Roof Repairs NCCCWA

National Center for Cool and the Cold-Water Aquaculture

Kearneysville, WV

SPECIFICATIONS

23 April 2026

Contract Number: 12305B21D0016 / 12305B23F0147

SUMMER CONSULTANTS INCORPORATED
7900 Westpark Dr., Suite A405
McLean, VA 22102

Our Ref: 212.009

PROJECT TABLE OF CONTENTS

PRICE SCHEDULE

DIVISION 01 - GENERAL REQUIREMENTS

01 USDA GENERAL REQUIREMENTS
01 11 00 SUMMARY OF WORK
01 14 00 WORK RESTRICTIONS
01 30 00 ADMINISTRATIVE REQUIREMENTS
01 32 16.00 20 SMALL PROJECT CONSTRUCTION PROGRESS SCHEDULES
01 33 00 SUBMITTAL PROCEDURES
01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS
01 42 00 SOURCES FOR REFERENCE PUBLICATIONS
01 45 00.10 20 QUALITY CONTROL FOR MINOR CONSTRUCTION
01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS
01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS
01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
01 78 00 CLOSEOUT SUBMITTALS
01 78 23 OPERATION AND MAINTENANCE DATA

DIVISION 02 - EXISTING CONDITIONS

02 41 00 DEMOLITION

DIVISION 06 – WOOD, PLASTICS AND COMPOSITES

06 10 00 ROUGH CARPENTRY

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

07 01 50.19 PREPARATION FOR REROOFING
07 41 13 STANDING SEAM METAL ROOFING
07 54 19 POLYVINYL-CHLORIDE (PVC) ROOFING
07 62 00 SHEET METAL FLASHING AND TRIM
07 72 53 SNOW GUARDS

DIVISION 13 – SPECIAL CONSTRUCTION

13 34 21 STRUCTURAL RETROFIT

-- End of Project Table of Contents --

PRICE SCHEDULE

Provide line item prices, where indicated by blank underlines, for the following items:

Line Item	Description	Quantity	Unit	Unit Price	Sub-Total	Total Price
1	BASE PRICE: Total Price for the entire work associated with the Tank/Aquaria Building for providing accordance with the drawings and specifications, complete, but excluding work provided in another Priced line Item.	1	EA			$_____
2	Option Item No. 1: Total Price for the entire work associated with the Main Building for providing accordance with the drawings and specifications, complete, but excluding work provided in another Priced line Item.	1	EA			$_____

DIVISION 01 – USDA GENERAL REQUIREMENTS

1.1 GENERAL INTENTION

A. Contractor shall completely prepare the site for building operations, including demolition and removal of existing structures, and furnish labor and materials and perform work as required by the contract documents.

B. All employees of the general contractor and subcontractors shall comply with ARS's site-specific security management program, as identified by the ARS Location Manager, at all times on ARS property, and shall be restricted from unauthorized access.

C. Prior to commencing work:

1. The General Contractor shall provide proof that an OSHA certified "competent person" (CP) (29 CFR 1926.20(b)(2) will maintain a presence at the work site whenever the general or subcontractors are present.
2. The General Contractor and Tradesmen shall receive an On-site Safety briefing from the location Facilities Manager or designated representative.

D. Training:

1. All employees of the general contractor or subcontractors shall have the 10-hour OSHA certified Construction Safety course and /or other relevant competency training. Supervisors shall have completed the 30-hour OSHA training.

2. Submit training records of all such employees to the Contracting Officer for approval before the start of work.

1.2 PROJECT COORDINATION

A. Construction Project Schedule: See contract, FAR 52.236-15 Schedules for Construction Contracts. The Contractor will not begin work on site until the construction project schedule has been approved by the Contracting Officer. The Contractor shall submit one electronic copy of the updated construction project schedule with each progress payment request.

B. Contract Inspector's Daily Report: Contractor shall submit to the Contracting Officer a daily report listing the names of all those present on the job site each day, along with their Job Classification, hours of work and a brief description of the work performed by each on that day. The Contract Inspector's Daily Report is to be submitted at the beginning of work each day for the previous day's work and shall be maintained throughout the term of the contract.

C. Formal Meetings: Any meeting (deemed formal by the contractor, the Contracting Officer Representative (COR) or the Contracting Officer will have the minutes of said meeting prepared by the contractor with copies provided to the COR and Contracting Officer within twenty-four (24) hours of meeting time. The minutes will include Date, Name of Attendees (with contact info), Old Business, and New Business subjects (or narratives). Regardless of who requests a meeting (the

COR or the Contractor or the Contracting Officer) the contractor may be required to provided hard copy pictures of the issues to be discussed. Each issue will be linked to a contract specification section number and/or subject area by page number. Issues discussed will also include an action/completion date.

1.3 SUBMITTALS – GENERAL

A. All submittals referenced by the procurement documents including but not limited to Plans, Specifications, Statements of Work (SOW), Supplemental Information, etc. shall be submitted electronically to the Contracting Officer (CO), Construction Officer Representative (COR) and Project Architect (A/E).

B. All material sample submittals referenced by the procurement documents including but not limited to Plans, Specifications, Statements of Work (SOW), Supplemental Information, etc. shall be provided to the Contracting Officer (CO), Construction Officer Representative (COR) and Location Manager/Facilities Manager (LM/FM).

C. Contractor shall provide documentation that submitted materials comply with current Buy America Act (BAA) requirements.

D. Contractor shall utilize products listed in the USDA "BioPreferred Program" to the greatest extent possible.

E. All items submitted shall be accompanied by the SUBMITTAL LOG appended to the GENERAL SPECIFICATIONS.

1. The Contractor shall maintain one (1) log for all submittals and shall update the information as required by Construction Progress.

1.4 SAFETY SUBMITTALS

A. Contractor shall submit a "site specific" Safety Plan to the Contracting Officer that describes how the contractor is to comply with all applicable OSHA standards and NFPA codes pertaining to construction work to include, but not limited to: General Safety and Health Provisions, Occupational Health and Environmental Controls, Personal Protective and Life Saving Equipment, Hand and Power Tools, Welding and Cutting, Electrical, Scaffolds, Fall Protection, Excavations, Demolition, Stairways and Ladders, Toxic and Hazardous Substances, Confined Space Entry, Lockout/Tagout, Respiratory Protection, Hearing Protection. Safety Plan shall identify Contractor and sub-contractor employees who are authorized/qualified to perform electrical work. No work shall proceed until written approval of the Safety Plan by the Contracting Officer. Safety Plan shall describe how the Contractor and/or sub-contractors are to secure equipment, supplies, tools, and chemical products. Contractor and/or sub-contractor equipment, supplies, tools, and chemical products are to be always under the control of the Contractor, equipment, supplies tools, and chemical products found not to be under the control of the Contractor or sub-contractor are subject to confiscation and will be reported to the Contracting Officer.

B. The Contractor shall inspect the entire construction site daily, including days without construction work if there are NFPA 101 Life Safety Code deficiencies existing while construction work is shut down, the results of that inspection shall be documented on the attachment "DAILY INSPECTION FORM", and the form is to be signed and submitted to the Contracting Officer.

C. Contractor shall provide continuous monitoring for noise, dust, chemical vapor generation, volatile organic compounds, and vibration. At no time shall noise exposure to any ARS staff exceed 75 dB. Contractor shall provide to the COR with copies to the Contracting Officer a written weekly update of the test results in addition to the proposed work for the subsequent two weeks (a two week "look-ahead")involving any construction activity that will produce loud noises, heavy vibrations, strong smells, or significant dust inside ARS staff occupied space.

D. Contractor and sub-contractors shall notify in writing the Contracting Officer at least one week prior to executing high risk work (this may be included in the two week "look-ahead" update). High risk work includes, but is not limited to, tasks requiring Lockout/Tag Out, live electrical work, hot work, work at heights, trenching/ shoring, crane operations, and confined space entry. Contractor's Competent Person shall provide the COR with a copy to the Contracting Officer written weekly documented safety inspection results.

E. Contractor shall provide to the Contracting Officer for approval, copies of Safety Data Sheets (SDS) for **EVERY CHEMICAL WITHOUT EXCEPTION** prior to bringing such chemical on the work site.

1.5 CONSTRUCTION SECURITY REQUIREMENTS

A. Security Plan:

1. The General Contractor shall provide a site-specific security plan that defines both physical and administrative security procedures that will remain effective for the entire duration of the project.

2. The General Contractor is responsible for assuring that all sub-contractors working on the project and their employees also comply with these regulations.

B. Contractor Personnel

1. The required Contractor Personnel information and the security application procedures vary depending upon the project worksite location. Each Task Order Request for Proposal (RFP) will contain the contact information for the Location Monitor, who will be able to provide the Contractor Personnel information and security application procedures required for the specific site.

C. Security Procedures:

1. Contractor's employees shall not enter the project site without being in conformance with location's security plan. They may also be subject to inspection of their personal effects when entering or leaving the project site.

2. For working outside the "regular hours" as defined in the contract, The Contractor shall give a ten (10) day notice to the Contracting Officer so that security arrangements can be provided for the employees. This notice is separate from any notices required for utility shutdown described later in this section.

3. No photography of ARS premises is allowed without written permission of the Contracting Officer.

4. ARS reserves the right to close or shut down the project site and order the Contractor's employees off the premises in the event of a national emergency or Government shutdown. The Contractor may return to the site only with the written approval of the Contracting Officer.

D. Document Control:

1. The Contractor is responsible for safekeeping of all drawings, project manuals and other project information. This information shall be shared only with those with a specific need to accomplish the project.

2. These documents shall not be removed or transmitted from the project site without the written approval of Contracting Officer.

3. All paper waste or electronic media such as CD's and diskettes shall be shredded and destroyed in a manner acceptable to the ARS.

E. Motor Vehicle Restrictions

1. Vehicle authorization request shall be required for any vehicle entering the site and such request shall be submitted 24 hours before the date and time of access. Access shall be restricted to picking up and dropping off materials and supplies and Contractor must be on site to receive all deliveries.

2. Separate permits shall be issued for Contractor and its employees for parking in designated areas only.

1.6 FIRE SAFETY

A. Applicable Publications: Publications listed below form part of this Article to extent referenced. Publications are referenced in text by basic designations only.

1. American Society for Testing and Materials (ASTM):

E84-2007 ..... Surface Burning Characteristics of Building Materials

2. National Fire Protection Association (NFPA):

10-2006..... Standard for Portable Fire Extinguishers

30-2003..... Flammable and Combustible Liquids Code

51B-2003 ..... Standard for Fire Prevention during Welding, Cutting and Other Hot Work

70-2005..... National Electrical Code

241-2004..... Standard for Safeguarding Construction, Alteration, and Demolition Operations

3. Occupational Safety and Health Administration (OSHA):

29 CFR 1926..... Safety and Health Regulations for Construction

B. Fire Safety Plan: Establish and maintain a fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to the Contracting Officer for review for compliance with contract requirements. Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the contractor's competent person per OSHA requirements. This briefing shall include information on the construction limits, ARS safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of ARS equipment, etc. Documentation shall be provided to the Contracting Officer that individuals have undergone contractor's safety briefing.

C. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police, and other emergency response forces in accordance with NFPA 241.

D. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 20 feet exposing overall length, separate by 10 feet.

E. Temporary Heating and Electrical: Install, use, and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.

F. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with Contracting Officer.

G. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to the Contracting Officer.

H. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.

I. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.

J. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Provide fire watch for impairments more than 4 hours in a 24-hour period. Request interruptions 48 hours in advance and coordinate with the Location Manager and Contracting Officer. All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested as coordinated with the Contracting Officer. Parameters for the testing and results of any tests performed shall be recorded by the General Contractor and copies provided to the Contracting Officer.

K. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with the Contracting Officer.

L. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with the Contracting Officer. Designate contractor's responsible project-

site fire prevention program manager to coordinate permit hot work.

M. Fire Hazard Prevention and Safety Inspections: Inspect entire construction area daily. Coordinate with, and report findings and corrective actions weekly to the COR with a copy to the Contracting Officer. See Exhibit G: USDA Standard Forms for Daily Inspection Form.

N. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.

O. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.

P. Perform other construction, alteration, and demolition operations in accordance with 29 CFR 1926.

1.7 OPERATIONS AND STORAGE AREAS

A. The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers, and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

B. The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

C. Working space and space available for storing materials shall be as determined by the Contracting Officer.

D. Workers are subject to rules of the Location applicable to their conduct which shall be provided by the Contracting Officer.

E. Execute work to interfere as little as possible with normal functioning of Location as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by others. Use of equipment and tools that transmit vibrations and noises through the building structure are not permitted in buildings that are occupied during construction except as permitted by the Contracting Officer where required by limited working space.

1. Do not store materials and equipment in other than assigned areas.

2. Schedule delivery of materials and equipment to immediate construction working areas within buildings in use by the ARS in quantities sufficient for not more than two (2) workdays.

3. Where access by ARS personnel to vacated portions of buildings is not required, storage of Contractor's materials and equipment may be permitted subject to fire and safety

requirements.

F. Contractor shall take all measures and provide all material necessary for protecting existing equipment and property in affected areas of construction against dust and debris, so that equipment and affected areas to be used in the ARS operations will not be hindered. Contractor shall permit access to ARS personnel through construction areas which serve as routes of access to such affected areas and equipment. Coordinate alteration work in areas occupied by ARS so that operations will continue during the construction period.

G. Utilities Services: Existing utility services for ARS shall be maintained at all times. Provide temporary facilities, labor, materials, equipment, connections, and utilities to assure uninterrupted services. Where necessary to cut existing water, steam, gases, sewer or air pipes, or conduits, wires, cables, etc. of utility services or of fire protection systems and communications systems (including telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by the Contracting Officer.

1. No utility service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems may be interrupted without prior written approval of the Contracting Officer. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished, work on any energized circuits or equipment shall not commence without the Contracting Officer’s prior knowledge and written approval.

2. Contractor shall submit a request to interrupt any such services to the Contracting Officer, in writing, Two weeks advanced notice and again 48 hours in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.

3. Contractor will be advised (in writing) of approval of request, or of which other date and/or time such interruption will cause least inconvenience to operations of ARS. Interruption time approved by ARS may occur at other than Contractor's normal working hours.

4. In case of a contract construction emergency, service will be interrupted on approval of the Contracting Officer. Such approval will be confirmed in writing as soon as practical.

H. To minimize interference of construction activities with flow of ARS traffic, comply with the following:

1. Keep roads, walks and entrances to grounds, to parking and to occupied areas of buildings clear of construction materials, debris and standing construction equipment and vehicles.

I. Coordinate the work for this contract with other construction operations as directed by Contracting Officer. This includes the scheduling of traffic and the use of roadways, as specified in Article 1.14, USE OF ROADWAYS.

1.8 ALTERATIONS

A. Survey: Before any work is started, the Contractor shall make a thorough survey with the Contracting Officer or their designated representative, of areas of the building in which alterations occur and areas which are anticipated routes of access, and furnish a report, signed, to the COR with a copy to the Contracting Officer.

1. Shall note any discrepancies between drawings and existing conditions at site.

2. Shall designate areas for working space, materials storage and routes of access to areas within buildings where alterations occur, and which have been agreed upon by Contractor and Contracting Officer.

1.9 DISPOSAL AND RETENTION

A. Materials and equipment accruing from work removed and from demolition of buildings or structures, or parts thereof, shall be disposed of as follows:

1. Items that remain property of the Government shall be removed or dislodged from present locations in such a manner as to prevent damage which would be detrimental to re-installation and reuse. Store such items in locations as directed by Contracting Officer.

2. Items not reserved shall become property of the Contractor and be removed by Contractor from ARS property.

3. Items of portable equipment and furnishings located in rooms and spaces in which work is to be done under this contract shall remain the property of the Government. When rooms and spaces are vacated by the ARS during the alteration period, such items which are NOT required by drawings and specifications to be either relocated or reused will be removed by the Government in advance of work to avoid interfering with Contractor's operation.

B. Upon completion of contract, deliver work complete and undamaged. Existing work (walls, ceilings, partitions, floors, mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled, or replaced with new work, and refinished and left in as good condition as existed before commencing work.

C. At Contractor's own expense, Contractor shall immediately restore to service and repair any damage caused by Contractor's workers to existing piping and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems (including telephone) which are indicated on drawings and which are not scheduled for discontinuance or abandonment.

1.10 USE OF ROADWAYS

A. For hauling, use only established public roads and roads on ARS property and, when authorized by the Contracting Officer, such temporary roads which are necessary in the performance of contract work. Temporary roads shall be constructed by the Contractor at Contractor's expense.

1.11 AVAILABILITY AND USE OF UTILITY SERVICES

A. See contract, FAR Clause 52.236-14, Availability and Use of Utility Services.

1.12 TESTS

A. Conduct final tests required in various sections of specifications in presence of an authorized representative of the Contracting Officer. Contractor shall furnish all labor, materials, equipment, instruments, and forms, to conduct and record such tests.

1.13 CONSTRUCTION WASTE MANAGEMENT

A. Responsibilities. The contractor shall employ processes that ensure the generation of as little waste as possible and shall avoid the generation of waste due to the following:

1. Over-packaging.
2. Error.
3. Poor planning, layout.
4. Over ordering.
5. Breakage
6. Mishandling
7. Contamination
8. General weather damage, excluding extreme acts of nature (i.e., tornados, hurricanes, flash floods, blizzards, etc.).

B. Procedures.

1. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled.

2. Waste disposal in landfills shall be minimized to the greatest extent possible.

3. Waste Diversion Goals.

i. Demolition, Major Remodeling: Minimum 10% of total project waste shall be diverted from landfill.

ii. Interior Remodeling: Minimum 10% of total project waste shall be diverted from landfill.

iii. The following waste categories, at a minimum, shall be diverted from landfill:
a) Green waste (biodegradable landscaping materials).
b) Soil.
c) Inert material (concrete, asphalt, masonry).
d) Clean dimensional wood, palette wood.
e) Engineered wood products: plywood, particle board, I-joists, etc.
f) Cardboard, paper, packaging.
g) Asphalt roofing materials.
h) Insulation.
i) Gypsum board.
j) Carpet and pad.
k) Paint.

l) Plastics: ABS, PVC.
m) Beverage containers.

C. Description of Work.

1. Includes:

i. Waste Management Plan development and implementation.
ii. Meetings to discuss goals, issues and training for the Waste Management Plan.
iii. Techniques to minimize waste generation.
iv. Sorting and separation of waste materials.
v. Reuse of salvaged materials on site.
vi. Salvage of existing materials and items for reuse or resale.
vii. Recycling of materials that cannot be reused or sold.
viii. Record keeping of receipts and records of salvaged, recycled or land filled materials.

2. Related Elements:

i. Alternates.
ii. Construction Waste Management.
iii. Site Demolition.
iv. Site Clearing.
v. Slope Protection/Erosion Control.
vi. Asphalt Concrete.
vii. Crushed Stone Paving.
viii. Portland Cement Concrete Paving.
ix. Valve Boxes.
x. Storm Sewers.
xi. Chain Link Fences and Gates.
xii. Walk, Road and Parking Appurtenances.
xiii. Miscellaneous Landscaping Materials.
xiv. Concrete, Concrete Formwork, and Concrete Reinforcement.
xv. Cast-in-Place Concrete.
xvi. Unit Masonry.
xvii. Structural Steel.
xviii. Steel Roof Deck/Steel Floor Deck.
xix. Cold Formed Metal Framing.
xx. Metal Fabrications.
xxi. Rough and Finish Carpentry.
xxii. Engineered Structural Wood.
xxiii. Plastic Lumber.
xxiv. Building Insulation.
xxv. Modified Bitumen Roofing.
xxvi. Metal Doors.
xxvii. Wood and Plastic Doors and Frames.
xxviii. Metal Support Systems.
xxix. Gypsum Wallboard.
xxx. Acoustical Treatment.

xxxi. Resilient Flooring.
xxxii. Tile and Carpet.
xxxiii. Painting.
xxxiv. Toilet Compartments.
xxxv. Louvers and Vents.
xxxvi. Signage and Graphics.
xxxvii. Ductwork and Ductwork Accessories

D. Definitions.

1. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial and industrial waste resulting from construction, remodeling, repair and demolition operations.

2. Clean: Untreated and unpainted; uncontaminated with adhesives, oils, solvents, mastics and like products.

3. Construction and Demolition Waste: Includes all non-hazardous resources resulting from construction, remodeling, alterations, repair and demolition operations.

4. Dismantle: The process of parting out a building in such a way as to preserve the usefulness of its materials and components.

5. Disposal: Acceptance of solid wastes at a legally operating facility for the purpose of land filling (includes Class III landfills and inert fills).

6. Inert Backfill Site: A location, other than inert fill or other disposal facility, to which inert materials are taken for the purpose of filling an excavation, shoring or other soil engineering operation.

7. Inert Fill: A facility that can legally accept inert waste, such as asphalt and concrete exclusively for the purpose of disposal.

8. Inert Solids/Inert Waste: Non-liquid solid resources including, but not limited to, soil and concrete that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by a regional water board and does not contain significant quantities of decomposable solid resources.

9. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.

10. Mixed Debris Recycling Facility: A solid resource processing facility that accepts loads of mixed construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing non-recyclable materials.

11. Permitted Waste Hauler: A company that holds a valid permit to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal.

12. Recycling: The process of sorting, cleansing, treating, and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.

i. On-site Recycling. Materials that are sorted and processed on site for use in an altered state in the work, i.e., concrete crushed for use as a sub-base in paving.

ii. Off-site Recycling. Materials hauled to a location and used in an altered form in the manufacture of new products.

13. Recycling Facility: An operation that can legally accept materials for the purpose of processing the materials into an altered form for the manufacture of new products. Depending on the types of materials accepted and operating procedures, a recycling facility may or may not be required to have a solid waste facility permit or be regulated by the local enforcement agency.

14. Re-Use: Materials that are recovered for use in the same form, on-site or off-site.

15. Return: To give back reusable items or unused products to vendors for credit.

16. Salvage: To remove waste materials from the site for resale or re-use by a third party.

17. Source-Separated Materials: Materials that are sorted by type at the site for the purpose of reuse and recycling.

18. Solid Waste: Materials that have been designated as non-recyclable and are discarded for the purposes of disposal.

19. Transfer Station: A facility that can legally accept solid waste for the purpose of temporarily storing the materials for re-loading onto other trucks and transporting them to a landfill for disposal or recovering some materials for re-use or recycling.

E. Guides. No preference is given to the recyclables listed below; they are listed for the convenience of the contractor.

1. Dirt/clean fill.
2. Green/landscaping waste.
3. Concrete, asphaltic concrete.
4. Cardboard, paper, packaging.
5. Clean dimensional wood, palette wood.
6. Usable palettes.
7. Metals from banding, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
8. Carpet and pad.
9. Gypsum board.
10. Paint.
11. Insulation.
12. Asphalt shingles.
13. Beverage containers.

F. Submittals.

1. Waste Management Plan. Prior to any waste removal, the Contractor shall submit their Waste Management Plan to the ARS. The Plan shall contain the following:

i. Analysis of the estimated job site waste to be generated, including types and quantities.
ii. Proposed alternatives to land filling. Contractor shall prepare a list of each material proposed to be salvaged, re-used, or recycled during the course of the project.
iii. Methods handling of materials to be recycled.

2. On Site:

i. Materials separation
ii. Materials storage
iii. Materials protection, where applicable

3. Off site:

i. Provide name of mixed debris recycling facility; include list of materials to be recycled.
ii. Procedures. A description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.
iii. Landfill Options. The name of the landfill(s) where trash will be disposed of.

a) Meetings. Contractor shall conduct Construction Waste Management meetings. Meetings shall include the Subcontractor, the Project Manager and representatives as designated by the Contracting Officer. At a minimum, waste management goals and issues shall be discussed at pre-bid meetings, pre-construction meetings and regular job-site meetings.

b) Transportation. A description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated facilities, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.

c) Waste Management Plan Implementation.

(i) Manager. The contractor shall designate an on-site party (or parties) responsible for instructing workers and subcontractors and overseeing and documenting results of the Waste Management Plan for the project.
(ii) Distribution. The contractor shall distribute copies of the Waste Management Plan to the Contracting Officer and Location Manager.
(iii) Instruction. The contractor shall provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse and return methods to be used by all parties at appropriate stages of the project.
(iv) Separation Facilities. The contractor shall lay out and label a specific area to facilitate separation of materials for reuse, salvage, recycling, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination or mixing of materials.
(v) Hazardous Wastes. Hazardous wastes shall be separated, stored, and disposed of according to local, state and federal regulations.

4. Reports: The Contractor shall submit (monthly, quarterly, at end of job) a Waste Management Progress Report. The report shall contain the amount (in tons or cubic yards) of material land filled from the project, the identity of the landfill, the total amount of tipping fees paid at the landfill and the total disposal cost. Include legible copies of manifests, weight tickets, receipts and invoices. Manifests shall be from recycle and/or disposal site operators that can legally accept the materials for the purpose of reuse, recycling, or disposal.

5. For each material recycled, reused, or salvaged from the project, provide the following:
   i. Amount (in tons or cubic yards).
   ii. Date removed from the job site.
   iii. Receiving party.
   iv. Transportation cost.
   v. Amount of any money paid or received for the recycled or salvaged material. Net total cost or savings of salvage or recycling each material. Attach manifests, weight tickets, receipts, and/or invoices. Indicate the project information, including project title, name of company completing form, and beginning and ending dates of period covered by summary form.

2 WARRANTY OF CONSTRUCTION

2.1 GENERAL: In addition to any other warranties set out elsewhere in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect of equipment, material or design furnished, or workmanship performed by the Contractor or any of his subcontractors or suppliers at any tier. Such warranty shall continue for a period of one year from the date of final acceptance of the project. Under this warranty, the Contractor shall remedy at his own expense any such failure to conform or any such defect. In addition, the Contractor shall remedy at his own expense any damage to Government owned or controlled real or personal property, when that damage is the result of the Contractor's failure to conform to contract requirements or any such defect of equipment, material, workmanship, or design. The Contractor shall also restore any work damaged in fulfilling the terms of this clause. The Contractor's warranty with respect to work repaired or replaced hereunder will run for one year from the date of such repair or replacement.

2.2 NOTIFICATION AND COMPLIANCE: The Government shall notify the Contractor in writing within a reasonable time after the discovery of any failure, defect, or damage. Should the Contractor fail to remedy any failure, defect, or damage described in paragraph 1.1.1 above within a reasonable time after receipt of notice thereof, the Government shall have the right to replace or repair and have the cost billed to the Contractor.

