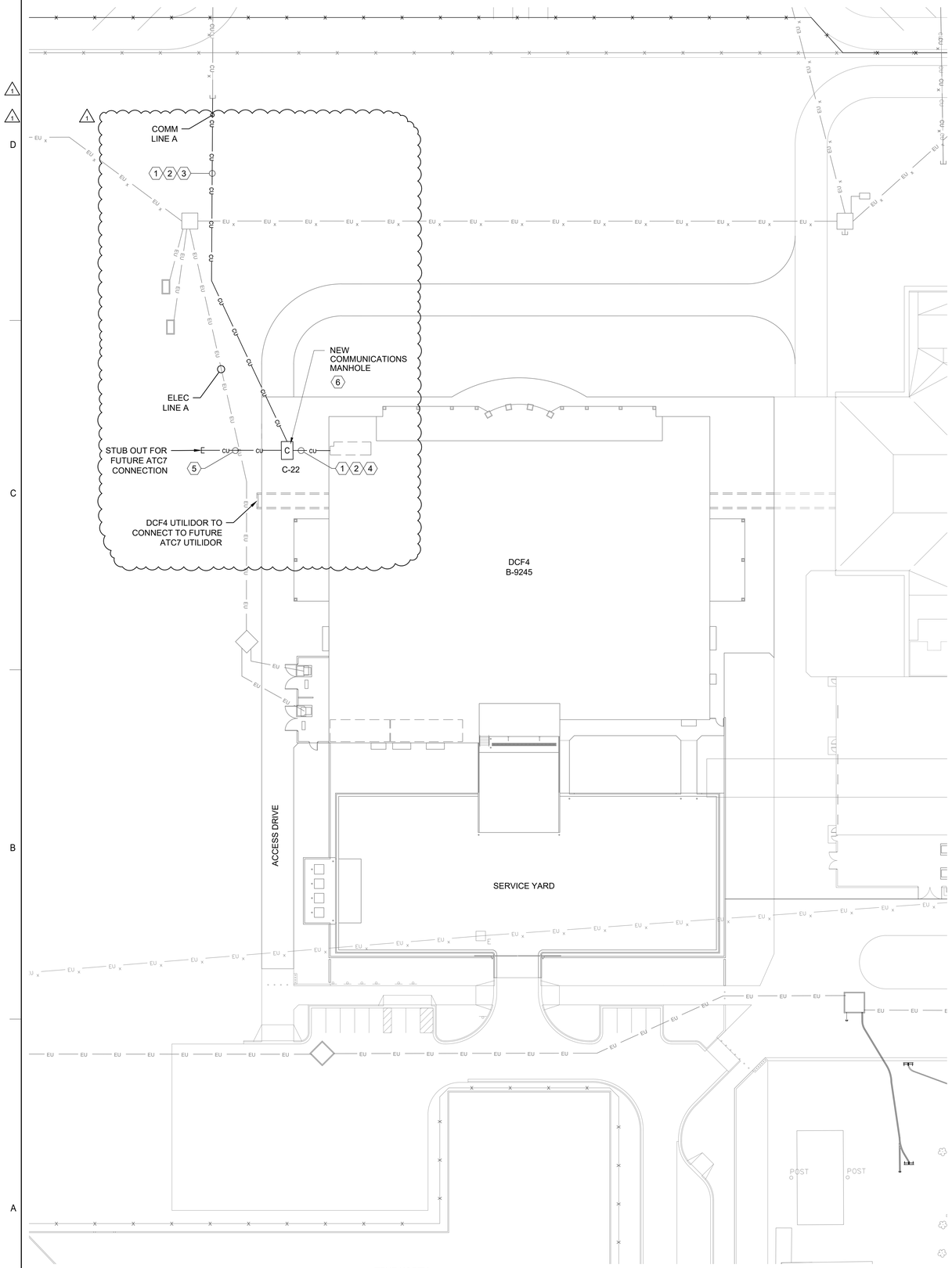
JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX - WEST CAMPUS
DINING CLASSROOM FACILITY (DCF4)
MPI-S220527

CONCRETE DETAILS

Sheet reference number
D4-S-504
Sheet of

Cont No.