2.3 EXPRESSED WARRANTY: In addition to the other rights and remedies provided by this clause, all subcontractors', manufacturers', and suppliers' warranties expressed or implied, respecting any work and materials shall, at the direction of the Government be enforced by the Contractor for the benefit of the Government. In such case, if the Contractor's warranty under paragraph 2.1 above has expired, any suit directed by the Government to enforce a subcontractor's, manufacturer's, or supplier's warranty shall be at the expense of the Government. The Contractor shall obtain any warranties which the subcontractors, manufacturers, or suppliers would give in normal commercial practice. If so directed by the Contracting Officer, the Contractor shall require any such warranties to be executed in writing to the Government.

2.4 LATENT DEFECTS: The Warranty specified herein shall not limit the Government's rights with respect to latent defects, gross mistake, or fraud.

3 BIOBASED PREFERRED PRODUCTS.

3.1 The Contractor must comply with Sections 9002 of the Farm Security and Rural Investment Act of 2002; the Food Conservation and Energy Act of 2008; and the Agricultural Act of 2014; and the Federal Acquisition Regulation to provide biobased products. The Contractor shall also comply with the clause at FAR 52.223-2, Affirmative Procurement of Biobased Products Under Service and Construction Contracts contained in Section I. The Contractor shall also comply with the provision at FAR 52.223-1, Biobased Product Certification contained in Section K.

3.2 The Contractor shall utilize products and material made from biobased materials (e.g., biobased erosion control materials, biobased composite panels, biobased roof coatings, biobased insulating foam, biobased interior paints and coatings, and biobased wood and concrete sealers). All supplies and materials shall be of a type and quality that conform to applicable Federal specifications and standards. All supplies and materials to be used in the performance of work described herein are subject to the approval of the Contracting Officer Representative (COR).

3.3 The following is an example list of products that may be used in this minor construction contract for which biobased products are available and the designated biobased content. The list is not all inclusive. It is desirable that vendors be able to supply the greatest number of biobased products listed meeting the health and environmental specifications.

Adhesive and Mastic Removers – 58 percent
Asphalt and Tar Removers - 80 percent
Asphalt Restorers – 68 percent 2
Carpet – 7 percent
Carpet and Upholstery Cleaners – 54 percent and Spot Removers – 7 percent
Composite Panels – Acoustical – 37 percent; Interior Panels – 55 percent; Plastic Lumber – 23 percent; Structural Interior Panels – 89 percent; Structural Wall Panels – 94 percent and Countertops and Solid Surface -_ 89 percent
Concrete and Asphalt Cleaners – 70 percent
Concrete and Asphalt Release Fluids – 87 percent
Dust Suppressants – 85 percent
Erosion Control Materials – 77 percent
Floor Coverings (Non Carpet) – 91 percent
General Purpose Cleaners - 54 percent
Hand Soaps and Cleaners – 64 percent
Industrial Cleaners – 41 percent
Insulating Foam – 7 percent
Leather, Vinyl, and Rubber Care Products – 55 percent
Paint- Interior Paints and Coatings, Latex – 20 percent and Oil-based – 67 percent
Paint Removers – 41 percent
Roof Coatings – 20 percent
Wastewater Systems Coatings – 47 percent
Water Tank Coatings – 59 percent
Wood and Concrete Sealers – Membrane Concrete Sealers- 11 percent and Penetrating Liquids – 79 percent
Wood and Concrete Stains – 39 percent

3.4 Biobased products that are designated for preferential procurement under USDA's BioPreferred Program must meet the required minimum biobased content as stated in USDA's Final Rules available at www.biopreferred.gov. The Contractor shall provide data for their biobased products such as biobased content. In addition to the biobased

products designated by the USDA BioPreferred Program, the Contractor is encouraged to use other commercially available biobased products such as biobased products certified with a label. The Contractor shall submit with the initial proposal a complete list of biobased products, indicating the name of the manufacturer, cost of each material, and the intended use of each of the materials that are to be used in carrying out the requirements of this contract.

3.5 Within thirty (30) days of contract award, the Contractor shall provide a complete list of USDA designated biobased products that it intends to use or supply during performance of this minor construction contract, including products used or supplied by subcontractors. For each product, the Contractor shall identify the product and brand/manufacturer. For each designated product, the Contractor shall also identify the biobased content. The Contractor shall provide detail on how the Contractor intends to keep abreast of the development and increasing availability of designated and non-designated biobased products and how any new or improved products will be incorporated on an ongoing basis into contract performance. The list shall be approved by the COR in writing. The Contractor shall not commence work until this list is approved by the COR in writing. The list must be reviewed and updated annually, and as required by the COR.

_____ END of Section _____

FORMS

HOT WORK PERMIT
NEEDED WHEN ANY SPARK OR HEAT PRODUCING EQUIPMENT IS TO BE USED

Project Name:

Name of Contractor's Firm:

Contractor Contact Name:

Contractor Contact Telephone Number

Date:

Building/Location:

Work To Be Done:

_____

_____

Any Special Precautions:

Fire Watch Required: Yes No
The location where the work is to be performed has been examined, necessary precautions have been taken, and permission is granted for this work.

Signed

(Contractor Individual Responsible for Authorizing Hot Work)

Permit Expires:_____(Date)

Time Hot Work Started:_____Time Hot Work Completed: ____

FINAL CHECK-UP

Work area and all adjacent areas to which sparks and heat might have spread (including floors above and below and on opposite sides of walls) were inspected 30 minutes after the work was completed and were found fire safe.

Signed_____ _____Date_____ _____
Contractor's Fire Watch)

A**TTENTION**

Before approving any cutting and welding permit, the contractor's authorized representative or their appointee shall inspect the work area and confirm that precautions have been taken to prevent fire in accordance with NFPA Standard No. 51B.

PRECAUTIONS

- Sprinklers are in service where installed
- Cutting and welding equipment in good repair
- Within 35 feet; floors swept clean of combustible, no combustible material or flammable liquids, all wall and floor openings covered, and covers suspended beneath work to collect sparks
- When working on enclosed equipment and in confined space, equipment and area is free of flammable vapors
- Fire watch provided during and 30 minutes after operation (60 minutes for torch applied roofing operations)
- Portable fire extinguisher with adequate rating available in the immediate vicinity
- Standpipe system in service where installed
- Protection of any sprinkler heads when hot work is in close proximity
- Smoking prohibited in immediate vicinity
- Non-combustible shields provided when hot work is done near combustible walls, partitions, floors, roofs
- Prohibition of hot work on pipes contacting combustible walls
- Personnel trained in use of equipment including portable fire extinguishers and sounding a fire alarm
- Final check-up conducted after 30 minute

DAILY INSPECTION FORM

INSTRUCTIONS: This form is to be utilized when hazards are posed by NFPA 101 deficiencies or construction activities are in progress. Remediation must be implemented upon project start and continuously enforced through project completion to provide a level of life safety comparable to that described in the Life Safety Code. Submit completed forms to the Contracting Officer.

Project Name:	Project Number:
Construction & Impact Description:	Construction Location: Affected Areas:
Project COR:	Project Start Date:
Project Competent Person (CP):	Estimated Duration:
	Completion Date:
Contractor:	
GC Supervisor:	Telephone:
Contractor CP:	

Inspection Period: Responses:	SUN	MON	TUE	WED	THR	FRI	SAT
1. Are exits readily accessible and provide unobstructed egress?							
2. Have alternate exits been established if required due to							
3. If alternate exits have been established, are personnel in the area informed and aware of their relocation?							
4. Are the existing and relocated exits clearly marked and able to be							
5. Are evacuation routes posted with follow-up inspections required							
6. Are written procedures and guidelines posted in the immediate and adjacent areas for what to do and who to call in the event of a fire							
7. Are personnel in immediate/adjacent areas aware and informed in procedures and guidelines to follow in the event of fire							
8. Is there free and unobstructed access to services for emergency personnel (eg, fire, medical, security)?							
9. Are fire alarm (eg, pull station), detection (eg, smoke/heat), suppression (eg, sprinkler, extinguisher) systems in working							
10. If the fire alarm, detection, suppression systems are impaired or temporarily non-functional, has a fire watch for the area, as required or necessary, been trained and established?							
11. If the fire alarm, detection, suppression systems are impaired, have measures been taken to provide temporary equivalent equipment and/or systems for adequate protection? Note date for							
12. If the fire alarm, detection, suppression systems are impaired, are equivalent equipment/systems inspected and tested							
13. If temporary fire alarm, detection, suppression systems are installed, are personnel in the area aware and trained on how to operate or utilize them in the event of fire or emergency?							
14. Has the “No Smoking” policy been posted, implemented and enforced in the construction area?							
15. Are temporary partitions built to be fire/smoke tight with fire retardant noncombustible material and inspected daily for							
16. Is construction site access restricted to authorized personnel only including warning signs and secured at the end of each							

Inspection Period: Responses:	SUN	MON	TUE	WED	THR	FRI	SAT
17. Is construction area hazard surveillance conducted daily?							
18. Is construction area storage, waste, debris and excess materials being daily managed properly to reduce fire or safety							
19. Are construction activities and materials prosecuted, handled, stored, and secured in an orderly and safe manner?							
20. Is the generation, spread and exposure of construction dust, fumes, noise, odor, smoke controlled with appropriate fume, odor, vapor ventilation provided to control noxious, infectious, toxic exposure and store/protect flammable/combustible products?							
21. Has a GC Safety Manager been designated with routine site safety meetings conducted to ensure awareness of Life Safety							
22. Is personnel protective equipment (e.g., safety glasses, ear plugs, hard hats) required and being used?							
23. If there are hand/safety rails, scaffolding or ladders required, are they in place, in good condition and being used in a							
24. Are the construction site (buildings and exterior grounds) hazards (e.g., fall/trip) guarded and free of potential safety							
25. Do electrical panels, temporary wiring, extension cords (3 wire grounded type), tools, and equipment appear to be installed, utilized, and functioning in a safe manner?							
26. If there are temporary electrical outlets provided, do they have ground fault protection at the receptacle/panel?							
27. If hazardous equipment/systems need to be de-energized, are applicable “Lockout/Tagout” procedures being followed?							
28. Are utility services (e.g., electrical, steam, water, waste, gas) properly secured at the end of each day?							
29. If there is any hot work (welding, soldering, cutting) being performed within the construction site, have additional fire safety precautions been taken and necessary equipment provided?							
30. If there is any hot work (welding, soldering, cutting) being performed on the construction site, has Contracting Officer been notified? Has the Hot Work Permit been approved?							
31. If hazardous products are present, are they limited to the amount needed and used daily?							
32. Are hazardous products disposed according to EPA							
33. Are all hazardous products present or being used (e.g., flammable, combustible, corrosive, noxious) labeled with MSDS information readily available?							
34. If infection control is required, are the appropriate policies and procedures known and being followed?							
35. Are all safety incidents documented and reported to the Contracting Officer?							
Contractor CP Initials Performing Daily Inspections:							

Inspection Comments/Findings: (PROVIDE DETAILED EXPLAINATION OF EXCEPTIONS/DEFICIENTIES)

Signature/Date:

Project CP GC Safety Manager

MATERIAL APPROVAL SUBMITTAL

TO: USDA/ARS CO CC: A&E, COR	FROM: (Contractor)	PROJECT TITLE:	CONTRACT NUMBER:

(To be completed by the Contractor)			Government Use Only								
SUBMITTAL NUMBER:	PREVIOUS SUBMITTAL NUMBER (only if items listed were submitted previously):		A&E Recommendation			COR/EPM Recommendation			Contracting Officer Approval/Disapproval		
Line No.	Specification Sect. Para No., Draw No.	Description of Material (Include type, model, mfg)	APP	DISAP	See Comments on Reverse	APP	DISAP	See Comments on Reverse	APP	DISAP	See Comments on Reverse

If an item is disapproved, a resubmittal is due within _____calendar days of the Contracting Officer's signature below.

Contractor (Ktr)	A&E	COR/EPM	Contracting Officer
TYPE or PRINT NAME & TITLE	TYPE or PRINT NAME & TITLE	TYPE or PRINT NAME & TITLE	TYPE or PRINT NAME & TITLE
SIGNATURE:	SIGNATURE:	SIGNATURE:	SIGNATURE:
DATE:	DATE:	DATE:	DATE:
By completing this form, the above signed contractor certifies that the material complies with all specifications of the subject contract.	DATE RECEIVED FROM KTR:	DATE RECEIVED FROM A&E:	DATE RECEIVED FROM COR:

CONTRACT #:	SUBMITTAL #:

COMMENTS

Instructions: Enter the initials of the individual making the comment, the Line Number of the item for which the comment is being made, and the comment.

SAMPLE

SUBMITTAL LOG

Project Name	Appalachian Fruit Research Station Fire Suppression Suystems					**Award Date**	
Address	2217 Wiltshire Road					**Project Number**	
City	Kearneysville	**State**	WV	**Zip**	25430	**Contract Number**	

Line Item Number	Submittal Number	Submittal Date	Specification Number Dwg Number	Specification Name	Item Description	Type Of Submittal										Status	Date Approved/ Rejected	Resubmittal Due Date	Remarks
						PRODUCT DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	O&M MANUALS	INFORMATION				
1			1.2	SD-01	Certification of Qualified Installer											X				
2			1.2	SD-02	High Pressure Cylinders	X		X							X					
3			1.2	SD-02	Piping Materials, Hangers, Supports, Nozzle	X	X	X							X					
4			1.2	SD-02	Manual Actuation Stations	X		X							X					
5			1.2	SD-05	Design Analysis											X				
6			1.2	SD-05	Discharge Calculations											X				
7			1.2	SD-06	Tests											X				
8			1.2	SD-07	Certificate of Compliance										X					
9			1.2	SD-10	Operating Instructions										X					
10			1.2	SD-10	Operation and Maintenance Manuals										X					
11			1.2	SD-11	Record Drawings		X								X					
12				SOW	Project Schedule			X												
13																				
14																				
15																				
16																				
17																				
18																				
19																				
20																				
21																				

SECTION 01 11 00

SUMMARY OF WORK
02/24

PART 1 GENERAL

1.1 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

Salvage Plan; G

1.2 WORK COVERED BY CONTRACT DOCUMENTS

1.2.1 Project Description

The work includes provision of roofing system and incidental related work.

Contractor shall completely prepare the site for building operations, including demolition and removal of existing structures, and furnish labor and materials and perform work as required by the contract documents.

1.2.2 Location

The work is located at the National Center for Cool and Cold Water Aquaculture (NCCCWA) at 11861 Leetown Rd. Kearneysville, WV 25430, approximately as indicated. The exact location will be shown by the Contracting Officer.

1.3 OCCUPANCY OF PREMISES

Building(s) will be occupied during performance of work under this Contract. Occupancy notifications will be posted in a prominent location in the work area.

Before work is started, arrange with the Contracting Officer a sequence of procedure, means of access, space for storage of materials and equipment, and use of approaches, corridors, and stairways.

1.4 EXISTING WORK

Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which remain.

Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as approved by the Contracting Officer. At the completion of operations, existing work must be in a condition equal to or better than that which existed before new work started.

1.5 SALVAGE MATERIAL AND EQUIPMENT

Items designated by the Contracting Officer to be salvaged remain the property of the Government. Segregate, itemize, deliver and off-load the salvaged property at the Government designated storage area located within 5 miles of the construction site.

Provide a salvage plan, listing material and equipment to be salvaged, and their storage location. Maintain property control records for material or equipment designated as salvage. Provide a system for property control in the salvage plan. Store and protect salvaged materials and equipment until disposition by the Contracting Officer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 14 00

WORK RESTRICTIONS
11/22, CHG 3: 08/24

PART 1 GENERAL

1.1 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

List of Contact Personnel; G

1.2 SPECIAL SCHEDULING REQUIREMENTS

a. Have materials, equipment, and personnel required to perform the work at the site prior to the commencement of the work.

b. The building will remain in operation during the entire construction period. The Contractor must conduct his operations so as to cause the least possible interference with normal operations of the activity.

c. Permission to interrupt any Activity roads, railroads, or utility service must be requested in writing a minimum of 15 calendar days prior to the desired date of interruption.

d. The work under this contract requires special attention to the scheduling and conduct of the work in connection with existing operations. Identify on the construction schedule each factor which constitutes a potential interruption to operations.

The following conditions apply:

(1) Multiple laboratories must be saved for the final part of the day. BIOSECURITY MUST BE FOLLOWED WHEN OPERATING IN THE FOLLOWING LOCATIONS TO PROTECT FISH HEALTH:TANK ROOMS A-G, FISH HEALTH LABS 07, 08, 17, 18 AND ALONG THE BROODSTOCK BUILDING. FURTHER INFORMATION CAN BE FOUND ON ATTACHMENT BIOSECURITY STATEMENT.

1.3 CONTRACTOR ACCESS AND USE OF PREMISES

1.3.1 Activity Regulations

All employees of the general contractor and subcontractors shall comply with ARS’s site-specific security management program, as identified by the ARS Location Manager, at all times on ARS property, and shall be restricted from unauthorized access.

Ensure that Contractor personnel employed on the Activity become familiar with and obey Activity regulations including safety, fire, traffic and security regulations. Keep within the limits of the work and avenues of

ingress and egress. Wear appropriate personal protective equipment (PPE) in designated areas. Do not enter any restricted areas unless required to do so and until cleared for such entry. Ensure all Contractor equipment, include delivery vehicles, are clearly identified with their company name.
A. Security Plan:

1. The General Contractor shall provide a site-specific security plan that defines both physical and administrative security procedures that will remain effective for the entire duration of the project.

2. The General Contractor is responsible for assuring that all sub-contractors working on the project and their employees also comply with these regulations.

B. Contractor Personnel

1. The required Contractor Personnel information and the security application procedures vary depending upon the project worksite location. Each Task Order Request for Proposal (RFP) will contain the contact information for the Location Monitor, who will be able to provide the Contractor Personnel information and security application procedures required for the specific site.

C. Security Procedures:

1. Contractor’s employees shall not enter the project site without being in conformance with location’s security plan. They may also be subject to inspection of their personal effects when entering or leaving the project site.

2. For working outside the “regular hours” as defined in the contract, The Contractor shall give a ten (10) day notice to the Contracting Officer so that security arrangements can be provided for the employees. This notice is separate from any notices required for utility shutdown described later in this section.

1.3.1.1 Subcontractors and Personnel Contacts

Provide a list of contact personnel of the Contractor and subcontractors including addresses and telephone numbers for use in the event of an emergency. As changes occur and additional information becomes available, correct and change the information contained in previous lists.

1.3.1.2 Additional Personnel Requirements

1.3.1.2.1 General Construction and Finish Work

General construction and finish work of the controlled area must be performed by U.S. firms using U.S. citizens or U.S. persons. General construction includes construction activities such as and mechanical and electrical services and equipment including those specialized for fire protection, security, communication, control, energy conservation, safety, comfort, convenience, and similar purposes. Employees must coordinate tank building and Broodstock access with the site.

1.3.1.3 No Smoking Policy

Smoking is prohibited within and outside of all buildings on

installation, except in designated smoking areas. This applies to existing buildings, buildings under construction and buildings under renovation. Discarding tobacco materials other than into designated tobacco receptacles is considered littering and is subject to fines. The Contracting Officer will identify designated smoking areas off site.

1.3.2 Working Hours

Regular working hours will consist of an 8 1/2 hour period established by the Contracting Officer, between 7 a.m. and 3:30 p.m., Monday through Friday. Any other times must be coordinated with the contracting officer for approval.

1.3.3 Work Outside Regular Hours

Work outside regular working hours requires Contracting Officer approval. Make application 30 calendar days prior to such work to allow arrangements to be made by the Government for inspecting the work in progress, giving the specific dates, hours, location, type of work to be performed, contract number and project title.

Based on the justification provided, the Contracting Officer may approve work outside regular hours. During periods of darkness, the different parts of the work must be lighted in a manner approved by the Contracting Officer. Make utility cutovers after normal working hours or on Saturdays, Sundays, and Government holidays unless directed otherwise.

1.3.4 Exclusionary Period

No work may be performed during the period during holidays, without prior written approval of the Contracting Officer. This period has not been considered in computing the time allowed for the performance of this contract.

1.3.5 Occupied Buildings

The Contractor can expect to be working in an existing building which are occupied. Do not enter the buildings without prior approval of the Contracting Officer.

The existing buildings and their contents must be kept secure at all times. Provide temporary closures as required to maintain security as directed by the Contracting Officer.

Provide dust covers or protective enclosures to protect existing work that remains, and Government material located in the occupied spaces during the construction period.

Relocate movable furniture as required to perform the work, protect the furniture, and replace the furniture in its original locations upon completion of the work. Leave attached equipment in place, and protect it against damage, or temporarily disconnect, relocate, protect, and reinstall it at the completion of the work.

1.3.6 Utility Cutovers and Interruptions

a. Make utility cutovers and interruptions during normal working hours or when approved on Saturdays. Conform to procedures required in paragraph WORK OUTSIDE REGULAR HOURS.

b. Ensure that new utility lines are complete, except for the connection, before interrupting existing service.

c. Interruption to water, sanitary sewer, storm sewer, telephone service, electric service, air conditioning, heating, fire alarm, compressed air, and sprinkler system are considered utility cutovers.

d. Connection to Existing Sanitary Sewer Line: Provide positive verification that the existing line conveys sanitary sewer; verify line is not incorrectly connected to a storm drain.

1.4 NATIONAL EMERGENCY SHUTDOWN

ARS reserves the right to close or shut down the project site and order the Contractor’s employees off the premises in the event of a national emergency or Government shutdown. The Contractor may return to the site only with the written approval of the Contracting Officer.

1.5 SECURITY REQUIREMENTS

Contract Clause FAR 52.204-2 Security Requirements and Alternate II.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

01 14 00 – BIOSECURITY STATEMENT

Due to the nature of research conducted at the NCCCWA, it is imperative to consider the movement of personnel and equipment to protect stocks in the broodstock building, hatchery building and quarantine labs E and F. Equipment may never go back into the broodstock building after they have entered the hatchery building or quarantined labs E and F. Personnel and equipment may never enter the main hatchery building after entering the quarantine labs E and F.

All persons entering the Broodstock Facility will walk through a footbath and use a hand sanitizer upon entry. Upon entering the changing room area, all shoes must be changed. Appropriate raingear or other protective wear should be changed into at this point as well. All persons must step in the 2-inch-deep footbath before leaving the changing room area. Anyone who has been in quarantined Rooms E or F may not enter the broodstock facility in the same day.

All persons entering the main hatchery from any door must use hand sanitizers and change into boots or shoe covers before entering and exiting the hatchery.

All persons entering quarantined fish rooms must use hand sanitizer, foot bath, and change footwear or use shoe covers before entering and before exiting the room in the designated changing area.

Entry into the Fish Health Labs (07, 08, 17, and 18) will be restricted to necessary personnel. Personnel who have been working in the Fish Health Lab will not enter the main hatchery building or broodstock building the same day. Any work that needs to be performed in the Fish Health Labs will be done after work in other laboratories is completed.

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS
11/20, CHG 4: 08/24

PART 1 GENERAL

1.1 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

Progress and Completion Pictures; G

1.2 DOCUMENT CONTROL

The Contractor is responsible for safekeeping of all drawings, project manuals and other project information. This information shall be shared only with those with a specific need to accomplish the project. These documents shall not be removed or transmitted from the project site without the written approval of Contracting Officer. All paper waste or electronic media such as flash drives, CD's and diskettes shall be shredded and destroyed in a manner acceptable to the ARS.

1.3 PREFUNCTION SURVEY

Survey: Before any work is started, the Contractor shall make a thorough survey with the Contracting Officer or their designated representative, of areas of the building in which alterations occur and areas which are anticipated routes of access, and furnish a report, signed, to the COR with a copy to the Contracting Officer.

1. Shall note any discrepancies between drawings and existing conditions at site.
2. Shall designate areas for working space, materials storage and routes of access to areas within buildings where alterations occur, and which have been agreed upon by Contractor and Contracting Officer.

1.4 PROGRESS AND COMPLETION PICTURES

No photography of ARS premises is allowed without written permission of the Contracting Officer. Photographically document site conditions prior to start of construction operations. Provide monthly, and within one month of the completion of work, digital photographs, 1600x1200x24 bit true color minimum resolution in JPEG file format showing the sequence and progress of work. Take a minimum of 20 digital photographs each week throughout the entire project from a minimum of ten different viewpoints selected by the Contractor unless otherwise directed by the Contracting Officer. Submit with the monthly invoice two sets of digital photographs, each set on a flash drive or uploaded to the USDA Box site, cumulative of all photos to date. Indicate photographs demonstrating environmental procedures. Provide photographs for each month in a separate monthly directory and name each file to indicate its location on the view location sketch. Also provide the view location sketch on the CD or DVD as a

digital file. Include a date designator in file names. Photographs provided are for unrestricted use by the Government.

1.5 MINIMUM INSURANCE REQUIREMENTS

Provide the minimum insurance coverage required by FAR 28.307-2 Liability, during the entire period of performance under this contract. Provide other insurance coverage as required by State law.

1.6 SUPERVISION

1.6.1 Superintendent Qualifications

Provide project superintendent with a minimum of 10 years experience in construction with at least 5 of those years as a superintendent on projects similar in size and complexity. The individual must be familiar with the requirements of NFPA 241 and ARS 242.1 Manual and have experience in the areas of hazard identification and safety compliance. The individual must be capable of interpreting a critical path schedule and construction drawings. The qualification requirements for the alternate superintendent are the same as for the project superintendent. The Contracting Officer may request proof of the superintendent's qualifications at any point in the project if the performance of the superintendent is in question.

1.6.2 Minimum Communication Requirements

Have at least one qualified superintendent, or competent alternate, capable of reading, writing, and conversing fluently in the English language, on the job-site at all times during the performance of Contract work. In addition, if a Quality Control (QC) representative is required on the Contract, then that individual must also have fluent English communication skills.

1.6.3 Duties

The project superintendent is primarily responsible for managing subcontractors and coordinating day-to-day production and schedule adherence on the project. The superintendent is required to attend Red Zone meetings, partnering meetings, and quality control meetings. The superintendent or qualified alternative must be on-site at all times during the performance of this contract until the work is completed and accepted.

1.6.4 Non-Compliance Actions

The Project Superintendent is subject to removal by the Contracting Officer for non-compliance with requirements specified in the contract and for failure to manage the project to ensure timely completion. Furthermore, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders is acceptable as the subject of claim for extension of time for excess costs or damages by the Contractor.