8/6/2026 9:28:47 AM




1 COMMUNICATIONS SITE PLAN
SCALE: 1" = 30'
0 30' 60'

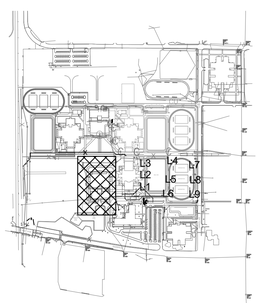
TRUE NORTH

## SHEET NOTES

1. REFER TO D4-ES001 FOR SYMBOLS, LEGEND, AND ABBREVIATIONS.

## KEYNOTES

1. PROVIDE NEW 4-4" CONCRETE ENCASED DUCT BANK, REFER TO 1/D4-TS502. EXTEND NEW DUCT BANK FROM EXISTING STUBBED OUT DUCT BANK. PROVIDE (3) 3-CELL, 3-INCH DETECTABLE FABRIC INNERDUCT IN 1-4" DUCT OF NEW 4-4" CONCRETE ENCASED DUCT BANK.
2. IN EXISTING MANHOLE C-16, SPLICE 100 PAIR COPPER OSP CABLE TO EXISTING 600 PAIR COPPER OSP USING PICABOND CONNECTORS AND PROVIDE NEW OSP SPLICE CASE. ROUTE COPPER OSP CABLE IN 1-4" DUCT OF NEW 4-4" CONCRETE ENCASED DUCT BANK TO DCF4.
3. ROUTE NEW 72 STRAND SMFO FROM BUILDING B1050 TO MANHOLE HOLE C -22 AND PROVIDE SPLICE CASE. PROVIDE 20' OSP MAINTENANCE LOOP IN MANHOLE. ROUTE IN FABRIC INNERDUCT.
4. FUSION SPLICE 24 STRAND FIBER OPTIC OSP CABLE IN MANHOLE HOLE C-22 AND ROUTE INTO DCF4. ROUTE IN FABRIC INNERDUCT.
5. PROVIDE NEW 4-4" CONCRETE ENCASED DUCT BANK, REFER TO 1/D4-TS502. STUB OUT AND CAP FOR CONNECTION TO ATC7.
6. PROVIDE NEW COMMUNICATIONS MANHOLE. REFER TO 1/D4-TS501.




US Army Corps of Engineers
Fort Worth District

STATE OF TEXAS
DANIEL P. HARRINGTON
113569
LICENSED
PROFESSIONAL ENGINEER

THIS SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY DANIEL P. HARRINGTON P.E. 113569 ON 08 AUG 2026

| No. | Description | D.O.No. | Action | Date |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | | | AUG 2026 |

Designed by: D. HARRINGTON
Date: MAY 2025
Rev.
Drawn by: L. SMITH
Solicitation No.: W9126G25RA020
Reviewed by: K. JANICKI
Contract No.:
Submitted by: C. LANQUIM
Scale: AS NOTED
File name: D4-TS101.dwg
Plot date:
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

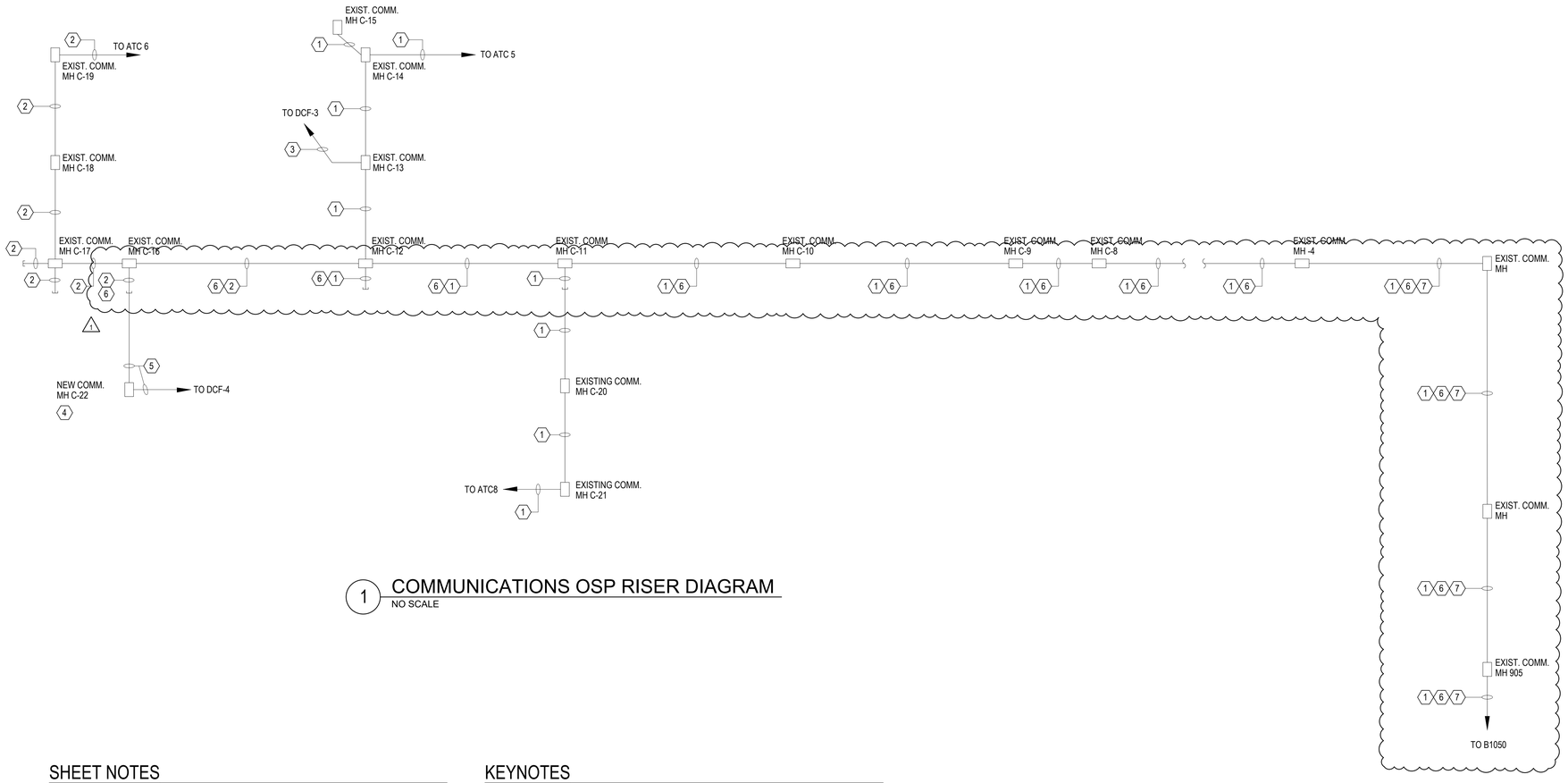
DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX, WEST CAMPUS
DINING CLASSROOM FACILITY 4 (DCF4)
MPL S220527