1.7 PRECONSTRUCTION MEETING

Immediately after award, prior to commencing any work at the site, coordinate with the Contracting Officer a time and place to meet for the Preconstruction Meeting. The meeting must take place within 35 calendar days after award of the contract, but prior to commencement of any work at the site. The purpose of this meeting is to discuss and develop a mutual understanding of the administrative requirements of the Contract including but not limited to: daily reporting, invoicing, value engineering, safety, access, outage requests, hot work permits, schedule requirements, quality control, schedule of prices or earned value report, shop drawings, submittals, cybersecurity, prosecution of the work, government acceptance, final inspections and contract close-out. Contractor must present and discuss their basic approach to scheduling the construction work and any required phasing.

1.7.1 Attendees

Contractor attendees must include the Project Manager, Superintendent, Site Safety and Health Officer (SSHO), Quality Control Manager and major subcontractors.

1.8 WAIVER FOR WORKER'S COMPENSATION

In addition to FAR 52.228-4 Workers' Compensation and War-Hazard Insurance Overseas, the Secretary of Labor has granted a waiver. The waiver does not apply to employees who are hired in the United States, or who are residents, or citizens of the United States.

1.9 MOBILIZATION

Contractor shall mobilize to the jobsite within 60 calendar days after contract award. Mobilize is defined as having equipment AND having a physical presence of at least one person from the contractor's team on the jobsite.

1.10 BIOPREFERENCE

The Contractor must comply with Sections 9002 of the Farm Security and Rural Investment Act of 2002; the Food Conservation and Energy Act of 2008; and the Agricultural Act of 2014; and the Federal Acquisition Regulation to provide biobased products. The Contractor shall also comply with the clause at FAR 52.223-2, Affirmative Procurement of Biobased Products Under Service and Construction Contracts contained in Section I. The Contractor shall also comply with the provision at FAR 52.223-1, Biobased Product Certification contained in Section K.
The Contractor shall utilize products and material made from biobased materials (e.g., biobased erosion control materials, biobased composite panels, biobased roof coatings, biobased insulating foam, biobased interior paints and coatings, and biobased wood and concrete sealers). All supplies and materials shall be of a type and quality that conform to applicable Federal specifications and standards.
All supplies and materials to be used in the performance of work described herein are subject to the approval of the Contracting Officer Representative (COR).

The following is an example list of products that may be used in this minor construction contract for which biobased products are available and the designated biobased content. The list is not all inclusive. It is

desirable that vendors be able to supply the greatest number of biobased products listed meeting the health and environmental specifications.

Adhesive and Mastic Removers - 58 percent
Asphalt and Tar Removers - 80 percent
Asphalt Restorers - 68 percent 2
Carpet - 7 percent
Carpet and Upholstery Cleaners - 54 percent and Spot Removers - 7 percent
Composite Panels - Acoustical - 37 percent; Interior Panels - 55 percent;
Plastic Lumber - 23 percent;
Structural Interior Panels - 89 percent; Structural Wall Panels - 94 percent and Countertops and Solid
Surface -_ 89 percent
Concrete and Asphalt Cleaners - 70 percent
Concrete and Asphalt Release Fluids - 87 percent
Dust Suppressants - 85 percent
Erosion Control Materials - 77 percent
Floor Coverings (Non Carpet) - 91 percent
General Purpose Cleaners - 54 percent
Hand Soaps and Cleaners - 64 percent
Industrial Cleaners - 41 percent
Insulating Foam - 7 percent
Leather, Vinyl, and Rubber Care Products - 55 percent
Paint- Interior Paints and Coatings, Latex - 20 percent and Oil-based - 67 percent
Paint Removers - 41 percent
Roof Coatings - 20 percent
Wastewater Systems Coatings - 47 percent
Water Tank Coatings - 59 percent
Wood and Concrete Sealers - Membrane Concrete Sealers- 11 percent and Penetrating Liquids - 79 percent
Wood and Concrete Stains - 39 percent

Biobased products that are designated for preferential procurement under USDA's BioPreferred Program must meet the required minimum biobased content as stated in USDA's Final Rules available at www.biopreferred.gov. The Contractor shall provide data for their biobased products such as biobased content. In addition to the biobased products designated by the USDA BioPreferred Program, the Contractor is encouraged to use other commercially available biobased products such as biobased products certified with a label. The Contractor shall submit with the initial proposal a complete list of biobased products, indicating the name of the manufacturer, cost of each material, and the intended use of each of the materials that are to be used in carrying out the requirements of this contract.

Within thirty (30) days of contract award, the Contractor shall provide a complete list of USDA designated biobased products that it intends to use or supply during performance of this minor construction contract, including products used or supplied by subcontractors. For each product, the Contractor shall identify the product and brand/manufacturer. For each designated product, the Contractor shall also identify the biobased content. The Contractor shall provide detail on how the Contractor intends to keep abreast of the development and increasing availability of designated and non-designated biobased products and how any new or improved products will be incorporated on an ongoing basis into contract performance. The list shall be approved by the COR in writing. The Contractor shall not commence work until this list is approved by the COR in writing. The list must be reviewed and updated annually, and as

required by the COR.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 32 16.00 20

SMALL PROJECT CONSTRUCTION PROGRESS SCHEDULES
08/18

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Baseline Construction Schedule; G

SD-07 Certificates

Monthly Updates

1.2 PRE-CONSTRUCTION SCHEDULE REQUIREMENT

Prior to the start of work, prepare and submit to the Contracting Officer a Baseline Construction Schedule in accordance with the terms in Contract and Clause FAR 52.236-15 - Schedules for Construction Contracts, except as modified in this contract. The approval of a Baseline Construction Schedule is a condition precedent to:

a. The Contractor starting demolition work or construction stage(s) of the contract.

b. Processing Contractor's invoice(s) for construction activities/items of work.

c. Review of any schedule updates.

Submittal of the Baseline Construction Schedule, and subsequent schedule updates, is understood to be the Contractor's certification that the submitted schedule meets the requirements of the Contract Documents, represents the Contractor's plan on how the work will be accomplished, and accurately reflects the work that has been accomplished and how it was sequenced (as-built logic).

1.3 SCHEDULE FORMAT

1.3.1 Schedule Submittals and Procedures

Submit Schedules and updates on electronic media that is acceptable to the Contracting Officer. Submit an electronic back-up of the project schedule in an import format compatible with the Government's scheduling program.

1.4 SCHEDULE MONTHLY UPDATES

Update the Construction Schedule at monthly intervals or when the schedule has been revised. Keep the updated schedule current, reflecting actual activity progress and plan for completing the remaining work. Submit

copies of purchase orders and confirmation of delivery dates as directed by the Contracting Officer.

a. Narrative Report: Identify and justify the following:

(1) Progress made in each area of the project;

(2) Longest Path: , submit an electronic copy in PDF format;

(3) Date/time constraint(s), other than those required by the contract;

(4) Listing of changes made between the previous schedule and current updated schedule including: added or removed activities, original and remaining durations for activities that have not started, logic (sequence, constraint, lag/lead), milestones, planned sequence of operations, longest path, calendars or calendar assignments, and cost loading.

(5) Any decrease in previously reported activity Earned Amount;

(6) Pending items and status thereof, including permits, changes orders, and time extensions;

(7) Status of Contract Completion Date and interim milestones;

(8) Current and anticipated delays (describe cause of delay and corrective actions(s) and mitigation measures to minimize);

(9) Description of current and future schedule problem areas.

For each entry in the narrative report, cite the respective Activity ID and Activity Name, the date and reason for the change, and description of the change.

1.5 3-WEEK LOOK AHEAD SCHEDULE

Prepare and issue a 3-Week Look Ahead schedule to provide a more detailed day-to-day plan of upcoming work identified on the Construction Schedule. Key the work plans to activity numbers when a NAS is required and update each week to show the planned work for the current and following two-week period. Additionally, include upcoming outages, closures, preparatory meetings, and initial meetings. Identify critical path activities on the Three-Week Look Ahead Schedule. The detail work plans are to be bar chart type schedules, maintained separately from the Construction Schedule on an electronic spreadsheet program and printed on 8-1/2 by 11 inch sheets as directed by the Contracting Officer. Activities must not exceed 5 working days in duration and have sufficient level of detail to assign crews, tools and equipment required to complete the work. Deliver electronic file of the 3-Week Look Ahead Schedule to the Contracting Officer no later than 8 a.m. each Monday, and review during the weekly CQC Coordination or Production Meeting.

1.6 CORRESPONDENCE AND TEST REPORTS:

Correspondence (e.g., letters, Requests for Information (RFIs), e-mails, meeting minute items, Production and QC Daily Reports, material delivery tickets, photographs) must reference Schedule Activities that are being addressed. Test reports (e.g., concrete, soil compaction, weld, pressure) must reference Schedule Activities that are being addressed.

1.7 ADDITIONAL SCHEDULING REQUIREMENTS

Any references to additional scheduling requirements, including systems to be inspected, tested and commissioned, that are located throughout the remainder of the Contract Documents, are subject to all requirements of this section.

A. Construction Project Schedule: See contract, FAR 52.236-15 Schedules for Construction Contracts. The Contractor will not begin work on site until the construction project schedule has been approved by the Contracting Officer. The Contractor shall submit one electronic copy of the
updated construction project schedule with each progress payment request.

B. Contract Inspector’s Daily Report: Contractor shall submit to the Contracting Officer a daily report listing the names of all those present on the job site each day, along with their Job Classification, hours of work and a brief description of the work performed by each on that day. The Contract Inspector’s Daily Repor is to be submitted at the beginning of work each day for the previous day’s work and shall be maintained throughout the term of the contract.

C. Formal Meetings: Any meeting (deemed formal by the contractor, the Contracting Officer Representative (COR) or the Contracting Officer will have the minutes of said meeting prepared by the contractor with copies provided to the COR and Contracting Officer within twenty-four (24) hours of meeting time. The minutes will include Date, Name of Attendees (with contact info), Old Business, and New Business subjects (or narratives). Regardless of who requests a meeting (the COR or the Contractor or the Contracting Officer) the contractor may be required to provided hard copy pictures of the issues to be discussed. Each issue will be linked to a contract spcification section number and/or subject area by page number. Issues discussed will also include an action/completion date.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 33 00

SUBMITTAL PROCEDURES
08/18

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 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:

A. All submittals referenced by the procurement documents including but not limited to Plans, Specifications, Statements of Work (SOW), Supplemental Information, etc. shall be submitted electronically to the Contracting Officer (CO), Construction Officer Representative (COR) and Project
Architect (A/E).

B. All material sample submittals referenced by the procurement documents including but not limited to Plans, Specifications, Statements of Work (SOW), Supplemental Information, etc. shall be provided to the Contracting Officer (CO), Construction Officer Representative (COR) and Location Manager/Facilities Manager (LM/FM).

C. Contractor shall provide documentation that submitted materials comply with current Buy America Act (BAA) requirements.

D. Contractor shall utilize products listed in the USDA “BioPreferred Program” to the greatest extent possible.

E. All items submitted shall be accompanied by the SUBMITTAL LOG appended to the
GENERAL SPECIFICATIONS.

1. The Contractor shall maintain one (1) log for all submittals and shall update the information as required by Construction Progress.

SD-01 Preconstruction Submittals

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

Accident Prevention Plan

Work Plan

Quality Control (QC) plan

Environmental Protection Plan

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 (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.

1.1.2 Approving Authority

Office or designated person authorized to approve the submittal.

1.1.3 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.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor QC approval. Submit the following in accordance with this section.

SD-01 Preconstruction Submittals

Submittal Register; G

1.3 SUBMITTAL CLASSIFICATION

1.3.1 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."

1.3.2 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 FORWARDING SUBMITTALS REQUIRING GOVERNMENT APPROVAL

As soon as practicable after award of contract, and before procurement or fabrication, forward to the Architect-Engineer:
Summer Consultants, Inc.
7900 Westpark Drive, Suite A405
McLean, VA 22102
submittals required in the technical sections of this specification, including shop drawings, product data and samples. In addition, forward a copy of the submittals to the Contracting Officer and Contracting Officer Representative. Electronic copies are acceptable.

1.4.1 O&M Data

Submit data specified for a given item within 30 calendar days after the item is delivered to the contract site.

In the event the Contractor fails to deliver O&M data within the time limits specified, the Contracting Officer may withhold from progress payments 50 percent of the price of the items to which such O&M data apply.

1.5 PREPARATION

1.5.1 Transmittal Form

Transmit each submittal, except sample installations and sample panels to the office of the approving authority using the transmittal form prescribed by the Contracting Officer. Include all information prescribed by the transmittal form and required in paragraph IDENTIFYING SUBMITTALS. Use the submittal transmittal forms to record actions regarding samples.

1.5.2 Identifying Submittals

The Contractor's Quality Control Manager must prepare, review and stamp submittals, including those provided by a subcontractor, before submittal to the Government.

Identify submittals, except sample installations and sample panels, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

a. Project title and location

b. Construction contract number

c. Dates of the drawings and revisions

d. Name, address, and telephone number of Subcontractor, supplier, manufacturer, and any other Subcontractor associated with the submittal.

e. Section number of the specification by which submittal is required

f. Submittal description (SD) number of each component of submittal

g. For a resubmission, add alphabetic suffix on submittal description, for example, submittal 18 would become 18A, to indicate resubmission

h. Product identification and location in project.

1.5.3 Submittal Format

1.5.3.1 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.

1.5.3.2 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, 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.

Submit an electronic copy of drawings in PDF format.

1.5.3.2.1 Drawing Identification

Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph IDENTIFYING SUBMITTALS.

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.

Reserve a blank space, no smaller than 4x4 inches on the right-hand side of each sheet for the Government disposition stamp.

1.5.3.3 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.

1.5.3.3.1 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.

1.5.3.3.2 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.

1.5.3.3.3 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.

1.5.3.4 Format of SD-04 Samples

1.5.3.4.1 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.

1.5.3.4.2 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.

1.5.3.4.3 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.

1.5.3.5 Format of SD-05 Design Data

Provide design data and certificates on 8 1/2 by 11 inch size. Submit an electronic copy in PDF format.

1.5.3.6 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.

1.5.3.7 Format of SD-07 Certificates

Provide design data and certificates on 8 1/2 by 11 inch size.

1.5.3.8 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, 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.

1.5.3.8.1 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.

1.5.3.9 Format of SD-09 Manufacturer's Field Reports

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

1.5.3.10 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.

1.5.3.11 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.

1.5.4 Source Drawings for Shop Drawings

1.5.4.1 Source Drawings

The entire set of source drawing files (DWG) will not be provided to the Contractor. Request the specific Drawing Number for the preparation of shop drawings. Only those drawings requested to prepare shop drawings will be provided. These drawings are provided only after award.

1.5.4.2 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).

1.5.5 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. 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. Annotate submittals to indicate specific pertinent characteristics appliable to this contract. 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 over 10 MB on an optical disc or through an electronic file sharing system.

1.6 QUANTITY OF SUBMITTALS

1.6.1 Number of SD-01 Preconstruction Submittal Copies

Unless otherwise specified, submit two sets of administrative submittals.

1.6.2 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 and submitted to the Contracting Officer for information-only. 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 when submittals are required by the specifications is provided as "Appendix A - 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. You may use USDA form upon request. The list may not be all-inclusive and additional submittals may be required.

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.

Column (f): Lists the approving authority for each submittal. 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. Include the QC plan and the project schedule. Verify that all submittals required for the project are listed and add missing submittals. Coordinate and complete the following fields on the register submitted with the QC plan and the project schedule:

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 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 Government Review Action Codes

"A" - "Approved as submitted"

"AN" - "Approved as noted"

"RR" - "Disapproved as submitted"; "Completed"

"NR" - "Not Reviewed"

"RA" - "Receipt Acknowledged"

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 will help ensure that functional and quality requirements are met and minimize rejections and resubmittals. When contemplating a variation that results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

Specifically point out variations from contract requirements in transmittal letters. 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

When proposing variation, deliver a written request to the Contracting Officer, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to Government. Include the DOR's written analysis and approval. If lower cost is a benefit, also include an estimate of the cost savings. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

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 working 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 working days for review and approval of submittals for refrigeration and HVAC control systems.

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.

Contracting Officer review will be completed within 10 working days after the date of submission.

d. Except as specified otherwise, allow a review period, beginning with receipt by the approving authority, that includes at least 15working days for submittals for QC manager approval and 20working days for submittals where the Contracting Officer is the approving authority. The period of review for submittals with Contracting Officer approval begins when the Government receives the submittal from the QC organization.

1.10.1 Reviewing, Certifying, and Approving Authority

The QC Manager is responsible for reviewing all submittals and certifying that they are in compliance with contract requirements. The approving authority on submittals is the QC Manager unless otherwise specified. At each "Submittal" paragraph in individual specification sections, a notation "G" following a submittal item indicates that the Contracting Officer is the approving authority for that submittal item. Provide an additional copy of the submittal to the Government Approving authority

1.10.2 Constraints

Conform to provisions of this section, unless explicitly stated otherwise

for submittals listed or specified in this contract.

Submit complete submittals for each definable feature of the work. At the same time, submit components of definable features that are interrelated as a system.

When acceptability of a submittal is dependent on conditions, items, or materials included in separate subsequent submittals, the submittal will be returned without review.

Approval of a separate material, product, or component does not imply approval of the assembly in which the item functions.

1.10.3 QC Organization Responsibilities

a. Review submittals for conformance with project design concepts and compliance with contract documents.

b. Process submittals based on the approving authority indicated in the submittal register.

(1) When the QC manager is the approving authority, take appropriate action on the submittal from the possible actions defined in paragraph APPROVED SUBMITTALS.

(2) When the Contracting Officer is the approving authority or when variation has been proposed, forward the submittal to the Government, along with a certifying statement, or return the submittal marked "not reviewed" or "revise and resubmit" as appropriate. The QC organization's review of the submittal determines the appropriate action.

c. Ensure that material is clearly legible.

d. Stamp each sheet of each submittal with a QC certifying statement or an approving statement, except that data submitted in a bound volume or on one sheet printed on two sides may be stamped on the front of the first sheet only.

(1) When the approving authority is the Contracting Officer, the QC organization will certify submittals forwarded to the Contracting Officer with the following certifying statement:

"I hereby certify that the (equipment) (material) (article) shown and marked in this submittal is that proposed to be incorporated with Contract Number _____ is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is submitted for Government approval.

Certified by Submittal Reviewer _____, Date _____
(Signature when applicable)

Certified by QC Manager _____, Date _____"
(Signature)

(2) When approving authority is the QC manager, the QC manager will use the following approval statement when returning submittals to the Contractor as "Approved" or "Approved as Noted."

"I hereby certify that the (material) (equipment) (article) shown and marked in this submittal and proposed to be incorporated with Contract Number _____ is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is approved for use.

Certified by Submittal Reviewer _____, Date _____
(Signature when applicable)

Approved by QC Manager _____, Date _____"
(Signature)

e. Sign the certifying statement or approval statement. The QC organization member designated in the approved QC plan is the person signing certifying statements. The use of original ink for signatures is required. Stamped signatures are not acceptable.

f. Update the submittal register as submittal actions occur, and maintain the submittal register at the project site until final acceptance of all work by the Contracting Officer.

g. Retain a copy of approved submittals and approved samples at the project site.

h. For "S" submittals, provide a copy of the approved submittal to the Government Approving authority.

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 from the QC manager.

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.

Upon completion of review of submittals requiring Government approval, stamp and date submittals. An electronic copy of the submittal will be returned to the Contractor.

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.

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 that the 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 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.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Roof Repairs NCCCWA

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
							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		
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 11 00	SD-01 Preconstruction Submittals															
			Salvage Plan	1.5	G													
		01 14 00	SD-01 Preconstruction Submittals															
			List of Contact Personnel	1.3.1.1	G													
		01 30 00	SD-01 Preconstruction Submittals															
			Progress and Completion	1.4	G													
			Pictures															
		01 32 16.00 20	SD-01 Preconstruction Submittals															
			Baseline Construction Schedule	1.2	G													
			SD-07 Certificates															
			Monthly Updates	1.4														
		01 33 00	SD-01 Preconstruction Submittals															
			Submittal Register	1.8	G													
		01 35 26	SD-01 Preconstruction Submittals															
			APP - Construction	1.7.1	G													
			Accident Prevention Plan (APP)	1.7	G													
			SD-06 Test Reports															
			Monthly Exposure Reports	1.4	G													
			Notifications and Reports	1.13	G													
			Accident Reports	1.13.2	G													
			SD-07 Certificates															
			Activity Hazard Analysis (AHA)	1.9	G													
		01 45 00.10 20	SD-01 Preconstruction Submittals															
			QC Plan	1.6	G													
		01 50 00	SD-01 Preconstruction Submittals															
			Construction Site Plan	1.3	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Roof Repairs NCCCWA

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					REMARKS
							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	
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 50 00	Traffic Control Plan	3.3.1	G													
			Contractor Computer	1.5.1.4	G													
			Cybersecurity Compliance															
			Statements															
			Contractor Temporary Network	1.5.6	G													
			Cybersecurity Compliance															
			Statements															
		01 57 19	SD-01 Preconstruction Submittals															
			Regulatory Notifications	1.6.1	G													
			Employee Training Records	1.6.3	G													
			Solid Waste Management Permit	1.8	G													
			SD-06 Test Reports															
			Monthly Solid Waste Disposal	1.8.1	G													
			Report															
			SD-07 Certificates															
			Employee Training Records	1.6.3	G													
			SD-11 Closeout Submittals															
			Refuse and Recycle Quantity	3.1.1	G													
			Form															
			Project Completion Report	3.12	G													
			Solid Waste Tracking Sheet	3.2.1.1	G													
			Regulatory Notifications	1.6.1	G													
			Assembled Employee Training	1.6.3	G													
			Records															
			Solid Waste Management Permit	1.8	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Roof Repairs NCCCWA

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 57 19	Waste Determination	3.2.2.1	G													
			Documentation															
			Project Solid Waste Disposal	3.2.1.1	G													
			Documentation Report															
			Sales Documentation	3.2.1.1	G													
			Hazardous Waste/Debris	3.2.2.1	G													
			Management															
			Disposal Documentation for	3.2.2.6	G													
			Hazardous and Regulated Waste															
			Contractor Hazardous Material	3.3.1	G													
			Inventory Log															
			Hazardous Waste Inspection	3.13	G													
			Logs															
			Hazardous Waste Inspection	3.13	G													
			Logs															
		01 74 19	SD-01 Preconstruction Submittals															
			Construction Waste Management	1.6	G													
			Plan															
			SD-11 Closeout Submittals															
			Monthly/Quarterly Construction	1.8	G													
			Waste Diversion Report															
			Final Construction Waste	1.9	G													
			Diversion Report															
		01 78 00	SD-03 Product Data															
			Warranty Management Plan	1.6.1	G													
			Warranty Tags	1.6.4	G													

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Roof Repairs NCCCWA

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 78 00	Final Cleaning	3.4	G													
			Spare Parts Data	1.5	G													
			SD-08 Manufacturer's Instructions															
			Instructions	1.6.1	G													
			SD-10 Operation and Maintenance															
			Data															
			Operation and Maintenance	3.3	G													
			Manuals															
			SD-11 Closeout Submittals															
			As-Built Drawings	3.1	G													
			Record Drawings	3.2	G													
			As-Built Record of Equipment	1.6.1	G													
			and Materials															
		01 78 23	SD-10 Operation and Maintenance															
			Data															
			O&M Database	1.4	G													
			Training Plan	3.1.1	G													
			Training Outline	3.1.3	G													
			Training Content	3.1.2	G													
			SD-11 Closeout Submittals															
			Validation of Training Completion	3.1.6	G													
		02 41 00	SD-01 Preconstruction Submittals															
			Demolition Plan	1.2.1	G													
			Existing Conditions	1.9														
			SD-07 Certificates															
			Notification	1.5	G													

TITLE: USDA WV NCCCWA Roof
JOB NAME: Roof Repairs NCCCWA
LOCATION: Kearnesville, WV
CONTRACT NO:
CONTRACTOR:

SUBMITTAL REGISTER

								CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					
	(a)	(b)	(c)			(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
Line	Activity #	Transmittal #	Specification Section	Submittal Description	Item Submitted	Paragraph #	Classification: GOVT or A/E Reviewer	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 Revwr	Date RCD From Other Reviewer	Action Code	Date Of Action	Mailed To CONTR/ Date RCD From APPR Authority	Remarks
1			06 10 00	Product Data	Wood-Preservative Treatment	1.3.A.1													
2			06 10 00	Product Data	Fire-Retardant Treatment	1.3.A.2													
3			06 10 00	Information Submittal	Material Certificates	1.4.A													
4			06 10 00	Product Data	Lumber	2.1													
5			06 10 00	Product Data	Preservative Treated Lumber	2.2													
6			06 10 00	Product Data	Fire-Retardant Lumber	2.3													
7			06 10 00	Product Data	Miscellaneous Lumber	2.4													
8			06 10 00	Product Data	Plywood	2.5													
9			06 10 00	Product Data	Fasteners	2.6													
10			06 10 00	Product Data	Water-Repellent Preservatives	2.7.A													
11			07 01 50	Product Data	Roofing Products	1.4.A													
12			07 01 50	Product Data	Temporary Roofing	1.4.B													
13			07 01 50	Information Submittal	Video / Photos of Existing Conditions	1.5.A													
14			07 41 13	Shop Drawings	Roof Layout Plan	1.4.B.1													
15			07 41 13	Shop Drawings	Roof Panel Attachment	1.4.B.2													
16			07 41 13	Samples	Sample Roof Panel	1.4.C.1													
17			07 41 13	Samples	Sample Panel Clip	1.4.C.2													
18			07 41 13	Samples	Color Sample	1.4.C.3													
19			07 41 13	Sample Warranty	Finish	1.4.C.4.a													
20			07 41 13	Sample Warranty	Weathertightness	1.4.C.4.b													
21			07 41 13	Sample Warranty	Installer	1.4.C.4.c													
22			07 41 13	Certificates	Specification Requirements	1.4.D.1													
23			07 41 13	Certificates	Installer Certification	1.4.D.2													
24			07 41 13	Qualification Statements	Manufacturer	1.4.E													
25			07 41 13	Qualification Statements	Installer	1.4.E													
26			07 41 13	Test Report	Uplift Testing	1.5.G.1													
27			07 41 13	Test Report	Static Water Testing Certification	1.5.G.2													
28			07 41 13	Test Report	Air and Water Testing Certification	1.5.G.3													
29			07 41 13	Test Report	ASTM E1592 Test Data	1.5.G.4													
30			07 41 13	Test Report	ASTM E2140 Test Data	1.5.G.5													
31			07 41 13	Closeout Submittal	Operation and Maintenance Data	1.6.A													
32			07 41 13	Closeout Submittal	Warranty Documentation	1.6.B													
33			07 41 13	Product Data	Roof Panels (For Tank Building)	2.1.C.1													
34			07 41 13	Product Data	Roof Panels (For Lab Building)	2.1.C.2													
35			07 41 13	Product Data	Panel Clip Screw	2.2.A													
36			07 41 13	Product Data	Roof Panel Clip - Intermittent (2X)	2.2.B.1													
37			07 41 13	Product Data	Intermittent Clip Bearing Plate	2.2.B.2													
38			07 41 13	Product Data	Multi-Span Clip	2.2.B.3													
39			07 41 13	Product Data	Concealed Supports/Accessories	2.2.D													
40			07 41 13	Product Data	Accessory Screw	2.2.E													
41			07 41 13	Product Data	Rivets	2.2.F													
42			07 41 13	Product Data	Field Sealant - Exposed	2.2.G.1													
43			07 41 13	Product Data	Field Sealant - Non-Exposed	2.2.G.2													
44			07 41 13	Product Data	Panel Sealant - Sealant Tape	2.2.H.1													
45			07 41 13	Product Data	Panel Sealant - Joint Sealant	2.2.H.2													
46			07 41 13	Product Data	Panel Sealant - Butyl-Rubber-Based	2.2.H.3													

47			07 41 13	Product Data	Pipe Penetration Flashing	2.2.I													
48			07 41 13	Product Data	Metal Roof Curbs	2.2.J													
49			07 41 13	Product Data	Air/Vapor Retarder	2.2.K													
50			07 41 13	Product Data	Synthetic Underlayment	2.2.L													
51			07 41 13	Product Data	Ice and Water Shield	2.2.M													
52			07 41 13	Product Data	Roof Insulation	2.2.N													
53			07 54 19	Shop Drawings	Roof Plan and Sections	1.4.B													
54			07 54 19	Test Data	Wind Uplift Resistance	1.4.C													
55			07 54 19	Information Submittal	Installer Qualifications	1.5.A													
56			07 54 19	Information Submittal	Manufacturer Qualifications	1.5.A													
57			07 54 19	Certificates	Manufacturer - Performance Requirements	1.5.B.1													

SECTION 01 35 26

GOVERNMENTAL SAFETY REQUIREMENTS
11/20, CHG 2: 11/21

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 MECHANICAL ENGINEERS (ASME)

ASME B30.3	(2020) Tower Cranes
ASME B30.5	(2018) Mobile and Locomotive Cranes
ASME B30.7	(2016) Winches
ASME B30.8	(2020) Floating Cranes and Floating Derricks
ASME B30.9	(2018) Slings
ASME B30.20	(2018) Below-the-Hook Lifting Devices
ASME B30.22	(2016) Articulating Boom Cranes
ASME B30.23	(2016) Personnel Lifting Systems Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings
ASME B30.26	(2015; R 2020) Rigging Hardware

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)

ASSP A10.22	(2007; R 2017) Safety Requirements for Rope-Guided and Non-Guided Workers’ Hoists
ASSP A10.34	(2021) Protection of the Public on or Adjacent to Construction Sites
ASSP A10.44	(2020) Control of Energy Sources (Lockout/Tagout) for Construction and Demolition Operations
ASSP Z244.1	(2016) The Control of Hazardous Energy Lockout, Tagout and Alternative Methods
ASSP Z359.0	(2018) Definitions and Nomenclature Used for Fall Protection and Fall Arrest
ASSP Z359.1	(2020) The Fall Protection Code
ASSP Z359.2	(2017) Minimum Requirements for a Comprehensive Managed Fall Protection

	Program
ASSP Z359.3	(2019) Safety Requirements for Lanyards and Positioning Lanyards
ASSP Z359.4	(2013) Safety Requirements for Assisted-Rescue and Self-Rescue Systems, Subsystems and Components
ASSP Z359.6	(2016) Specifications and Design Requirements for Active Fall Protection Systems
ASSP Z359.7	(2019) Qualification and Verification Testing of Fall Protection Products
ASSP Z359.11	(2014) Safety Requirements for Full Body Harnesses
ASSP Z359.12	(2019) Connecting Components for Personal Fall Arrest Systems
ASSP Z359.13	(2013) Personal Energy Absorbers and Energy Absorbing Lanyards
ASSP Z359.14	(2014) Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems
ASSP Z359.15	(2014) Safety Requirements for Single Anchor Lifelines and Fall Arresters for Personal Fall Arrest Systems
ASSP Z359.16	(2016) Safety Requirements for Climbing Ladder Fall Arrest Systems
ASSP Z359.18	(2017) Safety Requirements for Anchorage Connectors for Active Fall Protection Systems

ASTM INTERNATIONAL (ASTM)

ASTM F855	(2019) Standard Specifications for Temporary Protective Grounds to Be Used on De-energized Electric Power Lines and Equipment

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 1048	(2016) Guide for Protective Grounding of Power Lines
IEEE C2	(2023) National Electrical Safety Code

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10	(2018; ERTA 1-2 2018) Standard for Portable Fire Extinguishers

NFPA 51B	(2019; TIA 20-1) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70	(2023) National Electrical Code
NFPA 70E	(2024) Standard for Electrical Safety in the Workplace
NFPA 241	(2022) Standard for Safeguarding Construction, Alteration, and Demolition Operations

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)

TIA-222	(2018H; Add 1 2019) Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures
TIA-1019	(2012; R 2016) Standard for Installation, Alteration and Maintenance of Antenna Supporting Structures and Antennas

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2024) Safety and Occupational Health (SOH) Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1910.147	The Control of Hazardous Energy (Lock Out/Tag Out)
29 CFR 1910.333	Selection and Use of Work Practices
29 CFR 1915	Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment
29 CFR 1915.89	Control of Hazardous Energy (Lockout/Tags-Plus)
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.16	Rules of Construction
29 CFR 1926.450	Scaffolds
29 CFR 1926.500	Fall Protection
29 CFR 1926.552	Material Hoists, Personal Hoists, and Elevators

29 CFR 1926.553	Base-Mounted Drum Hoists
CPL 02-01-056	(2014) Inspection Procedures for Accessing Communication Towers by Hoist
CPL 2.100	(1995) Application of the Permit-Required Confined Spaces (PRCS) Standards, 29 CFR 1910.146

1.2 DEFINITIONS

1.2.1 Competent Person (CP)

The CP is a person designated in writing, who, through training, knowledge and experience, is capable of identifying, evaluating, and addressing existing and predictable hazards in the working environment or working conditions that are dangerous to personnel, and who has authorization to take prompt corrective measures with regards to such hazards.

1.2.2 Competent Person, Confined Space

The CP, Confined Space, is a person meeting the competent person requirements as defined EM 385-1-1 Appendix Q, with thorough knowledge of OSHA’s Confined Space Standard, 29 CFR 1910.146, and designated in writing to be responsible for the immediate supervision, implementation and monitoring of the confined space program, who through training, knowledge and experience in confined space entry is capable of identifying, evaluating and addressing existing and potential confined space hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.3 Competent Person, Cranes and Rigging

The CP, Cranes and Rigging, as defined in EM 385-1-1 Appendix Q, is a person meeting the competent person, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the Crane and Rigging Program, who through training, knowledge and experience in crane and rigging is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.4 Competent Person, Excavation/Trenching

A CP, Excavation/Trenching, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and 29 CFR 1926, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the excavation/trenching program, who through training, knowledge and experience in excavation/trenching is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.5 Competent Person, Fall Protection

The CP, Fall Protection, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and in accordance with ASSP Z359.0, who has been designated in writing by the employer to be responsible for immediate supervising, implementing and monitoring of the fall protection program, who through training, knowledge and experience in

fall protection and rescue systems and equipment, is capable of identifying, evaluating and addressing existing and potential fall hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.6 Competent Person, Scaffolding

The CP, Scaffolding is a person meeting the competent person requirements in EM 385-1-1 Appendix Q, and designated in writing by the employer to be responsible for immediate supervising, implementing and monitoring of the scaffolding program. The CP for Scaffolding has enough training, knowledge and experience in scaffolding to correctly identify, evaluate and address existing and potential hazards and also has the authority to take prompt corrective measures with regard to these hazards. CP qualifications must be documented including experience on the specific scaffolding systems/types being ed, assessment of the base material that the scaffold will be erected upon, load calculations for materials and personnel, and erection and dismantling. The CP for scaffolding must have a documented minimum of 8-hours of scaffold training to include training on the specific type of scaffold being used (e.g. mast-climbing, adjustable, tubular frame), in accordance with EM 385-1-1 Section 22.B.02.

1.2.7 Competent Person (CP) Trainer

A competent person trainer as defined in EM 385-1-1 Appendix Q, who is qualified in the training material presented, and who possesses a working knowledge of applicable technical regulations, standards, equipment and systems related to the subject matter on which they are training Competent Persons. A competent person trainer must be familiar with the typical hazards and the equipment used in the industry they are instructing. The training provided by the competent person trainer must be appropriate to that specific industry. The competent person trainer must evaluate the knowledge and skills of the competent persons as part of the training process.

1.2.8 High Risk Activities

High Risk Activities are activities that involve work at heights, crane and rigging, excavations and trenching, scaffolding, electrical work, and confined space entry.

1.2.9 High Visibility Accident

A High Visibility Accident is any mishap which may generate publicity or high visibility.

1.2.10 Load Handling Equipment (LHE)

LHE is a term used to describe cranes, hoists and all other hoisting equipment (hoisting equipment means equipment, including crane, derricks, hoists and power operated equipment used with rigging to raise, lower or horizontally move a load).

1.2.11 Medical Treatment

Medical Treatment is treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even when provided by a physician or registered personnel.

1.2.12 Near Miss

A Near Miss is a mishap resulting in no personal injury and zero property damage, but given a shift in time or position, damage or injury may have occurred (e.g., a worker falls off a scaffold and is not injured; a crane swings around to move the load and narrowly misses a parked vehicle).

1.2.13 Operating Envelope

The Operating Envelope is the area surrounding any crane or load handling equipment. Inside this "envelope" is the crane, the operator, riggers and crane walkers, other personnel involved in the operation, rigging gear between the hook, the load, the crane's supporting structure (i.e. ground or rail), the load's rigging path, the lift and rigging procedure.

1.2.14 Qualified Person (QP)

The QP is a person designated in writing, who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter, the work, or the project.

1.2.15 Qualified Person, Fall Protection (QP for FP)

A QP for FP is a person meeting the definition requirements of EM 385-1-1 Appendix Q, and ASSP Z359.2 standard, having a recognized degree or professional certificate and with extensive knowledge, training and experience in the fall protection and rescue field who is capable of designing, analyzing, and evaluating and specifying fall protection and rescue systems.

1.2.16 Recordable Injuries or Illnesses

Recordable Injuries or Illnesses are any work-related injury or illness that results in:

a. Death, regardless of the time between the injury and death, or the length of the illness;

b. Days away from work (any time lost after day of injury/illness onset);

c. Restricted work;

d. Transfer to another job;

e. Medical treatment beyond first aid;

f. Loss of consciousness; or

g. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (a) through (f) above

1.2.17 Government Property and Equipment

Interpret "USACE" property and equipment specified in USACE EM 385-1-1 as Government property and equipment.

1.2.18 Load Handling Equipment (LHE) Accident or Load Handling Equipment Mishap

A LHE accident occurs when any one or more of the eight elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment; two-blocking; overload; or collision, including unplanned contact between the load, crane, or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents, even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, or roll over).

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 Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

APP - Construction; G

Accident Prevention Plan (APP); G

SD-06 Test Reports

Monthly Exposure Reports; G

Notifications and Reports; G

Accident Reports; G

SD-07 Certificates

Activity Hazard Analysis (AHA); G

A. Contractor shall submit a "site specific" Safety Plan to the Contracting Officer that describes how the contractor is to comply with all applicable OSHA standards and NFPA codes pertaining to construction work to include, but not limited to: General Safety and Health Provisions, Occupational
Health and Environmental Controls, Personal Protective and Life Saving Equipment, Hand and Power Tools, Welding and Cutting, Electrical, Scaffolds, Fall Protection, Excavations, Demolition, Stairways and Ladders, Toxic and Hazardous Substances, Confined Space Entry, Lockout/Tagout, Respiratory Protection, Hearing Protection. Safety Plan shall identify Contractor and sub-contractor employees who are authorized/qualified to perform electrical work. No work shall proceed until written approval of the Safety Plan by the Contracting Officer. Safety Plan shall describe how the Contractor and/or sub contractors are to secure equipment, supplies, tools, and chemical products. Contractor and/or subcontractor equipment, supplies, tools, and

chemical products are to be always under the control of the Contractor, equipment, supplies tools, and chemical products found not to be under the control of the Contractor or sub-contractor are subject to confiscation and will be reported to the Contracting Officer.

B. The Contractor shall inspect the entire construction site daily, including days without construction work if there are NFPA 101 Life Safety Code deficiencies existing while construction work is shut down, the results of that inspection shall be documented on the attachment “DAILY INSPECTION FORM”, and the form is to be signed and submitted to the Contracting Officer.
C. Contractor shall provide continuous monitoring for noise, dust, chemical vapor generation, volatile organic compounds, and vibration. At no time shall noise exposure to any ARS staff exceed 75 dB. Contractor shall provide to the COR with copies to the Contracting Officer a written weekly update of the test results in addition to the proposed work for the subsequent two weeks (a two week “lookahead”)involving any construction activity that will produce loud noises, heavy vibrations, strong smells, or significant dust inside ARS staff occupied space.

D. Contractor and sub-contractors shall notify in writing the Contracting Officer at least one week prior to executing high risk work (this may be included in the two week “look-ahead” update). High risk work includes, but is not limited to, tasks requiring Lockout/Tag Out, live electrical work, hot work, work at heights, trenching/ shoring, crane operations, and confined space entry. Contractor’s Competent Person shall provide the COR with a copy to the Contracting Officer written weekly documented safety inspection results.

1.4 MONTHLY EXPOSURE REPORTS

Provide a Monthly Exposure Report and attach to the billing request. This report is a compilation of employee-hours worked each month for all site workers, both Prime and subcontractor. Failure to submit the report may result in retention of up to 10 percent of the voucher.

1.5 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this Contract, comply with the most recent edition of USACE EM 385-1-1, and the following federal, state, and local laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern.

1.5.1 Subcontractor Safety Requirements

For this Contract, neither Contractor nor any subcontractor may enter into Contract with any subcontractor that fails to meet the following requirements. The term subcontractor in this and the following paragraphs means any entity holding a Contract with the Contractor or with a subcontractor at any tier.

1.5.1.1 Experience Modification Rate (EMR)

Subcontractors on this Contract must have an effective EMR less than or equal to 1.10, as computed by the National Council on Compensation

Insurance (NCCI) or if not available, as computed by the state agency's rating bureau in the state where the subcontractor is registered, when entering into a subcontract agreement with the Prime Contractor or a subcontractor at any tier. The Prime Contractor may submit a written request for additional consideration to the Contracting Officer where the specified acceptable EMR range cannot be achieved. Relaxation of the EMR range will only be considered for approval on a case-by-case basis for special conditions and must not be anticipated as tacit approval. Contractor's Site Safety and Health Officer (SSHO) must collect and maintain the certified EMR ratings for all subcontractors on the project and make them available to the Government at the Government's request.

1.5.1.2 OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate

Subcontractors on this Contract must have a DART rate, calculated from the most recent, complete calendar year, less than or equal to 3.4 when entering into a subcontract agreement with the Prime Contractor or a subcontractor at any tier. The OSHA Dart Rate is calculated using the following formula:

(N/EH) x 200,000

where:

N = number of injuries and illnesses with days away, restricted work, or job transfer

EH = total hours worked by all employees during most recent, complete calendar year

200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year)

The Prime Contractor may submit a written request for additional consideration to the Contracting Officer where the specified acceptable OSHA Dart rate range cannot be achieved for a particular subcontractor. Relaxation of the OSHA DART rate range will only be considered for approval on a case-by-case basis for special conditions and must not be anticipated as tacit approval. Contractor's Site Safety and Health Officer (SSHO) must collect and maintain self-certified OSHA DART rates for all subcontractors on the project and make them available to the Government at the Government's request.

1.6 SITE QUALIFICATIONS, DUTIES, AND MEETINGS

1.6.1 Personnel Qualifications

1.6.1.1 Site Safety and Health Officer (SSHO)

Provide an SSHO that meets the requirements of EM 385-1-1 Section 1. The SSHO must ensure that the requirements of 29 CFR 1926.16 are met for the project. Provide a Safety oversight team that includes a minimum of one person at each project site to function as the Site Safety and Health Officer (SSHO). The SSHO or an equally-qualified Alternate SSHO must be at the work site at all times to implement and administer the Contractor's safety program and Government-accepted Accident Prevention Plan. The SSHO and Alternate SSHO must have the required training, experience, and qualifications in accordance with EM 385-1-1 Section 01.A.17, and all

associated sub-paragraphs.

If the SSHO is off-site for a period longer than 24 hours, an equally-qualified alternate SSHO must be provided and must fulfill the same roles and responsibilities as the primary SSHO. When the SSHO is temporarily (up to 24 hours) off-site, a Designated Representative (DR), as identified in the AHA may be used in lieu of an Alternate SSHO, and must be on the project site at all times when work is being performed. Note that the DR is a collateral duty safety position, with safety duties in addition to their full time occupation.
Training:

1. All employees of the general contractor or subcontractors shall have the 10-hour OSHA certified Construction Safety course and /or other relevant competency training. Supervisors shall have completed the 30-hour OSHA training.

2. Submit training records of all such employees to the Contracting Officer for approval before the start of work.

1.6.1.1.1 Additional Site Safety and Health Officer (SSHO) Requirements and Duties

The SSHO may also serve as the Quality Control Manager. The SSHO may not serve as the Superintendent.

1.6.1.2 Competent Person Qualifications

Provide Competent Persons in accordance with EM 385-1-1, Appendix Q and herein. Competent Persons for high risk activities include confined space, cranes and rigging, excavation/trenching, fall protection, and electrical work. The CP for these activities must be designated in writing, and meet the requirements for the specific activity (i.e. competent person, fall protection).

The Competent Person identified in the Contractor's Safety and Health Program and accepted Accident Prevention Plan, must be on-site at all times when the work that presents the hazards associated with their professional expertise is being performed. Provide the credentials of the Competent Persons(s) to the Contracting Officer for information in consultation with the Safety Office.

Prior to commencing work:

1. The General Contractor shall provide proof that an OSHA certified CP, as defined by 29 CFR 1926.20(b)(2), will maintain a presence at the work site whenever the general or subcontractors are present.
2. The General Contractor and Tradesmen shall receive an On-site Safety briefing from the location Facilities Manager or designated representative.

1.6.1.2.1 Competent Person for Confined Space Entry

Provide a Confined Space (CP) Competent Person who meets the requirements of EM 385-1-1, Appendix Q, and herein. The CP for Confined Space Entry must supervise the entry into each confined space in accordance with EM 385-1-1, Section 34.

1.6.1.2.2 Competent Person for Scaffolding

Provide a Competent Person for Scaffolding who meets the requirements of EM 385-1-1, Section 22.B.02 and herein.

1.6.1.2.3 Competent Person for Fall Protection

Provide a Competent Person for Fall Protection who meets the requirements of EM 385-1-1, Section 21.C.04, 21.B.03, and herein.

1.6.1.3 Qualified Trainer Requirements

Individuals qualified to instruct the 40 hour contract safety awareness course, or portions thereof, must meet the definition of a Competent Person Trainer, and, at a minimum, possess a working knowledge of the following subject areas: EM 385-1-1, Electrical Standards, Lockout/Tagout, Fall Protection, Confined Space Entry for Construction; Excavation, Trenching and Soil Mechanics, and Scaffolds in accordance with 29 CFR 1926.450, Subpart L.

Instructors are required to:

a. Prepare class presentations that cover construction-related safety requirements.

b. Ensure that all attendees attend all sessions by using a class roster signed daily by each attendee. Maintain copies of the roster for at least five years. This is a certification class and must be attended 100 percent. In cases of emergency where an attendee cannot make it to a session, the attendee can make it up in another class session for the same subject.

c. Update training course materials whenever an update of the EM 385-1-1 becomes available.

d. Provide a written exam of at least 50 questions. Students are required to answer 80 percent correctly to pass.

e. Request, review and incorporate student feedback into a continuous course improvement program.

1.6.2 Personnel Duties

1.6.2.1 Duties of the Site Safety and Health Officer (SSHO)

The SSHO must:

a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Attach safety inspection logs to the Contractors' daily production report.

b. Conduct mishap investigations and complete required accident reports. Report mishaps and near misses.

c. Use and maintain OSHA's Form 300 to log work-related injuries and illnesses occurring on the project site for Prime Contractors and subcontractors, and make available to the Contracting Officer upon

request. Post and maintain the Form 300A on the site Safety Bulletin Board.

d. Maintain applicable safety reference material on the job site.

e. Attend the pre-construction meeting, pre-work meetings including preparatory meetings, and periodic in-progress meetings.

f. Review the APP and AHAs for compliance with EM 385-1-1, and approve, sign, implement and enforce them.

g. Establish a Safety and Occupational Health (SOH) Deficiency Tracking System that lists and monitors outstanding deficiencies until resolution.

h. Ensure subcontractor compliance with safety and health requirements.

i. Maintain a list of hazardous chemicals on site and their material Safety Data Sheets and provide to contracting officier(SDS).

j. Maintain a weekly list of high hazard activities involving energy, equipment, excavation, entry into confined space, and elevation, and be prepared to discuss details during QC Meetings.

k. Provide and keep a record of site safety orientation and indoctrination for Contractor employees, subcontractor employees, and site visitors.

Superintendent, QC Manager, and SSHO are subject to dismissal if the above or any other required duties are not being effectively carried out. If either the Superintendent, QC Manager, or SSHO are dismissed, project work will be stopped and will not be allowed to resume until a suitable replacement is approved and the above duties are again being effectively carried out.

1.6.3 Meetings

1.6.3.1 Preconstruction Meeting

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project must attend the preconstruction meeting. This includes the project superintendent, Site Safety and Occupational Health Officer, quality control manager, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the Contract. This list of proposed AHAs will be reviewed and an agreement will be reached between the Contractor and the Contracting Officer as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, and Government review of AHAs to preclude project delays.

c. Deficiencies in the submitted APP, identified during the Contracting Officer's review, must be corrected, and the APP re-submitted for review prior to the start of construction. Work is not permitted to

begin until an APP is established that is acceptable to the Contracting Officer.

1.6.3.2 Safety Meetings

Conduct safety meetings to review past activities, plan for new or changed operations, review pertinent aspects of appropriate AHA (by trade), establish safe working procedures for anticipated hazards, and provide pertinent Safety and Occupational Health (SOH) training and motivation. Conduct meetings at least once a month for all supervisors at the project location. The SSHO, supervisors, foremen, or CDSOs must conduct meetings at least once a week for the trade workers. Document meeting minutes to include the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Maintain documentation on-site and furnish copies to the Contracting Officer on request. Notify the Contracting Officer of all scheduled meetings 7 calendar days in advance.

1.7 ACCIDENT PREVENTION PLAN (APP)

1.7.1 APP - Construction

A qualified person must prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of EM 385-1-1, Appendix A, and as supplemented herein. Cover all paragraph and subparagraph elements in EM 385-1-1, Appendix A. The APP must be job-specific and address any unusual or unique aspects of the project or activity for which it is written. The APP must interface with the Contractor's overall safety and health program referenced in the APP in the applicable APP element, and made site-specific. Describe the methods to evaluate past safety performance of potential subcontractors in the selection process. Also, describe innovative methods used to ensure and monitor safe work practices of subcontractors. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the Contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP must be signed by an officer of the firm (Prime Contractor senior person), the individual preparing the APP, the on-site superintendent, the designated SSHO, the Contractor Quality Control Manager, and any designated Certified Safety Professional (CSP) or Certified Health Physicist (CHP). The SSHO must provide and maintain the APP and a log of signatures by each subcontractor foreman, attesting that they have read and understand the APP, and make the APP and log available on-site to the Contracting Officer. If English is not the foreman's primary language, the Prime Contractor must provide an interpreter.

Submit the APP to the Contracting Officer within 30 calendar days of Contract award and not less than 10 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP. Once reviewed and accepted by the Contracting Officer, the APP and attachments will be enforced as part of the Contract. Disregarding the provisions of this Contract or the accepted APP is cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified. Continuously review and amend the APP, as necessary, throughout the life of the Contract. Changes to the accepted APP must be made with the knowledge and concurrence of the Contracting

Officer, project superintendent, SSHO and Quality Control Manager. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered. Should any severe hazard exposure (i.e. imminent danger) become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate and remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ASSP A10.34), and the environment.

1.7.2 Names and Qualifications

Provide plans in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

a. Names and qualifications (resumes including education, training, experience and certifications) of site safety and health personnel designated to perform work on this project to include the designated Site Safety and Health Officer and other competent and qualified personnel to be used. Specify the duties of each position.

b. Qualifications of competent and of qualified persons. As a minimum, designate and submit qualifications of competent persons for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; and personal protective equipment and clothing to include selection, use and maintenance.

1.7.3 Plans

Provide plans in the APP in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

1.7.3.1 Confined Space Entry Plan

Develop a confined or enclosed space entry plan in accordance with EM 385-1-1, applicable OSHA standards 29 CFR 1910, 29 CFR 1915, and 29 CFR 1926, OSHA Directive CPL 2.100, and any other federal, state and local regulatory requirements identified in this Contract. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by Contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)

1.7.3.2 Fall Protection and Prevention (FP&P) Plan

The plan must be in accordance with the requirements of EM 385-1-1, Section 21.D and ASSP Z359.2, be site specific, and address all fall hazards in the work place and during different phases of construction. Address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 6 feet. A competent person or qualified person for fall protection must prepare and sign the plan documentation. Include fall protection and prevention systems, equipment and methods employed for every phase of work, roles and responsibilities, assisted rescue, self-rescue and evacuation procedures, training

requirements, and monitoring methods. Review and revise, as necessary, the Fall Protection and Prevention Plan documentation as conditions change, but at a minimum every six months, for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. Keep and maintain the accepted Fall Protection and Prevention Plan documentation at the job site for the duration of the project. Include the Fall Protection and Prevention Plan documentation in the Accident Prevention Plan (APP).