COMMUNICATIONS SITE PLAN

Sheet reference number
D4-TS101
Sheet of

DESIGN FILE:
Contr No.:




## 1 COMMUNICATIONS OSP RISER DIAGRAM

NO SCALE

## SHEET NOTES

1. REFER TO D4-ES001 FOR SYMBOLS, LEGEND, AND ABBREVIATIONS.

## KEYNOTES

1. EXISTING INFRASTRUCTURE.
2. EXISTING INFRASTRUCTURE.
3. EXISTING INFRASTRUCTURE.
4. NEW 6' WIDE x 10' LONG x 7' DEEP MANHOLE, REFER TO 1/D4-TS501.
5. NEW 4-4" CONCRETE ENCASED DUCT BANK, REFER TO D4-TS101 FOR NEW OSP COPPER AND FIBER OPTIC CABLING IN DUCT BANK. REFER TO CIVIL DRAWINGS FOR PROFILE OF DUCT BANK.
6. PROVIDE 72 STRAND SMFO OSP CABLING FROM BUILDING B1050 TO MANHOLE C-22. PULL THROUGH EXISTING AND NEW INFRASTRUCTURE. PROVIDE MAINTENANCE LOOP(S) IN EVERY MANHOLE TO PROVIDE A TOTAL OF 10,000 LINEAR FEET OF OSP CABLING. TEST CABLING AND TERMINATE IN B1050. COORDINATE WITH GOVERNMENT ON FINAL ROUTING, DUCT USAGE, AND TERMINATION POINT WITHIN B1050.
7. PROVIDE 48 STRAND SMFO OSP CABLING AND 25 PAIR COPPER CABLING FROM BUILDING B1050 TO MANHOLE MH-4 (LOCATED ON THE EAST CAMPUS). PULL THROUGH EXISTING INFRASTRUCTURE. PROVIDE MAINTENANCE LOOP(S) IN EVERY MANHOLE TO PROVIDE A TOTAL OF 10,000 LINEAR FEET OF OSP CABLING. TEST CABLING AND TERMINATE IN B1050. COORDINATE WITH GOVERNMENT ON FINAL ROUTING, DUCT USAGE, AND TERMINATION POINT WITHIN B1050.

US Army Corps of Engineers
Fort Worth District

STATE OF TEXAS
DANIEL P. HARRINGTON
113569
LICENSED
PROFESSIONAL ENGINEER

THIS SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY DANIEL P. HARRINGTON P.E. 113569 ON 08 AUG 2026

| No. | Description | D.O.No. | Action | Date |
|---|---|---|---|---|
| 1 | REVISED IAW AM0003 | | | AUG 2026 |

Designed by: D. HARRINGTON
Date: MAY 2025
Rev.
Drawn by: L. SMITH
Solicitation No.: W9126G25RA020
Reviewed by: K. PRICE/CT
Contract No.:
Submitted by: C. LANQUIM
File name: D4-TS001.dwg
Plot date:
Plot scale: 1:1

U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
CORPS OF ENGINEERS
FORT WORTH, TEXAS

MERRICK®

DRAWING NUMBER: LA 20-0003

JBSA - LACKLAND AFB, TEXAS
AIRMEN TRAINING COMPLEX, WEST CAMPUS
DINING CLASSROOM FACILITY 4 (DCF4)
MPLS220527

COMMUNICATIONS OSP RISER DIAGRAM

Sheet reference number
D4-TS601
Sheet of

DESIGN FILE:
Contr No.