1.7.3.3 Rescue and Evacuation Plan

Provide a Rescue and Evacuation Plan in accordance with EM 385-1-1 Section 21.N and ASSP Z359.2, and include in the FP&P Plan and as part of the APP. Include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility.

1.7.3.4 Hazardous Energy Control Program (HECP)

Develop a HECP in accordance with EM 385-1-1 Section 12, 29 CFR 1910.147, 29 CFR 1910.333, 29 CFR 1915.89, ASSP Z244.1, and ASSP A10.44. Submit this HECP as part of the Accident Prevention Plan (APP). Conduct a preparatory meeting and inspection with all effected personnel to coordinate all HECP activities. Document this meeting and inspection in accordance with EM 385-1-1, Section 12.A.02. Ensure that each employee is familiar with and complies with these procedures.

1.8 USDA FIRE SAFETY CRITERIA

A. Coordinate below with site. Shawn Thomas is the point of contact at Shawn.Thomas@usda.gov
B. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to the Contracting Officer for review for compliance with contract requirements. Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the contractor's competent person per OSHA requirements. This briefing shall include information on the construction limits, ARS safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of ARS equipment, etc. Documentation shall be provided to the Contracting Officer that individuals have undergone contractor's safety briefing.
C. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police, and other emergency response forces in accordance with NFPA 241.
D. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 20 feet exposing overall length, separate by 10 feet.
E. Temporary Heating and Electrical: Install, use, and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.
F. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with Contracting Officer.
G. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to the Contracting Officer.
H. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241

and NFPA 10.
I. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.
J. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Provide fire watch for impairments more than 4 hours in a 24-hour period. Request interruptions 48 hours in advance and coordinate with the Location Manager and Contracting Officer.
All existing or temporary fire protection systems (fire alarms, sprinklers) located in construction areas shall be tested as coordinated with the Contracting Officer. Parameters for the testing and results of any tests performed shall be recorded by the General Contractor and copies provided to the Contracting Officer.
K. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with the Contracting Officer.
L. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and
NFPA 51B. Coordinate with the Contracting Officer. Designate contractor's responsible project- site fire prevention program manager to coordinate permit hot work.
M. Fire Hazard Prevention and Safety Inspections: Inspect entire construction area daily.
Coordinate with, and report findings and corrective actions weekly to the COR with a copy to the Contracting Officer. See Exhibit G: USDA Standard Forms for Daily Inspection Form.
N. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing
buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.
O. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.
P. Perform other construction, alteration, and demolition operations in accordance with 29 CFR 1926.

1.9 ACTIVITY HAZARD ANALYSIS (AHA)

Before beginning each activity, task or Definable Feature of Work (DFOW) involving a type of work presenting hazards not experienced in previous project operations, or where a new work crew or subcontractor is to perform the work, the Contractor(s) performing that work activity must prepare an AHA. AHAs must be developed by the Prime Contractor, subcontractor, or supplier performing the work, and provided for Prime Contractor review and approval before submitting to the Contracting Officer. AHAs must be signed by the SSHO, Superintendent, QC Manager and the subcontractor Foreman performing the work. Format the AHA in accordance with EM 385-1-1, Section 1 or as directed by the Contracting Officer. Submit the AHA for review at least 15 working days prior to the start of each activity task, or DFOW. The Government reserves the right to require the Contractor to revise and resubmit the AHA if it fails to effectively identify the work sequences, specific anticipated hazards, site conditions, equipment, materials, personnel and the control measures to be implemented.

AHAs must identify competent persons required for phases involving high risk activities, including confined entry, crane and rigging, excavations, trenching, electrical work, fall protection, and scaffolding.

1.9.1 AHA Management

Review the AHA list periodically (at least monthly) at the Contractor supervisory safety meeting, and update as necessary when procedures, scheduling, or hazards change. Use the AHA during daily inspections by the SSHO to ensure the implementation and effectiveness of the required safety and health controls for that work activity.

1.9.2 AHA Signature Log

Each employee performing work as part of an activity, task or DFOW must review the AHA for that work and sign a signature log specifically maintained for that AHA prior to starting work on that activity. The SSHO must maintain a signature log on site for every AHA. Provide employees whose primary language is other than English, with an interpreter to ensure a clear understanding of the AHA and its contents.

1.10 DISPLAY OF SAFETY INFORMATION

1.10.1 Safety Bulletin Board

Prior to commencement of work, erect a safety bulletin board at the job site. Where size, duration, or logistics of project do not facilitate a bulletin board, an alternative method, acceptable to the Contracting Officer, that is accessible and includes all mandatory information for employee and visitor review, may be deemed as meeting the requirement for a bulletin board. Include and maintain information on safety bulletin board as required by EM 385-1-1, Section 01.A.07. Additional items required to be posted include:

a. Hot work permit.

1.10.2 Safety and Occupational Health (SOH) Deficiency Tracking System

Establish a SOH deficiency tracking system that lists and monitors the status of SOH deficiencies in chronological order. Use the tracking system to evaluate the effectiveness of the APP. A monthly evaluation of the data must be discussed in the QC or SOH meeting with everyone on the project. The list must be posted on the project bulletin board and updated daily, and provide the following information:

a. Date deficiency identified;

b. Description of deficiency;

c. Name of person responsible for correcting deficiency;

d. Projected resolution date;

e. Date actually resolved.

1.11 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in paragraph REFERENCES. Maintain applicable equipment manufacturer's manuals.

1.12 EMERGENCY MEDICAL TREATMENT

Contractors must arrange for their own emergency medical treatment in accordance with EM 385-1-1. Government has no responsibility to provide emergency medical treatment.

1.13 NOTIFICATIONS and REPORTS

1.13.1 Mishap Notification

Notify the Contracting Officer as soon as practical, but no more than twenty-four hours, after any mishaps, including recordable accidents, incidents, and near misses, as defined in EM 385-1-1 Appendix Q, any report of injury, illness, or any property damage. For LHE or rigging mishaps, notify the Contracting Officer as soon as practical but not more than four hours after mishap. The Contractor is responsible for obtaining appropriate medical and emergency assistance and for notifying fire, law enforcement, and regulatory agencies. Immediate reporting is required for electrical mishaps, to include Arc Flash; shock; uncontrolled release of hazardous energy (includes electrical and non-electrical); load handling equipment or rigging; fall from height (any level other than same surface); and underwater diving. These mishaps must be investigated in depth to identify all causes and to recommend hazard control measures.

Within notification include Contractor name; Contractt title; type of Contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (for example, type of construction equipment used and PPE used). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted. Assist and cooperate fully with the Government's investigation(s) of any mishap.

1.13.2 Accident Reports

a. Conduct an accident investigation for recordable injuries and illnesses, property damage, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. The Contracting Officer will provide copies of any required or special forms.

b. Conduct an accident investigation for any load handling equipment accident (including rigging accidents) to establish the root cause(s) of the accident. Complete the LHE Accident Report (Crane and Rigging Accident Report) form and provide the report to the Contracting Officer within 30 calendar days of the accident. Do not proceed with crane operations until cause is determined and corrective actions have been implemented to the satisfaction of the Contracting Officer. The Contracting Officer will provide a blank copy of the accident report form.

1.14 HOT WORK

1.14.1 Permit and Personnel Requirements

Submit and obtain a written permit prior to performing "Hot Work" (i.e. welding or cutting) or operating other flame-producing/spark producing devices, from the Fire Division. A permit is required from the Explosives Safety Office for work in and around where explosives are processed,

stored, or handled. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. Provide at least two 20 pound 4A:20 BC rated extinguishers for normal "Hot Work". The extinguishers must be current inspection tagged, and contain an approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch must be trained in accordance with NFPA 51B and remain on-site for a minimum of one hour after completion of the task or as specified on the hot work permit.

When starting work in the facility, require personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency Fire Division phone number. REPORT ANY FIRE, NO MATTER HOW SMALL, TO THE RESPONSIBLE FIRE DIVISION IMMEDIATELY.

1.14.2 Work Around Flammable Materials

Obtain permit approval from a NFPA Certified Marine Chemist, or Certified Industrial Hygienist for "HOT WORK" within or around flammable materials (such as fuel systems or welding/cutting on fuel pipes) or confined spaces (such as sewer wet wells, manholes, or vaults) that have the potential for flammable or explosive atmospheres.

Whenever these materials, except beryllium and chromium (VI), are encountered in indoor operations, local mechanical exhaust ventilation systems that are sufficient to reduce and maintain personal exposures to within acceptable limits must be used and maintained in accordance with manufacturer's instruction and supplemented by exceptions noted in EM 385-1-1, Section 06.H

1.15 SEVERE STORM PLAN

In the event of a severe storm warning, the Contractor must comply with the applicable Storm Plan and:

a. Secure outside equipment and materials and place materials that could be damaged in protected areas.

b. Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.

c. Ensure that temporary erosion controls are adequate.

PART 3 EXECUTION

2.1 CONSTRUCTION AND OTHER WORK

Comply with EM 385-1-1, NFPA 70, NFPA 70E, NFPA 241, the APP, the AHA, Federal and State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard prevails.

PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be worn or carried/available on each person. Mandatory PPE includes:

a. Hard Hat

b. Long Pants

c. Appropriate Safety Shoes

d. Appropriate Class Reflective Vests

2.1.1 Worksite Communication

Employees working alone in a remote location or away from other workers must be provided an effective means of emergency communications (i.e., cellular phone, two-way radios, land-line telephones or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of work to verify that it effectively operates in the area/environment. Develop an employee check-in/check-out communication procedure to ensure employee safety.

2.1.2 Hazardous Material Use

Each hazardous material must receive approval from the Contracting Office or their designated representative prior to being brought onto the job site or prior to any other use in connection with this Contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material.

2.1.3 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this Contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint, and hexavalent chromium, are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. Low mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further Contracting Officer approval. Notify the Radiation Safety Officer (RSO) prior to excepted items of radioactive material and devices being brought on-site.

2.1.4 Unforeseen Hazardous Material

Contract documents identify materials such as PCB, lead paint, and friable and non-friable asbestos and other OSHA regulated chemicals (i.e. 29 CFR Part 1910.1000). If material(s) that may be hazardous to human health upon disturbance are encountered during construction operations, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to FAR 52.243-4 Changes and FAR 52.236-2 Differing Site Conditions.

2.2 UTILITY OUTAGE REQUIREMENTS

Apply for utility outages at least 15 days in advance. At a minimum, the written request must include the location of the outage, utilities being affected, duration of outage, any necessary sketches, and a description of the means to fulfill energy isolation requirements in accordance with EM 385-1-1, Section 11.A.02 (Isolation). Some examples of energy isolation devices and procedures are highlighted in EM 385-1-1, Section 12.D. In accordance with EM 385-1-1, Section 12.A.01, where outages involve Government or Utility personnel, coordinate with the Government on all activities involving the control of hazardous energy.

These activities include, but are not limited to, a review of HECP and HEC procedures, as well as applicable Activity Hazard Analyses (AHAs). In accordance with EM 385-1-1, Section 11.A.02 and NFPA 70E, work on energized electrical circuits must not be performed without prior Government authorization. Government permission is considered through the permit process and submission of a detailed AHA. Energized work permits are considered only when de-energizing introduces additional or increased hazard or when de-energizing is infeasible.

2.3 OUTAGE COORDINATION MEETING

After the utility outage request is approved and prior to beginning work on the utility system requiring shut-down, conduct a pre-outage coordination meeting in accordance with EM 385-1-1, Section 12.A. This meeting must include the Prime Contractor, the Prime and subcontractors performing the work, the Contracting Officer, and the Installation representative. All parties must fully coordinate HEC activities with one another. During the coordination meeting, all parties must discuss and coordinate on the scope of work, HEC procedures (specifically, the lock-out/tag-out procedures for worker and utility protection), the AHA, assurance of trade personnel qualifications, identification of competent persons, and compliance with HECP training in accordance with EM 385-1-1, Section 12.C. Clarify when personal protective equipment is required during switching operations, inspection, and verification.

2.4 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

Provide and operate a Hazardous Energy Control Program (HECP) in accordance with EM 385-1-1 Section 12, 29 CFR 1910.333, 29 CFR 1915.89, ASSP A10.44, NFPA 70E, and paragraph HAZARDOUS ENERGY CONTROL PROGRAM (HECP).

2.4.1 Safety Preparatory Inspection Coordination Meeting with the Government or Utility

For electrical distribution equipment that is to be operated by Government or Utility personnel, the Prime Contractor and the subcontractor performing the work must attend the safety preparatory inspection coordination meeting, which will also be attended by the Contracting Officer's Representative, and required by EM 385-1-1, Section 12.A.02. The meeting will occur immediately preceding the start of work and following the completion of the outage coordination meeting. Both the safety preparatory inspection coordination meeting and the outage coordination meeting must occur prior to conducting the outage and commencing with lockout/tagout procedures.

2.4.2 Lockout/Tagout Isolation

Where the Government or Utility performs equipment isolation and lockout/tagout, the Contractor must place their own locks and tags on each energy-isolating device and proceed in accordance with the HECP. Before any work begins, both the Contractor and the Government or Utility must perform energy isolation verification testing while wearing required PPE detailed in the Contractor's AHA and required by EM 385-1-1, Sections 05.I and 11.B. Install personal protective grounds, with tags, to eliminate the potential for induced voltage in accordance with EM 385-1-1, Section 12.E.06.

2.4.3 Lockout/Tagout Removal

Upon completion of work, conduct lockout/tagout removal procedure in accordance with the HECP. In accordance with EM 385-1-1, Section 12.E.08, each lock and tag must be removed from each energy isolating device by the authorized individual or systems operator who applied the device. Provide formal notification to the Government (by completing the Government form if provided by Contracting Officer's Representative), confirming that steps of de-energization and lockout/tagout removal procedure have been conducted and certified through inspection and verification. Government or Utility locks and tags used to support the Contractor's work will not be removed until the authorized Government employee receives the formal notification.

2.5 FALL PROTECTION PROGRAM

Establish a fall protection program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify roles and responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures in accordance with ASSP Z359.2 and EM 385-1-1, Sections 21.A and 21.D.

2.5.1 Training

Institute a fall protection training program. As part of the Fall Protection Program, provide training for each employee who might be exposed to fall hazards and using personal fall protection equipment. Provide training by a competent person for fall protection in accordance with EM 385-1-1, Section 21.C. Document training and practical application of the competent person in accordance with EM 385-1-1, Section 21.C.04 and ASSP Z359.2 in the AHA.

2.5.2 Fall Protection Equipment and Systems

Enforce use of personal fall protection equipment and systems designated (to include fall arrest, restraint, and positioning) for each specific work activity in the Site Specific Fall Protection and Prevention Plan and AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in EM 385-1-1, Section 21.

Provide personal fall protection equipment, systems, subsystems, and components that comply with EM 385-1-1 Section 21.I, 29 CFR 1926.500 Subpart M,ASSP Z359.0, ASSP Z359.1, ASSP Z359.2, ASSP Z359.3, ASSP Z359.4, ASSP Z359.6, ASSP Z359.7, ASSP Z359.11, ASSP Z359.12, ASSP Z359.13, ASSP Z359.14, ASSP Z359.15, ASSP Z359.16 and ASSP Z359.18.

2.5.2.1 Additional Personal Fall Protection Measures

In addition to the required fall protection systems, other protective measures such as safety skiffs, personal floatation devices, and life rings, are required when working above or next to water in accordance with EM 385-1-1, Sections 21.O through 21.O.06. Personal fall protection systems and equipment are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall protection systems are required when operating other equipment such as scissor lifts. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, travel, or while performing work.

2.5.2.2 Personal Fall Protection Equipment

Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. The use of body belts is not acceptable. Harnesses must have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Snap hooks and carabineers must be self-closing and self-locking, capable of being opened only by at least two consecutive deliberate actions and have a minimum gate strength of 3,600 lbs in all directions. Use webbing, straps, and ropes made of synthetic fiber. The maximum free fall distance when using fall arrest equipment must not exceed 6 feet, unless the proper energy absorbing lanyard is used. Always take into consideration the total fall distance and any swinging of the worker (pendulum-like motion), that can occur during a fall, when attaching a person to a fall arrest system. Equip all full body harnesses with Suspension Trauma Preventers such as stirrups, relief steps, or similar in order to provide short-term relief from the effects of orthostatic intolerance in accordance with EM 385-1-1, Section 21.I.06.

2.5.3 Fall Protection for Roofing Work

Implement fall protection controls based on the type of roof being constructed and work being performed. Evaluate the roof area to be accessed for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(1) For work within 6 feet from unprotected edge of a roof having a slope less than or equal to 4:12 (vertical to horizontal), protect personnel from falling by the use of conventional fall protection systems (personal fall arrest/restraint systems, guardrails, or safety nets) in accordance with EM 385-1-1, Section 21 and 29 CFR 1926.500. A safety monitoring system is not adequate fall protection and is not authorized.

(2) For work greater than 6 feet from the unprotected roof edge, addition to the use of conventional fall protection systems the use of a warning line system is also permitted, in accordance with 29 CFR 1926.500 and EM 385-1-1, Section 21.L.

b. Steep-Sloped Roofs: Work on a roof having a slope greater than 4:12 (vertical to horizontal) requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also

applies to residential or housing type construction.

2.5.4 Horizontal Lifelines (HLL)

Provide HLL in accordance with EM 385-1-1, Section 21.I.08.d.2. Commercially manufactured horizontal lifelines (HLL) must be designed, installed, certified and used, under the supervision of a qualified person, for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500). The competent person for fall protection may (if deemed appropriate by the qualified person) supervise the assembly, disassembly, use and inspection of the HLL system under the direction of the qualified person. Locally manufactured HLLs are not acceptable unless they are custom designed for limited or site specific applications by a Registered Professional Engineer who is qualified in designing HLL systems.

2.5.5 Guardrails and Safety Nets

Design, install and use guardrails and safety nets in accordance with EM 385-1-1, Section 21.F.01 and 29 CFR 1926 Subpart M.

2.5.6 Rescue and Evacuation Plan and Procedures

When personal fall arrest systems are used, ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. Prepare a Rescue and Evacuation Plan and include a detailed discussion of the following: methods of rescue; methods of self-rescue or assisted-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. Include the Rescue and Evacuation Plan within the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP). The plan must be in accordance with the requirements of EM 385-1-1, ASSP Z359.2, and ASSP Z359.4.

2.6 WORK PLATFORMS

2.6.1 Scaffolding

Provide employees with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Comply with the following requirements:

a. Scaffold platforms greater than 20 feet in height must be accessed by use of a scaffold stair system.

b. Ladders commonly provided by scaffold system manufacturers are prohibited for accessing scaffold platforms greater than 20 feet maximum in height.

c. An adequate gate is required.

d. Employees performing scaffold erection and dismantling must be qualified.

e. Scaffold must be capable of supporting at least four times the maximum intended load, and provide appropriate fall protection as delineated in the accepted fall protection and prevention plan.

f. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward.

g. Special care must be given to ensure scaffold systems are not overloaded.

h. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material are prohibited. The first tie-in must be at the height equal to 4 times the width of the smallest dimension of the scaffold base.

i. Scaffolding other than suspended types must bear on base plates upon wood mudsills (2 in x 10 in x 8 in minimum) or other adequate firm foundation.

j. Scaffold or work platform erectors must have fall protection during the erection and dismantling of scaffolding or work platforms that are more than 6 feet.

k. Delineate fall protection requirements when working above 6 feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

2.6.2 Elevated Aerial Work Platforms (AWPs)

Workers must be anchored to the basket or bucket in accordance with manufacturer's specifications and instructions (anchoring to the boom may only be used when allowed by the manufacturer and permitted by the CP). Lanyards used must be sufficiently short to prohibit worker from climbing out of basket. The climbing of rails is prohibited. Lanyards with built-in shock absorbers are acceptable. Self-retracting devices are not acceptable. Tying off to an adjacent pole or structure is not permitted unless a safe device for 100 percent tie-off is used for the transfer.

Use of AWPs must be operated, inspected, and maintained as specified in the operating manual for the equipment and delineated in the AHA. Operators of AWPs must be designated as qualified operators by the Prime Contractor. Maintain proof of qualifications on site for review and include in the AHA.

2.7 EQUIPMENT

2.7.1 Material Handling Equipment (MHE)

a. Material handling equipment such as forklifts must not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions. Material handling equipment fitted with personnel work platform attachments are prohibited from traveling or positioning while personnel are working on the platform.

b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions. Material Handling Equipment Operators must be trained in accordance with OSHA 29 CFR 1910, Subpart N.

c. Operators of forklifts or power industrial trucks must be licensed in accordance with OSHA.

2.7.2 Load Handling Equipment (LHE)

The following requirements apply. In exception, these requirements do not apply to commercial truck mounted and articulating boom cranes used solely to deliver material and supplies (not prefabricated components, structural steel, or components of a systems-engineered metal building) where the lift consists of moving materials and supplies from a truck or trailer to the ground; to cranes installed on mechanics trucks that are used solely in the repair of shore-based equipment; to crane that enter the activity but are not used for lifting; nor to other machines not used to lift loads suspended by rigging equipment. However, LHE accidents occurring during such operations must be reported.

a. Equip cranes and derricks as specified in EM 385-1-1, Section 16.

b. Notify the Contracting Officer 15 working days in advance of any LHE entering the activity, in accordance with EM 385-1-1, Section 16.A.02, so that necessary quality assurance spot checks can be coordinated. Prior to cranes entering federal activities, a Crane Access Permit must be obtained from the Contracting Officer. A copy of the permitting process will be provided at the Preconstruction Meeting. Contractor's operator must remain with the crane during the spot check. Rigging gear must be in accordance with OSHA, ASME B30.9 Standards safety standards.

c. Comply with the LHE manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Perform erection under the supervision of a designated person (as defined in ASME B30.5). Perform all testing in accordance with the manufacturer's recommended procedures.

d. Comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, ASME B30.8 for floating cranes and floating derricks, ASME B30.9 for slings, ASME B30.20 for below the hook lifting devices and ASME B30.26 for rigging hardware.

e. When operating in the vicinity of overhead transmission lines, operators and riggers must be alert to this special hazard and follow the requirements of EM 385-1-1 Section 11, and ASME B30.5 or ASME B30.22 as applicable.

f. Do not use crane suspended personnel work platforms (baskets) unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Do not lift personnel with a line hoist or friction crane. Additionally, submit a specific AHA for this work to the Contracting Officer. Ensure the activity and AHA are thoroughly reviewed by all involved personnel.

g. Inspect, maintain, and recharge portable fire extinguishers as specified in NFPA 10, Standard for Portable Fire Extinguishers.

h. All employees must keep clear of loads about to be lifted and of suspended loads, except for employees required to handle the load.

i. Use cribbing when performing lifts on outriggers.

j. The crane hook/block must be positioned directly over the load. Side

loading of the crane is prohibited.

k. A physical barricade must be positioned to prevent personnel access where accessible areas of the LHE's rotating superstructure poses a risk of striking, pinching or crushing personnel.

l. Maintain inspection records in accordance by EM 385-1-1, Section 16.D, including shift, monthly, and annual inspections, the signature of the person performing the inspection, and the serial number or other identifier of the LHE that was inspected. Records must be available for review by the Contracting Officer.

m. Maintain written reports of operational and load testing in accordance with EM 385-1-1, Section 16.F, listing the load test procedures used along with any repairs or alterations performed on the LHE. Reports must be available for review by the Contracting Officer.

n. Certify that all LHE operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

o. Take steps to ensure that wind speed does not contribute to loss of control of the load during lifting operations. At wind speeds greater than 20 mph, the operator, rigger and lift supervisor must cease all crane operations, evaluate conditions and determine if the lift may proceed. Base the determination to proceed or not on wind calculations per the manufacturer and a reduction in LHE rated capacity if applicable. Include this maximum wind speed determination as part of the activity hazard analysis plan for that operation.

p. On mobile cranes, lifts where the load weight is greater than 90 percent of the equipment's capacity are prohibited.

q. Follow FAA guidelines when required based on project location.

2.7.3 Machinery and Mechanized Equipment

a. Proof of qualifications for operator must be kept on the project site for review.

b. Manufacture specifications or owner's manual for the equipment must be on-site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Incorporate such additional safety precautions or requirements into the AHAs.

2.7.4 Base Mounted Drum Hoists

a. Operation of base mounted drum hoists must be in accordance with EM 385-1-1 and ASSP A10.22.

b. Rigging gear must be in accordance with applicable ASME/OSHA standards.

c. When used on telecommunication towers, base mounted drum hoists must be in accordance with TIA-1019, TIA-222, ASME B30.7, 29 CFR 1926.552, and 29 CFR 1926.553.

d. When used to hoist personnel, the AHA must include a written standard operating procedure. Operators must have a physical examination in accordance with EM 385-1-1 Section 16.B.05 and trained, at a minimum,

in accordance with EM 385-1-1 Section 16.U and 16.T. The base mounted drum hoist must also comply with OSHA Instruction CPL 02-01-056 and ASME B30.23.

e. Material and personnel must not be hoisted simultaneously.

f. Personnel cage must be marked with the capacity (in number of persons) and load limit in pounds.

g. Construction equipment must not be used for hoisting material or personnel or with trolley/tag lines. Construction equipment may be used for towing and assisting with anchoring guy lines.

2.7.5 Use of Explosives

Explosives must not be used or brought to the project site without prior written approval from the Contracting Officer. Such approval does not relieve the Contractor of responsibility for injury to persons or for damage to property due to blasting operations.

Storage of explosives, when permitted on Government property, must be only where directed and in approved storage facilities. These facilities must be kept locked at all times except for inspection, delivery, and withdrawal of explosives.

2.8 EXCAVATIONS

Soil classification must be performed by a competent person in accordance with 29 CFR 1926 and EM 385-1-1.

2.8.1 Utility Locations

Provide a third party, independent, private utility locating company to positively identify underground utilities in the work area in addition to any station locating service and coordinated with the station utility department.

2.8.2 Utility Location Verification

Physically verify underground utility locations, including utility depth, by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within 3 feet of the underground system.

2.8.3 Utilities Within and Under Concrete, Bituminous Asphalt, and Other Impervious Surfaces

Utilities located within and under concrete slabs or pier structures, bridges, parking areas, and the like, are extremely difficult to identify. Whenever Contract work involves chipping, saw cutting, or core drilling through concrete, bituminous asphalt or other impervious surfaces, the existing utility location must be coordinated with station utility departments in addition to location and depth verification by a third party, independent, private locating company. The third party, independent, private locating company must locate utility depth by use of Ground Penetrating Radar (GPR), X-ray, bore scope, or ultrasound prior to the start of demolition and construction. Outages to isolate utility systems must be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate

the Contractor from meeting this requirement.

2.9 ELECTRICAL

Perform electrical work in accordance with EM 385-1-1, Sections 11 and 12.

2.9.1 Conduct of Electrical Work

As delineated in EM 385-1-1, electrical work is to be conducted in a de-energized state unless there is no alternative method for accomplishing the work. In those cases obtain an energized work permit from the Contracting Officer. The energized work permit application must be accompanied by the AHA and a summary of why the equipment/circuit needs to be worked energized. Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Attach temporary grounds in accordance with ASTM F855 and IEEE 1048. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator is allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method.

When working in energized substations, only qualified electrical workers are permitted to enter. When work requires work near energized circuits as defined by NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves and electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA. Ensure that each employee is familiar with and complies with these procedures and 29 CFR 1910.147.

2.9.2 Qualifications

Electrical work must be performed by QP with verifiable credentials who are familiar with applicable code requirements. Verifiable credentials consist of State, National and Local Certifications or Licenses that a Master or Journeyman Electrician may hold, depending on work being performed, and must be identified in the appropriate AHA. Journeyman/Apprentice ratio must be in accordance with State, Local requirements applicable to where work is being performed.

2.9.3 Arc Flash

Conduct a hazard analysis/arc flash hazard analysis whenever work on or near energized parts greater than 50 volts is necessary, in accordance with NFPA 70E.

All personnel entering the identified arc flash protection boundary must be QPs and properly trained in NFPA 70E requirements and procedures. Unless permitted by NFPA 70E, no Unqualified Person is permitted to approach nearer than the Limited Approach Boundary of energized conductors and circuit parts. Training must be administered by an electrically qualified source and documented.

2.9.4 Grounding

Ground electrical circuits, equipment and enclosures in accordance with NFPA 70 and IEEE C2 to provide a permanent, continuous and effective path to ground unless otherwise noted by EM 385-1-1.

Check grounding circuits to ensure that the circuit between the ground and a grounded power conductor has a resistance low enough to permit sufficient current flow to allow the fuse or circuit breaker to interrupt the current.

2.9.5 Testing

Temporary electrical distribution systems and devices must be inspected, tested and found acceptable for Ground-Fault Circuit Interrupter (GFCI) protection, polarity, ground continuity, and ground resistance before initial use, before use after modification and at least monthly. Monthly inspections and tests must be maintained for each temporary electrical distribution system, and signed by the electrical CP or QP.

-- End of Section --

SECTION 01 42 00

SOURCES FOR REFERENCE PUBLICATIONS
02/19

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization (e.g., ASTM B564 Standard Specification for Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
Two Park Avenue
New York, NY 10016-5990
Ph: 800-843-2763
Fax: 973-882-1717
E-mail: customercare@asme.org
Internet: https://www.asme.org/

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)
520 N. Northwest Highway
Park Ridge, IL 60068
Ph: 847-699-2929
E-mail: customerservice@assp.org
Internet: https://www.assp.org/

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959
Ph: 610-832-9500
Fax: 610-832-9555
E-mail: service@astm.org
Internet: https://www.astm.org/

CARPET AND RUG INSTITUTE (CRI)
P.O. Box 2048
Dalton, GA 30722-2048
Ph: 706-278-3176
Fax: 706-278-8835
Internet: https://carpet-rug.org/

GREEN SEAL (GS)
1001 Connecticut Avenue, NW
Suite 827
Washington, DC 20036-5525
Ph: 202-872-6400
Fax: 202-872-4324
E-mail: greenseal@greenseal.org
Internet: https://www.greenseal.org/

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
445 and 501 Hoes Lane
Piscataway, NJ 08854-4141
Ph: 732-981-0060 or 800-701-4333
Fax: 732-981-9667
E-mail: onlinesupport@ieee.org
Internet: https://www.ieee.org/

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
1 Batterymarch Park
Quincy, MA 02169-7471
Ph: 800-344-3555
Fax: 800-593-6372
Internet: https://www.nfpa.org

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY (TAPPI)
15 Technology Parkway South, Suite 115
Peachtree Corners, GA 30092
Ph: 800-332-8686 or 770-446-1400
Fax: 770-446-6947
E-mail: memberconnection@tappi.org
Internet: http://www.tappi.org

WOODWORK INSTITUTE (WI)
3188 Industrial Blvd.
West Sacramento, CA 95691
Ph: 916-372-9943
Fax: 916-372-9950
E-mail: info@woodinst.com
Internet: https://woodworkinstitute.com

WOOLMARK COMPANY (WBI)
NeueHouse
110 East 25th Street, 3rd Floor
New York, NY 10010
or
WeWork One Culver
10000 Washington Blvd
Culver City, CA 90232
Ph: 347-767-3160
E-mail: woolmark.americas@wool.com
internet: https://www.woolmark.com/

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

-- End of Section --

SECTION 01 45 00.10 20

QUALITY CONTROL FOR MINOR CONSTRUCTION
02/10

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 385-1-1	(2024) Safety and Occupational Health (SOH) Requirements Manual

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

QC Plan; G

Submit a QC plan within 15 calendar days after receipt of Notice of Award.

1.3 INFORMATION FOR THE CONTRACTING OFFICER (CO)

Prior to commencing work on construction, the Contractor can obtain a single copy set of the current report forms from the CO. The report forms will consist of the Contractor Production Report, Contractor Production Report (Continuation Sheet), Contractor Quality Control (CQC) Report, CQC Report (Continuation Sheet), Preparatory Phase Checklist, Initial Phase Checklist, Rework Items List, and Testing Plan and Log.

Deliver the following to the CO:

a. CQC Report: Original and one copy, by 10:00 AM the next working day after each day that work is performed;

b. Contractor Production Report: Original and one copy by 10:00 AM the next working day after each day that work is performed;

c. Preparatory Phase Checklist: Original attached to the original CQC Report and one copy attached to each copy;

d. Initial Phase Checklist: Original attached to the original CQC Report and one copy attached to each copy;

e. Field Test Reports: One copy, within two working days after the test is performed, attached to the CQC Report;

f. QC Meeting Minutes: One copy, within two working days after the meeting; and

g. QC Certifications: As required by the paragraph entitled "QC Certifications."

1.4 QC PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. The QC program consists of a QC Manager, a QC plan, a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this contract. The QC program shall cover on-site and off-site work and shall be keyed to the work sequence. No work or testing may be performed unless the QC Manager is on the work site.

1.4.1 Preliminary Work Authorized Prior to Acceptance

The only work that is authorized to proceed prior to the acceptance of the QC plan is mobilization of storage and office trailers, temporary utilities, and surveying.

1.4.2 Acceptance

Acceptance of the QC plan is required prior to the start of construction. The CO reserves the right to require changes in the QC plan and operations as necessary, including removal of personnel, to ensure the specified quality of work. The CO reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications.

1.4.3 Notification of Changes

Notify the CO, in writing, of any proposed change, including changes in the QC organization personnel, a minimum of seven calendar days prior to a proposed change. Proposed changes shall be subject to the acceptance by the CO.

1.5 QC ORGANIZATION

1.5.1 QC Manager

1.5.1.1 Duties

Provide a QC Manager at the work site to implement and manage the QC program. In addition to implementing and managing the QC program, the QC Manager may perform the duties of project superintendent. The QC Manager is required to attend the Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by others.

1.5.1.2 Qualifications

An individual with a minimum of 10 years combined experience as a

superintendent, inspector, QC Manager, project manager, or construction manager on similar size and type construction contracts which included the major trades that are part of this contract. The individual must be familiar with the requirements of the EM 385-1-1 and have experience in the areas of hazard identification and safety compliance.

1.5.1.3 Construction Quality Management Training

In addition to the above experience and education requirements, the QC Manager shall have completed the course Construction Quality Management for Contractors and will have a current certificate.

1.5.2 Alternate QC Manager Duties and Qualifications

Designate an alternate for the QC Manager to serve in the event of the designated QC Manager's absence. The period of absence may not exceed two weeks at one time, and not more than 30 workdays during a calendar year. The qualification requirements for the Alternate QC Manager shall be the same as for the QC Manager.

1.6 QC PLAN

1.6.1 Requirements

Provide, for acceptance by the CO, a QC plan submitted in a three-ring binder that covers both on-site and off-site work and includes the following with a table of contents listing the major sections identified with tabs.

I. QC ORGANIZATION: A chart showing the QC organizational structure and its relationship to the production side of the organization.

II. NAMES AND QUALIFICATIONS: In resume format, for each person in the QC organization. Include the CQM for Contractors course certification required by the paragraph entitled "Construction Quality Management Training".

III. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONAL: Of each person in the QC organization.

IV. OUTSIDE ORGANIZATIONS: A listing of outside organizations such as architectural and consulting engineering firms that will be employed by the Contractor and a description of the services these firms will provide.

V. APPOINTMENT LETTERS: Letters signed by an officer of the firm appointing the QC Manager and Alternate QC Manager and stating that they are responsible for managing and implementing the QC program as described in this contract. Include in this letter the QC Manager's authority to direct the removal and replacement of non-conforming work.

VI. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER: Procedures for reviewing, approving and managing submittals. Provide the name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval.

VII. TESTING LABORATORY INFORMATION: Testing laboratory information required by the paragraphs "Accredited Laboratories" or "Testing

Laboratory Requirements", as applicable.

VIII. TESTING PLAN AND LOG: A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.

IX. PROCEDURES TO COMPLETE REWORK ITEMS: Procedures to identify, record, track and complete rework items.

X. DOCUMENTATION PROCEDURES: Use Government formats.

XI. LIST OF DEFINABLE FEATURES: A Definable Feature of Work (DFOW) is a task, which is separate and distinct from other tasks, has the same control requirements and work crews. The list shall be cross-referenced to the Contractor's Construction Schedule and the specification sections. For projects requiring a Progress Chart, the list of definable features of work shall include but not be limited to all items of work on the schedule. For projects requiring a Network Analysis Schedule, the list of definable features of work shall include but not be limited to all critical path activities.

XII. PROCEDURES FOR PERFORMING THREE PHASES OF CONTROL: For each DFOW provide Preparatory and Initial Phase Checklists. Each list shall include a breakdown of quality checks that will be used when performing the quality control functions, inspections, and tests required by the contract documents. The preparatory and initial phases shall be conducted with a view towards obtaining quality construction by planning ahead and identifying potential problems.

XIII. PERSONNEL MATRIX: Not Applicable.

XIV. PROCEDURES FOR COMPLETION INSPECTION: See the paragraph entitled "COMPLETION INSPECTIONS".

XV. TRAINING PROCEDURES AND TRAINING LOG: Not Applicable.

1.7 COORDINATION AND MUTUAL UNDERSTANDING MEETING

During the Pre-Construction conference and prior to the start of construction, discuss the QC program required by this contract. The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, and the coordination of the Contractor's management, production and the QC personnel. At the meeting, the Contractor will be required to explain how three phases of control will be implemented for each DFOW. Contractor's personnel required to attend shall include the QC Manager, project manager, and superintendent. Minutes of the meeting will be prepared by the QC Manager and signed by both the Contractor and the CO. The Contractor shall provide a copy of the signed minutes to all attendees. Repeat the coordination and mutual understanding meeting when a new QC Manager is appointed.

1.8 QC MEETINGS

After the start of construction, the QC Manager shall conduct QC meetings once every two weeks at the work site with the superintendent and the foreman responsible for the ongoing and upcoming work. The QC Manager

shall prepare the minutes of the meeting and provide a copy to the CO within two working days after the meeting. As a minimum, the following shall be accomplished at each meeting:

a. Review the minutes of the previous meeting;

b. Review the schedule and the status of work and rework;

c. Review the status of submittals;

d. Review the work to be accomplished in the next two weeks and documentation required;

e. Resolve QC and production problems (RFIs, etc.);

f. Address items that may require revising the QC plan; and

g. Review Accident Prevention Plan (APP).

1.9 THREE PHASES OF CONTROL

The three phases of control shall adequately cover both on-site and off-site work and shall include the following for each DFOW.

1.9.1 Preparatory Phase

Notify the CO at least two work days in advance of each preparatory phase. Conduct the preparatory phase with the superintendent and the foreman responsible for the definable feature of work. Document the results of the preparatory phase actions in the daily CQC Report and in the QC checklist. Perform the following prior to beginning work on each definable feature of work:

a. Review each paragraph of the applicable specification sections;

b. Review the contract drawings;

c. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required;

d. Review the testing plan and ensure that provisions have been made to provide the required QC testing;

e. Examine the work area to ensure that the required preliminary work has been completed;

f. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data;

g. Review the APP and appropriate Activity Hazard Analysis (AHA) to ensure that applicable safety requirements are met, and that required Safety Data Sheets (SDS) are submitted; and

h. Discuss specific controls used and the construction methods and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each DFOW.

1.9.2 Initial Phase

Notify the CO at least two work days in advance of each initial phase. When construction crews are ready to start work on a DFOW, conduct the Initial Phase with the foreman responsible for that DFOW. Observe the initial segment of the work to ensure that it complies with contract requirements. Document the results of the Initial Phase in the daily CQC Report and in the QC checklist. Perform the following for each DFOW:

a. Establish the quality of workmanship required;

b. Resolve conflicts;

c. Ensure that testing is performed by the approved laboratory; and

d. Check work procedures for compliance with the APP and the appropriate AHA to ensure that applicable safety requirements are met.

1.9.3 Follow-Up Phase

Perform the following for on-going work daily, or more frequently as necessary, until the completion of each DFOW and document in the daily CQC Report and in the QC checklist:

a. Ensure the work is in compliance with contract requirements;

b. Maintain the quality of workmanship required;

c. Ensure that testing is performed by the approved laboratory;

d. Ensure that rework items are being corrected; and

e. Assure manufacturers representatives have performed necessary inspections, if required.

1.9.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same DFOW if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a DFOW is resumed after substantial period of inactivity, or if other problems develop.

1.9.5 Notification of Three Phases of Control for Off-Site Work

Notify the CO at least two weeks prior to the start of the preparatory and initial phases.

1.10 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review, and approval of submittals are described in the submittal section of the specification.

1.11 TESTING

Except as stated otherwise in the specification sections, perform sampling and testing required under this contract.

1.11.1 Accreditation Requirements

Construction materials testing laboratories must be accredited by a laboratory accreditation authority and will be required to submit a copy of the Certificate of Accreditation and Scope of Accreditation. The laboratory's scope of accreditation must include the appropriate ASTM standards (i.e.; E 329, C 1077, D 3666, D 3740, A 880, E 543) listed in the technical sections of the specifications. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the "Corporate Office."

1.11.2 Laboratory Accreditation Authorities

Laboratory Accreditation Authorities include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology, the American Association of State Highway and Transportation Officials (AASHTO), International Accreditation Services, Inc. (IAS), U. S. Army Corps of Engineers Materials Testing Center (MTC), the American Association for Laboratory Accreditation (A2LA).

1.11.3 Capability Check

The CO retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this contract.

1.11.4 Test Results

Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails to conform to specified requirements. If the item fails to conform, notify the CO immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. Test results shall be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the CO.

1.12 QC CERTIFICATIONS

1.12.1 Contractor Quality Control Report Certification

Each CQC Report shall contain the following statement: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report."

1.12.2 Invoice Certification

Furnish a certificate to the CO with each payment request, signed by the QC Manager, attesting that as-built drawings are current and attesting that the work for which payment is requested, including stored material, is in compliance with contract requirements.

1.12.3 Completion Certification

Upon completion of work under this contract, the QC Manager shall furnish a certificate to the CO attesting that "the work has been completed, inspected, tested and is in compliance with the contract."

1.13 COMPLETION INSPECTIONS

1.13.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Contract clause "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QC Manager shall conduct an inspection of the work and develop a punch list of items which do not conform to the approved drawings and specifications. Include in the punch list any remaining items of the "Rework Items List", which were not corrected prior to the Punch-Out inspection. The punch list shall include the estimated date by which the deficiencies will be corrected. A copy of the punch list shall be provided to the CO. The QC Manager or staff shall make follow-on inspections to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government "Pre-Final Inspection".

1.13.2 Pre-Final Inspection

The Government and QC manager will perform this inspection to verify that the facility is complete and ready to be occupied. A Government pre-final punch list may be developed as a result of this inspection. The QC Manager shall ensure that all items on this list are corrected prior to notifying the Government that a "Final" inspection with the customer can be scheduled. Any items noted on the "Pre-Final" inspection shall be corrected in a timely manner and shall be accomplished before the contract completion date for the work or any particular increment thereof if the project is divided into increments by separate completion dates.

1.13.3 Final Acceptance Inspection

The QC Manager, the superintendent, or other Contractor management personnel and the CO will be in attendance at this inspection. Additional Government personnel may be in attendance. The final acceptance inspection will be formally scheduled by the CO based upon results of the "Pre-Final Inspection". Notice shall be given to the CO at least 14 days prior to the final inspection. The notice shall state that all specific items previously identified to the Contractor as being unacceptable will be complete by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the CO to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause "Inspection of Construction".

1.14 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities. The forms identified under the paragraph "INFORMATION FOR THE CONTRACTING OFFICER (CO)" shall be used. Reports are required for each day work is performed. Account for each calendar day throughout the life of the contract. Every space on the forms must be filled in. Use N/A if nothing can be reported in one of the spaces. The

superintendent and the QC Manager must prepare and sign the Contractor Production and CQC Reports, respectively. The reporting of work shall be identified by terminology consistent with the construction schedule. In the "remarks" section in this report which will contain pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the work site. For each remark given, identify the Schedule Activity No. that is associated with the remark.

1.14.1 Quality Control Validation

Establish and maintain the following in a series of three ring binders. Binders shall be divided and tabbed as shown below. These binders shall be readily available to the Government's Quality Assurance Team during all business hours.

a. All completed Preparatory and Initial Phase Checklists, arranged by specification section.

b. All milestone inspections, arranged by Activity/Event Number.

c. A current up-to-date copy of the Testing and Plan Log with supporting field test reports, arranged by specification section.

d. Copies of all contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.

e. A current up-to-date copy of the Rework Items List.

f. Maintain up-to-date copies of all punch lists issued by the QC Staff on the Contractor and Sub-Contractors and all punch lists issued by the Government.

1.14.2 As-Built Drawings

The QC Manager is required to review the as-built drawings, required by Section 01 78 00 CLOSEOUT SUBMITTALS, are kept current on a daily basis and marked to show deviations, which have been made from the Contract drawings. Ensure each deviation has been identified with the appropriate modifying documentation, e.g. PC number, modification number, RFI number, etc. The QC Manager shall initial each deviation or revision. Upon completion of work, the QC Manager shall submit a certificate attesting to the accuracy of the as-built drawings prior to submission to the CO.

1.15 NOTIFICATION ON NON-COMPLIANCE

The CO will notify the Contractor of any detected non-compliance with the foregoing requirements. The Contractor shall take immediate corrective action. If the contractor fails or refuses to correct the non-compliant work, the CO will issue a non compliance notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the CO may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost due to such stop orders the subject of

claim for extension of time, for excess costs, or damages.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 50 00

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS
11/20, CHG 1: 08/21

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.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2023) National Electrical Code
NFPA 241	(2022) Standard for Safeguarding Construction, Alteration, and Demolition Operations

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2024) Safety and Occupational Health (SOH) Requirements Manual

1.2 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G" classification are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction Site Plan; G

Traffic Control Plan; G

Contractor Computer Cybersecurity Compliance Statements; G

Contractor Temporary Network Cybersecurity Compliance Statements;G

1.3 CONSTRUCTION SITE PLAN

Prior to the start of work, submit for Government approval a site plan showing the locations and dimensions of temporary facilities (including layouts and details, equipment and material storage area (onsite and offsite), and access and haul routes, avenues of ingress/egress to the fenced area and details of the fence installation. Identify any areas which may have to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

1.4 CONDITION OF READINESS (COR)

Government will set the Condition of Readiness (COR) based on the weather forecast for sustained winds 50 knots (58 mph) or greater. Contact the Contracting Officer for the current COR setting.

Monitor weather conditions a minimum of twice a day and take appropriate actions according to the approved Emergency Plan in the accepted Accident Prevention Plan, EM 385-1-1 Section 01 Emergency Planning and the instructions below.

Unless otherwise directed by the Contracting Officer, comply with:

a. Condition FOUR (Sustained winds of 58 mph or greater expected within 72 hours): Normal daily jobsite cleanup and good housekeeping practices. Collect and store in piles or containers scrap lumber, waste material, and rubbish for removal and disposal at the close of each work day. Maintain the construction site including storage areas, free of accumulation of debris. Stack form lumber in neat piles less than 3.3 feet high. Remove all debris, trash, or objects that could become missile hazards. Review requirements pertaining to "Condition THREE" and continue action as necessary to attain "Condition FOUR" readiness. Contact Contracting Officer for weather and COR updates and completion of required actions.

b. Condition THREE (Sustained winds of 58 mph or greater expected within 48 hours): Maintain "Condition FOUR" requirements and commence securing operations necessary for "Condition ONE" which cannot be completed within 18 hours. Cease all routine activities which might interfere with securing operations. Commence securing and stow all gear and portable equipment. Make preparations for securing buildings. Reinforce or remove formwork and scaffolding. Secure machinery, tools, equipment, materials, or remove from the jobsite. Expend every effort to clear all missile hazards and loose equipment from general base areas. Contact Contracting Officer for weather and COR updates and completion of required actions. Review requirements pertaining to "Condition TWO" and continue action as necessary to attain "Condition THREE" readiness.

c. Condition TWO (Sustained winds of 58 mph or greater expected within 24 hours): Secure the jobsite, and leave Government premises.

d. Condition ONE. (Sustained winds of 58 mph or greater expected within 12 hours): Contractor access to the jobsite and Government premises is prohibited.

1.5 CYBERSECURITY DURING CONSTRUCTION

{For Reference Only: This subpart (and its subparts) relates to AC-18, SA-3, CCI-00258.} Meet the following requirements throughout the construction process.

1.5.1 Contractor Computer Equipment

Contractor owned computers may be used for construction. When used, contractor computers must meet the following requirements:

1.5.1.1 Operating System

The operating system must be an operating system currently supported by the manufacturer of the operating system. The operating system must be current on security patches and operating system manufacturer required updates.

1.5.1.2 Anti-Malware Software

The computer must run anti-malware software from a reputable software manufacturer. Anti-malware software must be a version currently supported by the software manufacturer, must be current on all patches and updates, and must use the latest definitions file. All computers used on this project must be scanned using the installed software at least once per day.

1.5.1.3 Passwords and Passphrases

The passwords and passphrases for all computers must be changed from their default values. Passwords must be a minimum of eight characters with a minimum of one uppercase letter, one lowercase letter, one number and one special character.

1.5.1.4 Contractor Computer Cybersecurity Compliance Statements

Provide a single submittal containing completed Contractor Computer Cybersecurity Compliance Statements for each company using contractor owned computers. Contractor Computer Cybersecurity Compliance Statements must use the template published at http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/forms-graphics-tables. Each Statement must be signed by a cybersecurity representative for the relevant company.

1.5.2 Temporary IP Networks

Temporary contractor-installed IP networks may be used during construction. When used, temporary contractor-installed IP networks must meet the following requirements:

1.5.2.1 Network Boundaries and Connections

The network must not extend outside the project site and must not connect to any IP network other than IP networks provided under this project or Government furnished IP networks provided for this purpose. Any and all network access from outside the project site is prohibited.

1.5.3 Government Access to Network

Government personnel must be allowed to have complete and immediate access to the network at any time in order to verify compliance with this specification.

1.5.4 Temporary Wireless IP Networks

In addition to the other requirements on temporary IP networks, temporary wireless IP (WiFi) networks must not interfere with existing wireless network and must use WPA2 security. Network names (SSID) for wireless networks must be changed from their default values.

1.5.5 Passwords and Passphrases

The passwords and passphrases for all network devices and network access must be changed from their default values. Passwords must be a minimum 8 characters with a minimum of one uppercase letter, one lowercase letter, one number and one special character.

1.5.6 Contractor Temporary Network Cybersecurity Compliance Statements

Provide a single submittal containing completed Contractor Temporary Network Cybersecurity Compliance Statements for each company implementing a temporary IP network. Contractor Temporary Network Cybersecurity Compliance Statements must use the template published at http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/forms-graphics-tables. Each Statement must be signed by a cybersecurity representative for the relevant company. If no temporary IP networks will be used, provide a single copy of the Statement indicating this.

1.6 TRAINING

All employees of the general contractor or subcontractors shall have the 10-hour OSHA certified Construction Safety course and /or other relevant competency training. Supervisors shall have completed the 30-hour OSHA training.

Submit training records of all such employees to the Contracting Officer for approval before the start of work.

PART 2 PRODUCTS

2.1 TEMPORARY SIGNAGE

2.1.1 Bulletin Board

Prior to the commencement of work activities, provide a clear weatherproof 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, Safety and Health Information as required by EM 385-1-1 Section 01 and other information approved by the Contracting Officer. Coordinate requirements herein with 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS. Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees, and in location as approved by the Contracting Officer.

2.1.2 Warning Signs

Post temporary signs, tags, and labels to give workers and the public adequate warning and caution of construction hazards according to the EM 385-1-1 Section 04. Attach signs to the perimeter fencing every 150 feet warning the public of the presence of construction hazards. Signs must require unauthorized persons to keep out of the construction site. Correct the data required by safety signs daily. Post signs at all points of entry designating the construction site as a hard hat area.

2.2 TEMPORARY TRAFFIC CONTROL

2.2.1 Roads

Construct access and haul roads necessary for proper prosecution of the work under this Contract in accordance with EM 385-1-1 Section 04. Construct with suitable grades and widths; avoid sharp curves, blind corners, and dangerous cross traffic. Submit haul road plan for approval. Provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, must be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and haul roads are subject to approval by the Contracting Officer. Lighting must be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations.

2.2.2 Barricades

Erect and maintain temporary barricades to limit public access to hazardous areas. Barricades are 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. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

2.3 FENCING

Provide fencing along the construction site and at all open excavations and tunnels to control access by unauthorized personnel. Safety fencing must be highly visible to be seen by pedestrians and vehicular traffic. All fencing must meet the requirements of EM 385-1-1. Remove the fence upon completion and acceptance of the work.

2.3.1 Polyethylene Mesh Safety Fencing

Temporary safety fencing must be a high visibility orange colored, high density polyethylene grid, a minimum of 48 inches high and maximum mesh size of 2 inches. Fencing must extend from the grade to a minimum of 48 inches above the grade and be tightly secured to T-posts spaced as necessary to maintain a rigid and taut fence. Fencing must remain rigid and taut with a minimum of 200 pounds of force exerted on it from any direction with less than 4 inches of deflection.

2.3.2 Chain Link Panel Fencing

Temporary panel fencing must be galvanized steel chain link panels 6 feet high. Multiple fencing panels may be linked together at the bases to form long spans as needed. Each panel base must be weighted down using sand bags or other suitable materials in order for the fencing to withstand anticipated winds while remaining upright. Fencing must remain rigid and taut with a minimum of 200 pounds of force exerted on it from any direction with less than 4 inches of deflection.

2.4 TEMPORARY WIRING

Provide temporary wiring in accordance with EM 385-1-1 Section 11, NFPA 241 and NFPA 70. Include monthly inspection and testing of all equipment and apparatus.

2.5 TEMPORARY TANK/LABORATORY PROTECTION

Provide temporary protection on fish tanks. Cover the tank temporarily during work, not to exceed a day, with minimum 6mm polyvinyl plastic sheeting. Store sheeting outside of lab at the end of each day. Inspect sheeting for build up of mold or other materials before use. Coordinate with lab for contact of tank.

PART 3 EXECUTION

3.1 EMPLOYEE PARKING

Construction Contract employees must park privately owned vehicles in an area designated by the Contracting Officer. Employee parking must not interfere with existing and established parking requirements of the Government installation.

3.2 AVAILABILITY AND USE OF UTILITY SERVICES

3.2.1 Temporary Utilities

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.

Motor Vehicle Restrictions

1. Vehicle authorization request shall be required for any vehicle entering the site and such request shall be submitted 24 hours before the date and time of access. Access shall be restricted to picking up and dropping off materials and supplies and Contractor must be on site to receive all deliveries.

2. Separate permits shall be issued for Contractor and its employees for parking in designated areas only.

Utilities Services: Existing utility services for ARS shall be maintained at all times. Provide temporary facilities, labor, materials, equipment, connections, and utilities to assure uninterrupted services. Where necessary to cut existing water, steam, gases, sewer or air pipes, or conduits, wires, cables, etc. of utility services or of fire protection systems and communications systems (including telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by the Contracting Officer.

1. No utility service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems may be interrupted without prior written approval of the Contracting Officer. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished, work on any
energized circuits or equipment shall not commence without the Contracting Officer’s prior knowledge and written approval.

2. Contractor shall submit a request to interrupt any such services to the Contracting Officer, in writing, Two weeks advanced notice and again 48 hours in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.

3. Contractor will be advised (in writing) of approval of request, or of which other date and/or time such interruption will cause least inconvenience to operations of ARS. Interruption time approved by ARS may occur at other than Contractor's normal working hours.

4. In case of a contract construction emergency, service will be interrupted on approval of the Contracting Officer. Such approval will be confirmed in writing as soon as practical.

3.2.2 Sanitation

Provide and maintain within the construction area minimum field-type sanitary facilities in accordance with EM 385-1-1 Section 02. Locate the facilities behind the construction fence or out of the public view. Clean units and empty wastes at least once a week or more frequently into a municipal, district, or station sanitary sewage system, or remove waste to a commercial facility. Obtain approval from the system owner prior to discharge into a municipal, district, or commercial sanitary sewer system. Penalties or fines associated with improper discharge will be the responsibility of the Contractor. Coordinate with the Contracting Officer and follow station regulations and procedures when discharging into the station sanitary sewer system. Maintain these conveniences at all times. Include provisions for pest control and elimination of odors. Government toilet facilities will not be available to Contractor's personnel.

3.2.3 Telephone

Make arrangements and pay all costs for telephone facilities desired.

3.2.4 Fire Protection

Provide temporary fire protection equipment for the protection of personnel and property during construction. Remove debris and flammable materials daily to minimize potential hazards.

3.3 TRAFFIC PROVISIONS

3.3.1 Maintenance of Traffic

a. Conduct operations in a manner that will not close a thoroughfare or interfere with traffic on railways or highways except with written permission of the Contracting Officer at least 15 calendar days prior to the proposed modification date, and provide a Traffic Control Plan for Government approval detailing the proposed controls to traffic movement for approval. The plan must be in accordance with State and local regulations . . Contractor may move oversized and slow-moving vehicles to the worksite provided requirements of the highway authority have been met.

b. Conduct work so as to minimize obstruction of traffic, and maintain traffic on at least half of the roadway width at all times. Obtain approval from the Contracting Officer prior to starting any activity that will obstruct traffic.

c. Provide, erect, and maintain, at Contractor's expense, lights, barriers, signals, passageways, detours, and other items, that may be required by the Life Safety Signage, overhead protection authority having jurisdiction.

d. Provide cones, signs, barricades, lights, or other traffic control devices and personnel required to control traffic. Do not use foil-backed material for temporary pavement marking because of its potential to conduct electricity during accidents involving downed power lines.

3.3.2 Protection of Traffic

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 the work, and the erection and maintenance of adequate warning, danger, and direction signs, will be as required by the State and local authorities having jurisdiction. Provide self-illuminated (lighted) barricades during hours of darkness. Brightly-colored (orange) vests are required for all personnel working in roadways. Protect the traveling public from damage to person and property. Minimize the interference with public traffic on roads selected for hauling material to and from the site. Investigate the adequacy of existing roads and their allowable load limit. Contractor is responsible for the repair of damage to roads caused by construction operations.

3.3.3 Dust Control

Dust control methods and procedures must be approved by the Contracting Officer. Coordinate dust control methods with 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS.

3.4 REDUCED PRESSURE BACKFLOW PREVENTERS

Provide an approved reduced pressure backflow prevention assembly at each location where the Contractor taps into the Government potable water supply.

Perform backflow preventer tests using test equipment, procedures, and certification forms conforming to those outlined in the latest edition of the Manual of Cross-Connection Control published by the FCCCHR Manual. Test and tag each reduced pressure backflow preventer upon initial installation (prior to continued water use) and quarterly thereafter. Tag must contain the following information: make, model, serial number, dates of tests, results, maintenance performed, and signature of tester. Record test results on certification forms conforming to requirements cited earlier in this paragraph.

3.5 CONTRACTOR'S TEMPORARY FACILITIES

Contractor-owned or -leased trailers must be identified by Government assigned numbers. Size and location of the number will comply with contracting officer instruction. Apply the number to the trailer within 14 calendar days of notification, or sooner, if directed by the Government. Temporary facilities must meet requirements as identified in EM 385-1-1 Section 04.

Contractor is responsible for security of their property. Provide adequate outside security lighting at the temporary facilities. Trailers must be anchored to resist high winds and meet applicable state or local

standards for anchoring mobile trailers. Coordinate anchoring with EM 385-1-1 Section 04. The Contract Clause entitled "FAR 52.236-10, Operations and Storage Areas" and the following apply:

3.5.1 Administrative Field Offices

Provide and maintain administrative field office facilities within the construction area at the designated site. This site will not be within the building, but in an area specified by the Location Monitor, outside on the property. Government office and warehouse facilities will not be available to the Contractor's personnel.

3.5.2 Storage Area

Construct a temporary 6 foot high chain link fence around trailers and materials. Include plastic strip inserts, colored green, so that visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Do not place or store trailers, materials, or equipment 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 but within the installation boundaries. Trailers, equipment, or materials must not be open to public view with the exception of those items which are in support of ongoing work on the current day. Do not stockpile materials outside the fence in preparation for the next day's work. Park mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment within the fenced area at the end of each work day.

Keep fencing in a state of good repair and proper alignment. Grassed or unpaved areas, which are not established roadways, and will be traversed with construction equipment or other vehicles, must be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways, should the Contractor elect to traverse them with construction equipment or other vehicles. Mow and maintain grass located within the boundaries of the construction site for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers must be edged or trimmed neatly.

3.5.3 Appearance of Trailers

a. Trailers must be roadworthy and comply with all appropriate state and local vehicle requirements. Trailers which are rusted, have peeling paint or are otherwise in need of repair will not be allowed on Installation property. Trailers must present a clean and neat exterior appearance and be in a state of good repair.

b. Maintain the temporary facilities. Failure to do so will be sufficient reason to require their removal at the Contractor's expense.

3.5.4 Safety Systems

Protect the integrity of all installed safety systems or personnel safety devices. Obtain prior approval from the Contracting Officer if entrance into systems serving safety devices is required. If it is temporarily necessary to remove or disable personnel safety devices in order to accomplish Contract requirements, provide alternative means of protection prior to removing or disabling any permanently installed safety devices or

equipment and obtain approval from the Contracting Officer.

3.5.5 Special Storage Requirements

The following special storage requirements apply:

3.5.5.1 Storage in Existing Buildings

The Contractor will be working in an existing building; the storage of material will be allowed in a 100 square foot area. Provide 8 foot high-security fence with a lockable gate around the storage area. Remove at the completion of work.

3.5.6 Weather Protection of Temporary Facilities and Stored Materials

Take necessary precautions to ensure that roof openings and other critical openings in the building are monitored carefully. Take immediate actions required to seal off such openings when rain or other detrimental weather is imminent, and at the end of each workday. Ensure that the openings are completely sealed off to protect materials and equipment in the building from damage.

3.5.6.1 Building and Site Storm Protection

When a warning of gale force winds is issued, take precautions to minimize danger to persons, and protect the work and nearby Government property. Precautions must include, but are not limited to, closing openings; removing loose materials, tools and equipment from exposed locations; and removing or securing scaffolding and other temporary work. Close openings in the work when storms of lesser intensity pose a threat to the work or any nearby Government property.

3.6 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, furnish and erect temporary project safety fencing at the work site. Maintain the safety fencing during the life of the Contract and, upon completion and acceptance of the work, remove from the work site.

3.7 CLEANUP

Remove construction debris, waste materials, packaging material and the like from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways must be cleaned away. Store all salvageable materials resulting from demolition activities within the fenced area described above or at the supplemental storage area. Neatly stack stored materials not in trailers, whether new or salvaged.

3.8 RESTORATION OF STORAGE AREA

Upon completion of the project remove the bulletin board, signs, barricades, haul roads, and all other temporary products from the site. After removal of trailers, materials, and equipment from within the fenced area, remove the fence. Restore areas used during the performance of the Contract to the original or better condition. Remove gravel used to traverse grassed areas and restore the area to its original condition, including top soil and seeding as necessary.

-- End of Section --

SECTION 01 57 19

TEMPORARY ENVIRONMENTAL CONTROLS
08/22

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. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.1200	Hazard Communication
40 CFR 112	Oil Pollution Prevention
40 CFR 241	Guidelines for Disposal of Solid Waste
40 CFR 243	Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste
40 CFR 258	Subtitle D Landfill Requirements
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 261.7	Residues of Hazardous Waste in Empty Containers
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 273	Standards for Universal Waste Management
40 CFR 273.2	Standards for Universal Waste Management -

	Batteries
40 CFR 273.4	Standards for Universal Waste Management - Mercury Containing Equipment
40 CFR 273.5	Standards for Universal Waste Management - Lamps
40 CFR 273.6	Applicability - Aerosol Cans
40 CFR 279	Standards for the Management of Used Oil
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 300.125	National Oil and Hazardous Substances Pollution Contingency Plan - Notification and Communications
40 CFR 355	Emergency Planning and Notification
40 CFR 745	Lead-Based Paint Poisoning Prevention in Certain Residential Structures
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings

1.2 DEFINITIONS

1.2.1 Contractor Generated Hazardous Waste

Contractor generated hazardous waste is materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the Contractor to execute work, but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e., methyl ethyl ketone, toluene), waste thinners, excess paints, excess solvents, waste solvents, excess pesticides, and contaminated pesticide equipment rinse water.

1.2.2 Electronics Waste

Electronics waste is discarded electronic devices intended for salvage, recycling, or disposal.

1.2.3 Environmental Pollution and Damage

Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally or historically.

1.2.4 Environmental Protection

Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2.5 Hazardous Debris

As defined in paragraph SOLID WASTE, debris that contains listed hazardous waste (either on the debris surface, or in its interstices, such as pore structure) in accordance with 40 CFR 261. Hazardous debris also includes debris that exhibits a characteristic of hazardous waste in accordance with 40 CFR 261.

1.2.6 Hazardous Materials

Hazardous material is any material that: Is defined in 49 CFR 171, listed in 49 CFR 172, regulated as a hazardous material in accordance with 49 CFR 173; or requires a Safety Data Sheet (SDS) in accordance with 29 CFR 1910.1200; or during end use, treatment, handling, packaging, storage, transportation, or disposal meets or has components that meet or have potential to meet the definition of a hazardous waste as defined by 40 CFR 261 Subparts A, B, C, or D. Designation of a material by this definition, when separately regulated or controlled by other sections or directives, does not eliminate the need for adherence to that hazard-specific guidance which takes precedence over this section for "control" purposes. Such material includes ammunition, weapons, explosive actuated devices, propellants, pyrotechnics, chemical and biological warfare materials, medical and pharmaceutical supplies, medical waste and infectious materials, bulk fuels, radioactive materials, and other materials such as asbestos, mercury, and polychlorinated biphenyls (PCBs).

1.2.7 Hazardous Waste

Hazardous Waste is any material that meets the definition of a solid waste and exhibits a hazardous characteristic (ignitability, corrosivity, reactivity, or toxicity) as specified in 40 CFR 261, Subpart C, or contains a listed hazardous waste as identified in 40 CFR 261, Subpart D, or meets a state, local, or host nation definition of a hazardous waste.

1.2.8 Land Application

Land Application means spreading or spraying discharge water at a rate that allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the "waters of the United States" must occur. Comply with federal, state, and local laws and regulations.

1.2.9 Oily Waste

Oily waste are those materials that are, or were, mixed with Petroleum, Oils, and Lubricants (POLs) and have become separated from that POLs. Oily wastes also means materials, including wastewaters, centrifuge solids, filter residues or sludges, bottom sediments, tank bottoms, and sorbents which have come into contact with and have been contaminated by, POLs and may be appropriately tested and discarded in a manner which is in compliance with other state and local requirements.

This definition includes materials such as oily rags, "kitty litter" sorbent clay and organic sorbent material. These materials may be land filled provided that: It is not prohibited in other state regulations or local ordinances; the amount generated is "de minimus" (a small amount); it is the result of minor leaks or spills resulting from normal process operations; and free-flowing oil has been removed to the practicable extent possible. Large quantities of this material, generated as a result of a major spill or in lieu of proper maintenance of the processing equipment, are a solid waste. As a solid waste, perform a hazardous waste determination prior to disposal. As this can be an expensive process, it is recommended that this type of waste be minimized through good housekeeping practices and employee education.

1.2.10 Regulated Waste

Regulated waste are solid wastes that have specific additional federal, state, or local controls for handling, storage, or disposal.

1.2.11 Sediment

Sediment is soil and other debris that have eroded and have been transported by runoff water or wind.

1.2.12 Solid Waste

Solid waste is a solid, liquid, semi-solid or contained gaseous waste. A solid waste can be a hazardous waste, non-hazardous waste, or non-Resource Conservation and Recovery Act (RCRA) regulated waste. Types of solid waste typically generated at construction sites may include:

1.2.12.1 Debris

Debris is non-hazardous solid material generated during the construction, demolition, or renovation of a structure that exceeds 2.5-inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (for example, cobbles and boulders), broken or removed concrete, masonry, and rock asphalt paving; ceramics; roofing paper and shingles. Inert materials may be reinforced with or contain ferrous wire, rods, accessories and weldments. A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if the mixture is comprised primarily of debris by volume, based on visual inspection.

1.2.12.2 Green Waste

Green waste is the vegetative matter from landscaping, land clearing and grubbing, including, but not limited to, grass, bushes, scrubs, small trees and saplings, tree stumps and plant roots. Marketable trees,

grasses and plants that are indicated to remain, be re-located, or be re-used are not included.

1.2.12.3 Material Not Regulated As Solid Waste

Material not regulated as solid waste is nuclear source or byproduct materials regulated under the Federal Atomic Energy Act of 1954 as amended; suspended or dissolved materials in domestic sewage effluent or irrigation return flows, or other regulated point source discharges; regulated air emissions; and fluids or wastes associated with natural gas or crude oil exploration or production.

1.2.12.4 Non-Hazardous Waste

Non-hazardous waste is waste that is excluded from, or does not meet, hazardous waste criteria in accordance with 40 CFR 261.

1.2.12.5 Recyclables

Recyclables are materials, equipment and assemblies such as doors, windows, door and window frames, plumbing fixtures, glazing and mirrors that are recovered and sold as recyclable, wiring, insulated/non-insulated copper wire cable, wire rope, and structural components. It also includes commercial-grade refrigeration equipment with Freon removed, household appliances where the basic material content is metal, clean polyethylene terephthalate bottles, cooking oil, used fuel oil, textiles, high-grade paper products and corrugated cardboard, stackable pallets in good condition, clean crating material, and clean rubber/vehicle tires. Metal meeting the definition of lead contaminated or lead based paint contaminated may be included as recyclable if sold to a scrap metal company. Paint cans that meet the definition of empty containers in accordance with 40 CFR 261.7 may be included as recyclable if sold to a scrap metal company.

1.2.12.6 Scrap Metal

This includes scrap and excess ferrous and non-ferrous metals such as reinforcing steel, structural shapes, pipe, and wire that are recovered or collected and disposed of as scrap. Scrap metal meeting the definition of hazardous material or hazardous waste is not included.

1.2.12.7 Wood

Wood is dimension and non-dimension lumber, plywood, chipboard, hardboard. Treated or painted wood that meets the definition of lead contaminated or lead based contaminated paint is not included. Treated wood includes, but is not limited to, lumber, utility poles, crossties, and other wood products with chemical treatment.

1.2.13 Surface Discharge

Surface discharge means discharge of water into drainage ditches, storm sewers, or creeks meeting the definition of "waters of the United States". Surface discharges from construction sites are discrete, identifiable sources and require a permit from the governing agency. Comply with federal, state, and local laws and regulations.

1.2.14 Wastewater

Wastewater is the used water and solids that flow through a sanitary sewer to a treatment plant.

1.2.14.1 Stormwater

Stormwater is any precipitation in an urban or suburban area that does not evaporate or soak into the ground, but instead collects and flows into storm drains, rivers, and streams.

1.2.15 Waters of the United States

Waters of the United States means Federally jurisdictional waters, including wetlands, that are subject to regulation under Section 404 of the Clean Water Act or navigable waters, as defined under the Rivers and Harbors Act.

1.2.16 Wetlands

Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

1.2.17 Universal Waste

The universal waste regulations streamline collection requirements for certain hazardous wastes in the following categories: batteries, pesticides, mercury-containing equipment (for example, thermostats), and lamps (for example, fluorescent bulbs). The rule is designed to reduce hazardous waste in the municipal solid waste (MSW) stream by making it easier for universal waste handlers to collect these items and send them for recycling or proper disposal. These regulations can be found at 40 CFR 273.

1.2.18 Location Specific Universal Waste

Any of the following dangerous waste that are subject to the universal waste requirements : Batteries ; Lamps ; Mercury-containing equipment.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Regulatory Notifications; G,

Employee Training Records; G,

Solid Waste Management Permit; G,

SD-06 Test Reports

Monthly Solid Waste Disposal Report; G,

SD-07 Certificates

Employee Training Records; G

SD-11 Closeout Submittals

Refuse and Recycle Quantity Form; G

Project Completion Report; G

Solid Waste Tracking Sheet; G

Regulatory Notifications; G

Assembled Employee Training Records; G

Solid Waste Management Permit; G

Waste Determination Documentation; G

Project Solid Waste Disposal Documentation Report; G

Sales Documentation; G

Hazardous Waste/Debris Management; G

Disposal Documentation for Hazardous and Regulated Waste; G

Contractor Hazardous Material Inventory Log; G

Hazardous Waste Inspection Logs; G

1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

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.

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.

1.4.1 Conformance with the Environmental Management System

Perform work under this contract consistent with the policy and objectives identified in the installation's 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 Installation 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. See paragraph EMPLOYEE TRAINING RECORDS.

1.5 SPECIAL ENVIRONMENTAL REQUIREMENTS

Comply with the special environmental requirements listed here and attached at the end of this section.

1.6 QUALITY ASSURANCE

1.6.1 Regulatory Notifications

Provide regulatory notification requirements in accordance with federal, state and local regulations. In cases where the Government will also provide public notification (such as stormwater permitting), coordinate with the Contracting Officer. Submit copies of regulatory notifications to the Contracting Officer at least 30 days prior to commencement of work activities. Typically, regulatory notifications must be provided for the following (this listing is not all-inclusive): demolition, renovation, NPDES defined site work, construction, removal or use of a permitted air emissions source, and remediation of controlled substances (asbestos, hazardous waste, lead paint).

1.6.2 Environmental Brief

Attend an environmental brief to be included in the preconstruction meeting. 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 results of the Preconstruction Survey at this time.

Prior to initiating any work on site, meet with the Contracting Officer and installation Environmental Office to discuss the proposed Environmental Protection Plan (EPP) or equipment local requirement. 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), and other measures to be taken.

1.6.3 Employee Training Records

Prepare and maintain Employee Training Records throughout the term of the contract meeting applicable 40 CFR requirements. Provide Employee

Training Records in the Environmental Records Binder. Submit these Assembled Employee Training Records to the Contracting Officer at the conclusion of the project, unless otherwise directed.

Train personnel to meet EPA requirements. Conduct environmental protection/pollution control meetings for personnel prior to commencing construction activities. Conduct additional meetings for new personnel and when site conditions change. Include in the training and meeting agenda: methods of detecting and avoiding pollution; familiarization with statutory and contractual pollution standards; installation and care of devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, waters of the United States, and endangered species and their habitat that are known to be in the area.

1.6.4 Non-Compliance Notifications

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with federal, state or local environmental laws or regulations, permits, and other elements of the Contractor's EPP. After receipt of such notice, inform the Contracting Officer of the proposed corrective action and take such action when approved by the Contracting Officer. The Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. FAR 52.242-14 Suspension of Work provides that a suspension, delay, or interruption of work due to the fault or negligence of the Contractor allows for no adjustments to the contract for time extensions or equitable adjustments. In addition to a suspension of work, the Contracting Officer may use additional authorities under the contract or law.

1.7 ENVIRONMENTAL RECORDS BINDER

Maintain on-site a separate three-ring Environmental Records Binder and submit at the completion of the project. Make separate parts within the binder that correspond to each submittal listed under paragraph CLOSEOUT SUBMITTALS in this section.

1.8 SOLID WASTE MANAGEMENT PERMIT

Provide the Contracting Officer with written notification of the quantity of anticipated solid waste or debris that is anticipated or estimated to be generated by construction. Include in the report the locations where various types of waste will be disposed or recycled. Include letters of acceptance from the receiving location or as applicable; submit one copy of the receiving location state and local Solid Waste Management Permit or license showing such agency's approval of the disposal plan before transporting wastes off Government property.

1.8.1 Monthly Solid Waste Disposal Report

Monthly, submit a solid waste disposal report to the Contracting Officer. For each waste, the report will state the classification (using the definitions provided in this section), amount, location, and name of the business receiving the solid waste.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 WASTE MINIMIZATION

Minimize the use of hazardous materials and the generation of waste. Include procedures for pollution prevention/ hazardous waste minimization in the Hazardous Waste Management Section of the EPP. Obtain a copy of the installation's Pollution Prevention/Hazardous Waste Minimization Plan for reference material when preparing this part of the EPP. If no written plan exists, obtain information by contacting the Contracting Officer. Describe the anticipated types of the hazardous materials to be used in the construction when requesting information.

3.1.1 Salvage, Reuse and Recycle

Identify anticipated materials and waste for salvage, reuse, and recycling. Describe actions to promote material reuse, resale or recycling. To the extent practicable, all scrap metal must be sent for reuse or recycling and will not be disposed of in a landfill. Provide Refuse and Recycle Quantity Form. Request form for USDA, see attachements, or provide compliant form.

Include the name, physical address, and telephone number of the hauler, if transported by a franchised solid waste hauler. Include the destination and, unless exempted, provide a copy of the state or local permit (cover) or license for recycling.

3.1.2 Nonhazardous Solid Waste Diversion Report

Maintain an inventory of nonhazardous solid waste diversion and disposal of construction and demolition debris. Submit a report to the Contracting Officer on the first working day after each fiscal year quarter, starting the first quarter that nonhazardous solid waste has been generated. Include the following in the report:

Construction and Demolition (C&D) Debris Disposed	units as appropriate
C&D Debris Recycled	units as appropriate
Total C&D Debris Generated	units as appropriate

3.2 WASTE MANAGEMENT AND DISPOSAL

3.2.1 Solid Waste Management

3.2.1.1 Project Solid Waste Disposal Documentation Report

Provide copies of the waste handling facilities' weight tickets, receipts, bills of sale, and other sales documentation. Provide a Solid Waste Tracking Sheet as part of the documentation. Request the sheet from USDA or provide tracking sheet if USDA does not have a compliance form. In lieu of sales documentation, a statement indicating the disposal location for the solid waste that is signed by an employee authorized to legally obligate or bind the firm may be submitted. The sales documentation must include the receiver's tax identification number and business, EPA or state registration number, along with the receiver's delivery and business addresses and telephone numbers. For each solid waste retained for the Contractor's own use, submit the information previously described in this paragraph on the solid waste disposal report. Prices paid or received do not have to be reported to the Contracting Officer unless required by other provisions or specifications of this Contract or public law.

3.2.1.2 Control and Management of Solid Wastes

Pick up solid wastes, and place in covered containers that are regularly emptied. Do not prepare or cook food on the project site. Prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, leave the areas clean. Employ segregation measures so that no hazardous or toxic waste will become co-mingled with non-hazardous solid waste. Transport solid waste off Government property and dispose of it in compliance with 40 CFR 260, state, and local requirements for solid waste disposal. A Subtitle D RCRA permitted landfill is the minimum acceptable offsite solid waste disposal option. Verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate. Solid waste disposal offsite must comply with most stringent local, state, and federal requirements, including 40 CFR 241, 40 CFR 243, and 40 CFR 258.

Manage hazardous material used in construction, including but not limited to, aerosol cans, waste paint, cleaning solvents, contaminated brushes, and used rags, in accordance with 49 CFR 173.

3.2.2 Control and Management of Hazardous Waste

Do not dispose of hazardous waste on Government property. Do not discharge any waste to a sanitary sewer, storm drain, or to surface waters or conduct waste treatment or disposal on Government property without written approval of the Contracting Officer and Installation Hazardous Waste Manager.

3.2.2.1 Hazardous Waste/Debris Management

Identify construction activities that will generate hazardous waste or debris. Provide a documented waste determination for resultant waste streams. Identify, label, handle, store, and dispose of hazardous waste or debris in accordance with federal, state, and local regulations, including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, and 40 CFR 268.

Manage hazardous waste in accordance with the approved Hazardous Waste

Management Section of the EPP. Store hazardous wastes in approved containers in accordance with 49 CFR 173 and 49 CFR 178. Hazardous waste generated within the confines of Government facilities is identified as being generated by the Government. Prior to removal of any hazardous waste from Government property, hazardous waste manifests must be signed by personnel from the Installation Environmental Office. Do not bring hazardous waste onto Government property. Provide the Contracting Officer with a copy of Waste Determination Documentation for any solid waste streams that have any potential to be hazardous waste or contain any chemical constituents listed in 40 CFR 372-SUBPART D.

3.2.2.2 Waste Storage/Satellite Accumulation/90 Day Storage Areas

Accumulate hazardous waste at satellite accumulation points and in compliance with 40 CFR 262 and applicable state or local regulations. Individual waste streams will be limited to 55 gallons of accumulation (or one quart for acutely hazardous wastes).

3.2.2.3 Hazardous Waste Disposal

3.2.2.3.1 Responsibilities for Contractor's Disposal

Provide hazardous waste manifest to the Installations Environmental Office for review, approval, and signature prior to shipping waste off Government property.

3.2.2.3.1.1 Services

Provide service necessary for the final treatment or disposal of the hazardous material or waste in accordance with 40 CFR 260 - 40 CFR 279, local, and state, laws and regulations, and the terms and conditions of the Contract within 60 days after the materials have been generated. These services include necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal or transportation, include manifesting or complete waste profile sheets, equipment, and compile documentation).

3.2.2.3.1.2 Labeling

During waste accumulation label all containers in accordance with 40 CFR 262. Prior to offering a waste for off-site transport, determine the Department of Transportation's (DOT's) proper shipping names for waste in accordance with 49 CFR 172 (each container requiring disposal) and demonstrate to the Contracting Officer how this determination is developed and supported by the sampling and analysis requirements contained herein. Label all containers of hazardous waste with the words "Hazardous Waste" or other words to describe the contents of the container in accordance with 40 CFR 262 and applicable state or local regulations.

3.2.2.4 Universal Waste Management

Manage the following categories of universal waste in accordance with federal, state, and local requirements and installation instructions:

a. Batteries as described in 40 CFR 273.2

b. Lamps as described in 40 CFR 273.5

c. Mercury-containing equipment as described in 40 CFR 273.4

d. Aerosol cans as described in 40 CFR 273.6

3.2.2.5 Electronics End-of-Life Management

Recycle or dispose of electronics waste, including, but not limited to, used electronic devices such computers, monitors, hard-copy devices, televisions, mobile devices, in accordance with 40 CFR 260-262, state, and local requirements, and installation instructions.

3.2.2.6 Disposal Documentation for Hazardous and Regulated Waste

Contact the Contracting Officer for the facility RCRA identification number that is to be used on each manifest.
Submit a copy of the applicable EPA and or state permit(s), manifest(s), or license(s) for transportation, treatment, storage, and disposal of hazardous and regulated waste by permitted facilities. Hazardous or toxic waste manifests must be reviewed, signed, and approved by the Contracting Officer before the Contractor may ship waste. To obtain specific disposal instructions, coordinate with the Installation Environmental Office. Refer to location special requirements for the Installation Point of Contact information.

3.2.3 Releases/Spills of Oil and Hazardous Substances

3.2.3.1 Response and Notifications

Exercise due diligence to prevent, contain, and respond to spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated in accordance with 40 CFR 300. Maintain spill cleanup equipment and materials at the work site. In the event of a spill, take prompt, effective action to stop, contain, curtail, or otherwise limit the amount, duration, and severity of the spill/release. In the event of any releases of oil and hazardous substances, chemicals, or gases; immediately (within 15 minutes) notify the Installation Fire Department, the Installation Command Duty Officer, the Installation Environmental Office, the Contracting Officer and the state or local authority.

Submit verbal and written notifications as required by the federal (40 CFR 300.125 and 40 CFR 355), state, local regulations and instructions. Provide copies of the written notification and documentation that a verbal notification was made within 20 days. Spill response must be in accordance with 40 CFR 300 and applicable state and local regulations. Contain and clean up these spills without cost to the Government.

3.2.3.2 Clean Up

Clean up hazardous and non-hazardous waste spills. Reimburse the Government for costs incurred including sample analysis materials, clothing, equipment, and labor if the Government will initiate its own spill cleanup procedures, for Contractor- responsible spills, when: Spill cleanup procedures have not begun within one hour of spill discovery/occurrence; or, in the Government's judgment, spill cleanup is

inadequate and the spill remains a threat to human health or the environment.

3.2.4 Mercury Materials

Immediately report to the Environmental Office and the Contracting Officer instances of breakage or mercury spillage. Clean mercury spill area to the satisfaction of the Contracting Officer.

Do not recycle a mercury spill cleanup; manage it as a hazardous waste for disposal.

3.3 HAZARDOUS MATERIAL MANAGEMENT

Include hazardous material control procedures in the Safety Plan, in accordance with Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS. Address procedures and proper handling of hazardous materials, including the appropriate transportation requirements. Do not bring hazardous material onto Government property that does not directly relate to requirements for the performance of this contract. Submit an SDS and estimated quantities to be used for each hazardous material to the Contracting Officer prior to bringing the material on the installation. Typical materials requiring SDS and quantity reporting include, but are not limited to, oil and latex based painting and caulking products, solvents, adhesives, aerosol, and petroleum products. Use hazardous materials in a manner that minimizes the amount of hazardous waste generated. Containers of hazardous materials must have National Fire Protection Association labels or their equivalent. Certify that hazardous materials removed from the site are hazardous materials and do not meet the definition of hazardous waste, in accordance with 40 CFR 261 and state and installation requirements.

3.3.1 Contractor Hazardous Material Inventory Log

Submit the "Contractor Hazardous Material Inventory Log"(found at: https://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/forms-graphics-tables), which provides information required by (EPCRA Sections 312 and 313) along with corresponding SDS, to the Contracting Officer at the start and at the end of construction (30 days from final acceptance), and update no later than January 31 of each calendar year during the life of the contract. Keep copies of the SDSs for hazardous materials onsite. At the end of the project, provide the Contracting Officer with copies of the SDSs, and the maximum quantity of each material that was present at the site at any one time, the dates the material was present, the amount of each material that was used during the project, and how the material was used.

The Contracting Officer may request documentation for any spills or releases, environmental reports, or off-site transfers.

3.4 PREVIOUSLY USED EQUIPMENT

Clean previously used construction equipment prior to bringing it onto the project site. Equipment must be free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. Consult with the U.S. Department of Agriculture jurisdictional office for additional cleaning requirements.

3.5 CONTROL AND MANAGEMENT OF ASBESTOS-CONTAINING MATERIAL (ACM)

Manage and dispose of asbestos- containing waste in accordance with all applicable federal, state, and local (or Host Nation) requirements. Manifest asbestos-containing waste and provide the manifest to the Contracting Officer. Notifications to the regulatory authorities and Installation Air Program Manager are required before starting any asbestos work.

3.6 CONTROL AND MANAGEMENT OF LEAD-BASED PAINT (LBP)

Manage and dispose of lead-contaminated waste in accordance with 40 CFR 745 . Manifest any lead-contaminated waste and provide the manifest to the Contracting Officer.

3.7 CONTROL AND MANAGEMENT OF POLYCHLORINATED BIPHENYLS (PCBs)

Manage and dispose of PCB-contaminated waste in accordance with 40 CFR 761 .

3.8 CONTROL AND MANAGEMENT OF LIGHTING BALLAST AND LAMPS CONTAINING PCBs

Manage and dispose of contaminated waste in accordance with 40 CFR 761.

3.9 PETROLEUM, OIL, LUBRICANT (POL) STORAGE AND FUELING

POL products include flammable or combustible liquids, such as gasoline, diesel, lubricating oil, used engine oil, hydraulic oil, mineral oil, and cooking oil. Store POL products and fuel equipment and motor vehicles in a manner that affords the maximum protection against spills into the environment. Manage and store POL products in accordance with EPA 40 CFR 112, and other federal, state, regional, and local laws and regulations.

3.10 INADVERTENT DISCOVERY OF PETROLEUM-CONTAMINATED SOIL OR HAZARDOUS WASTES

If petroleum-contaminated soil, or suspected hazardous waste is found during construction that was not identified in the Contract documents, immediately notify the Contracting Officer. Do not disturb this material until authorized by the Contracting Officer.

3.11 POST CONSTRUCTION CLEANUP

Clean up areas used for construction in accordance with Contract Clause: "Cleaning Up". Unless otherwise instructed in writing by the Contracting Officer, remove traces of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. Grade parking area and similar temporarily used areas to conform with surrounding contours.

3.12 Project Completion Report

Provide a organized report documentating submittal criteria to the contracting officer or contracting officer representative. Provide the manual bound in 8"x11" binder three ring. Provide electronic combined pdf with all submittals on usb driver or electronic transfer if approved by USDA.

3.13 Hazardous Waste Inspection Logs

Provide Hazardous Waste Inspection Logs.

-- End of Section --

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
02/19, CHG 3: 11/21

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Co-mingle

The practice of placing unrelated materials together in a single container, usually for benefits of convenience and speed.

1.1.2 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.

1.1.3 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.

1.1.4 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).

1.1.5 Diversion

The practice of diverting waste from disposal in a landfill or incinerator, by means of eliminating or minimizing waste, or reuse of materials.

1.1.6 Final Construction Waste Diversion Report

A written assertion by a material recovery facility operator identifying constituent materials diverted from disposal, usually including summary tabulations of materials, weight in short-ton.

1.1.7 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.

1.1.8 Reuse

The use of a product or materials again for the same purpose, in its original form or with little enhancement or change.

1.1.9 Salvage

Usable, salable items derived from buildings undergoing demolition or deconstruction, parts from vehicles, machinery, other equipment, or other components.

1.1.10 Source Separation

The practice of administering and implementing a management strategy to identify and segregate unrelated waste at the first opportunity.

1.1.11 USDA DEFINITIONS

1. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial and industrial waste resulting from construction, remodeling, repair and demolition operations.
2. Clean: Untreated and unpainted; uncontaminated with adhesives, oils, solvents, mastics and like products.
3. Construction and Demolition Waste: Includes all non-hazardous resources resulting from construction, remodeling, alterations, repair and demolition operations.
4. Dismantle: The process of parting out a building in such a way as to preserve the usefulness of its materials and components.
5. Disposal: Acceptance of solid wastes at a legally operating facility for the purpose of land filling (includes Class III landfills and inert fills).
6. Inert Backfill Site: A location, other than inert fill or other disposal facility, to which inert materials are taken for the purpose of filling an excavation, shoring or other soil engineering operation.
7. Inert Fill: A facility that can legally accept inert waste, such as asphalt and concrete exclusively for the purpose of disposal.
8. Inert Solids/Inert Waste: Non-liquid solid resources including, but not limited to, soil and concrete that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by a regional water board and does not contain significant quantities of decomposable solid resources.
9. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.
10. Mixed Debris Recycling Facility: A solid resource processing facility that accepts loads of mixed construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing non-recyclable materials.
11. Permitted Waste Hauler: A company that holds a valid permit to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal.
12. Recycling: The process of sorting, cleansing, treating, and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.
i. On-site Recycling. Materials that are sorted and processed on site for use in an altered state in the work, i.e., concrete crushed for use as a sub-base in paving.
ii. Off-site Recycling. Materials hauled to a location and used in an altered form in the manufacture of new products.

13. Recycling Facility: An operation that can legally accept materials for the purpose of processing the materials into an altered form for the manufacture of new products. Depending on the types of materials accepted and operating procedures, a recycling facility may or may not be required to have a solid waste facility permit or be regulated by the local enforcement agency.
14. Re-Use: Materials that are recovered for use in the same form, on-site or off-site.
15. Return: To give back reusable items or unused products to vendors for credit.
16. Salvage: To remove waste materials from the site for resale or re-use by a third party.
17. Source-Separated Materials: Materials that are sorted by type at the site for the purpose of reuse and recycling.
18. Solid Waste: Materials that have been designated as non-recyclable and are discarded
for the purposes of disposal.
19. Transfer Station: A facility that can legally accept solid waste for the purpose of temporarily storing the materials for re-loading onto other trucks and transporting them to landfill for disposal or recovering some materials for re-use or recycling.

1.2 CONSTRUCTION WASTE (INCLUDES DEMOLITION DEBRIS/WASTE)

Divert a minimum of 10 percent by weight of the project construction waste and demolition debris/waste from the landfill or incinerator. 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.

1.3 CONSTRUCTION WASTE MANAGEMENT

Implement a Construction Waste Management Program for the project. Take a pro-active, responsible role in the management of construction construction waste, recycling process, disposal of demolition debris/waste, and require all subcontractors, vendors, and suppliers to participate in the Construction Waste Management Program. Establish a process for clear tracking, and documentation of construction waste and demolition debris/waste.

1.3.1 Implementation of Construction Waste Management Program

Develop and document how the Construction Waste Management Program will be implemented in a Construction Waste Management Plan. Submit a Construction Waste Management Plan to the Contracting Officer for approval. 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.

1.3.2 Oversight

The Environmental Manager, as specified in Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS, is responsible for overseeing and documenting results from executing the Construction Waste Management Plan for the project.

1.3.3 Special Programs

Implement special programs involving rebates or similar incentives related to recycling of construction waste and demolition debris/waste materials. Retain revenue or savings from salvaged or recycling, unless otherwise directed. 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.

1.3.4 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.

1.3.5 Waste Streams

Delineate waste streams and characterization, including estimated material types and quantities of waste, in the Construction Waste Management Plan. Manage all waste streams associated with the project. Typical waste streams are listed below. Include additional waste steams not listed:

a. Land Clearing Debris

b. Asphalt

c. Masonry and CMU

d. Concrete

e. Metals (Includes, but is not limited to, banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, bronze.)

f. Wood (nails and staples allowed)

g. Glass

h. Paper

i. Plastics (PET, HDPE,PVC,LDPE,PP,PS, Other)

j. Gypsum

k. Non-hazardous paint and paint cans

l. Carpet

m. Ceiling Tiles

n. Insulation

o. Beverage Containers

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

Construction Waste Management Plan; G

SD-11 Closeout Submittals

Monthly/Quarterly Construction Waste Diversion Report; G

Final Construction Waste Diversion Report; G

1.5 MEETINGS

Conduct Construction Waste Management meetings. After award of the Contract and prior to commencement of work, schedule and conduct a meeting with the Contracting Officer to discuss the proposed Construction Waste Management Plan and to develop a mutual understanding relative to the management of the Construction Waste Management Program and how waste diversion requirements will be met.

The requirements of this meeting may be fulfilled during the coordination and mutual Understanding meeting outlined in Section 01 45 00.10 20 QUALITY CONTROL FOR MINOR CONSTRUCTION. At a minimum, discuss and document waste management goals at following meetings:

a. Pre-demolition meeting.

b. Regular Quality Control meetings.

c. Work safety meeting (if applicable).

d. USDA Criteria : Contractor shall conduct Construction Waste Management meetings. Meetings shall include the Subcontractor, the project Manager and representatives as designated by the ontracting Officer. At a minimum, waste management goals and issues shall be discussed at pre-bid meetings, pre-construction meetings and regular job-site meetings.

1.6 CONSTRUCTION WASTE MANAGEMENT PLAN

Submit Construction Waste Management Plan within 15 calendar days after contract award. Revise and resubmit Construction Waste Management Plan as necessary, in order for construction to begin.. Manage demolition debris/waste or deconstruction materials in accordance with the approved construction waste management plan.

An approved Construction Waste Management Plan 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 Construction Waste Management Plan. The plan demonstrates how to meet the project

waste diversion requirement. Also, include the following in the plan:

a. Identify the 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. Name of landfill and incinerator to be used.

f. Identification of local and regional re-use programs, including non-profit organizations such as schools, local housing agencies, and organization that accept used materials such as material exchange networks and resale stores. Include the name, location, phone number for each re-use facility identified, and provide a copy of the permit or license for each facility.

g. List of specific materials, by type and quantity, that will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, or recycled. Identify the recycling facilities by name, address, and phone number.

h. Identification of materials that cannot be recycled or reused with an explanation or justification, to be approved by the Contracting Officer.

i. Description of the means by which materials identified in item (g) above will be protected from contamination.

j. 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).

k. Copy of training plan for subcontractors and other services to prevent contamination by co-mingling materials identified for diversion and waste materials.

l. Identification of at least 5 construction or demolition material streams for diversion.

Distribute copies of the waste management plan to each subcontractor, Environmental Manager, and the Contracting Officer.

1.7 RECORDS (DOCUMENTATION)

1.7.1 General

Maintain records to document the types and quantities of waste generated and diverted though re-use, recycling and sale to third parties; 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.

1.7.2 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.

1.8 Monthly/Quarterly Construction Waste Diversion Report

Reports: The Contractor shall submit (monthly, quarterly, at end of job) a Waste Management Progress Report. The report shall contain the amount (in tons or cubic yards) of material land filled from the project, the identity of the landfill, the total amount of tipping fees paid at the landfill and the total disposal cost. Include legible copies of manifests, weight tickets, receipts and invoices. Manifests shall be from recycle and/or disposal site operators that can legally accept the materials for the
purpose of reuse, recycling, or disposal.

For each material recycled, reused, or salvaged from the project, provide the following:
i. Amount (in tons or cubic yards).
ii. Date removed from the job site.
iii. Receiving party.
iv. Transportation cost.
v. Amount of any money paid or received for the recycled or salvaged material. Net total cost or savings of salvage or recycling each material. Attach manifests, weight tickets, receipts, and/or invoices. Indicate the project information, including project title, name of company completing form, and beginning and ending dates of period
covered by summary form.

1.9 FINAL CONSTRUCTION WASTE DIVERSION REPORT

A Final Construction Waste Diversion Report is required at the end of the project. Provide Final Construction Waste Diversion Report 60 days prior to the Beneficial Occupancy Date (BOD).

1.10 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 Construction Waste Management Plan. Handle hazardous waste and hazardous materials in accordance with applicable regulations and coordinate with Section 01 57 19

TEMPORARY ENVIRONMENTAL CONTROLS. Separate materials by one of the following methods described herein:

1.10.1 Source Separation Method

Separate waste products and materials that are recyclable from trash and sort as described below 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 Construction Waste Management Plan.

1.10.2 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 Construction Waste Management Plan.

1.10.3 Other Methods

Other methods proposed by the Contractor may be used when approved by the Contracting Officer.

1.11 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 waste management plan. Except as otherwise specified in other sections of the specifications, dispose of in accordance with the following:

1.11.1 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 Construction Waste Management Plan. Coordinate with the Contracting Officer 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.

1.11.2 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 PCBs-containing ballasts and electrical components as directed by the Contracting Officer. Do not crush lamps on site as this creates a hazardous waste stream with additional handling requirements.

1.11.3 Waste

Dispose by landfill or incineration only those waste materials with no practical use, economic benefit, or recycling opportunity.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used. -- End of Section --

SECTION 01 78 00

CLOSEOUT SUBMITTALS
05/19, CHG 1: 08/21

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 E1971	(2019) Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings

GREEN SEAL (GS)

GS-37	(2022, changes 23 aug 2024) Cleaning Products for Industrial and Institutional Use

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 hard copies on site. 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.

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 shall be 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 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G" classification are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Warranty Management Plan; G

Warranty Tags; G

Final Cleaning; G

Spare Parts Data G

SD-08 Manufacturer's Instructions G

Posted Instructions; G

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; G

SD-11 Closeout Submittals

As-Built Drawings; G

Record Drawings; G

As-Built Record of Equipment and Materials; G

1.5 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.

1.6 WARRANTY MANAGEMENT

1.6.1 Warranty Management Plan

Develop a warranty management plan which contains information relevant to FAR 52.246-21 Warranty of Construction. 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. As-Built Record of 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.

1.6.2 Performance Bond

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.

1.6.3 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.

1.6.4 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 for beneficial occupancy. 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.	

1.7 USDA PROJECT WARRANTY OF CONSTRUCTION

1.1 GENERAL: In addition to any other warranties set out elsewhere in this contract, the Contractor warrantsthat work performed under this contract conforms to the contract requirements and is free of any defect of equipment, material or design furnished, or workmanship performed by the Contractor or any of his subcontractors or suppliers at any tier. Such warranty shall continue for a period of one year from the date of final acceptance of the project. Under this warranty, the Contractor shall remedy at his own expense any such failure to conform or any such defect. In addition, the Contractor shall remedy at his own expense any damage to Government owned or controlled real or personal property, when that damage

is the result of the Contractor's failure to conform to contract requirements or any such defect of equipment, material, workmanship, or design. The Contractor shall also restore any work damaged in fulfilling the terms of this clause. The Contractor's warranty with respect to work repaired or replaced hereunder will run for one year from the date of such repair or replacement.

1.2 NOTIFICATION AND COMPLIANCE: The Government shall notify the Contractor in writing within a reasonable time after the discovery of any failure, defect, or damage. Should the Contractor fail to remedy any failure, defect, or damage described in paragraph 1.1.1 above within a reasonable time after receipt of notice thereof, the Government shall have the right to replace or repair and have the cost billed to the Contractor.

1.3 EXPRESSED WARRANTY: In addition to the other rights and remedies provided by this clause, all subcontractors', manufacturers', and suppliers' warranties expressed or implied, respecting any work and materials shall, at the direction of the Government be enforced by the Contractor for the benefit of the Government. In such case, if the Contractor's warranty under paragraph 2.1 above has expired, any suit directed by the Government to enforce a subcontractor's, manufacturer's, or supplier's warranty shall be at the expense of the Government. The Contractor shall obtain any warranties which the subcontractors, manufacturers, or suppliers would give in normal commercial practice. If so directed by the Contracting Officer, the Contractor shall require any such warranties to be executed in writing to the
Government.

1.4 LATENT DEFECTS: The Warranty specified herein shall not limit the Government's rights with respect to latent defects, gross mistake, or fraud.

PART 2 PRODUCTS

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 or red-lined PDF files. Submit As-Built Drawings 30 days prior to Beneficial Occupancy Date (BOD).

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

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

Show on the as-built drawings, but not limited to, the following information:

a. If applicable, 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 and compliance with ARS Manual 242.1 procedures.

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 DRAWINGS

Prepare and provide Record Drawings and Source Documents in accordance with ARS Manual 242.1. Provide four copies of Record Drawings and Documents on separate USB drives 30 days after BOD.

3.3 OPERATION AND MAINTENANCE MANUALS

Provide project operation and maintenance manuals as specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA. Provide electronic copies of the Operation and Maintenance Manual files. Submit to the Contracting Officer for approval within 60 calendar days of the Beneficial Occupancy Date (BOD). Update and resubmit files for final approval at BOD.

3.4 CLEANUP

Provide final cleaning in accordance with ASTM E1971 and submit two copies of the listing of completed final clean-up items. Leave premises "broom clean." Comply with GS-37 for general purpose cleaning and bathroom

cleaning. Use only nonhazardous cleaning materials, including natural cleaning materials, in the final cleanup. 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. Replace filters of operating equipment and comply with the Indoor Air Quality (IAQ) Management Plan. 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. Recycle, salvage, and return construction and demolition waste from project in accordance with Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS, and 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

-- End of Section --

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA
08/15, CHG 2: 08/21

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 E1971	(2019) Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings

1.2 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G" classification are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-10 Operation and Maintenance Data

O&M Database; G

Training Plan; G

Training Outline; G

Training Content; G

SD-11 Closeout Submittals

Validation of Training Completion; G

1.3 OPERATION AND MAINTENANCE DATA

Submit Operation and Maintenance (O&M) Data for the provided equipment, product, or system, defining the importance of system interactions, troubleshooting, and long-term preventive operation and maintenance. Compile, prepare, and aggregate O&M data to include clarifying and updating the original sequences of operation to as-built conditions. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. Include an index preceding each submittal. Submit in accordance with this section and Section 01 33 00 SUBMITTAL PROCEDURES.

1.3.1 Package Quality

Documents must be fully legible. Operation and Maintenance data must be consistent with the manufacturer's standard brochures, schematics, printed instructions, general operating procedures, and safety precautions.

1.3.2 Package Content

Provide data package content in accordance with paragraph SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES. Comply with the data package requirements specified in the individual technical sections, including the content of the packages and addressing each product, component, and system designated for data package submission, except as follows. Use Data Package 3 for commissioned items without a specified data package requirement in the individual technical sections. Provide a Data Package 3 instead of Data Package 1 or 2, as specified in the individual technical section, for items that are commissioned.

1.3.3 Changes to Submittals

Provide manufacturer-originated changes or revisions to submitted data if a component of an item is so affected subsequent to acceptance of the O&M Data. Submit changes, additions, or revisions required by the Contracting Officer for final acceptance of submitted data within 30 calendar days of the notification of this change requirement.

1.4 O&M DATABASE

Develop an editable, electronic spreadsheet based on the equipment in the Operation and Maintenance Manuals that contains the information required to start a preventive maintenance program. As a minimum, provide list of system equipment, location installed, warranty expiration date, manufacturer, model, and serial number.

1.5 OPERATION AND MAINTENANCE MANUAL FILE FORMAT

Assemble data packages into electronic Operation and Maintenance Manuals. Assemble each manual into a composite electronically indexed file using the most current version of Adobe Acrobat or similar software capable of producing PDF file format. Provide compact disks (CD) or data digital versatile disk (DVD) as appropriate, so that each one contains operation, maintenance and record files, project record documents, and training videos. Include a complete electronically linked operation and maintenance directory.

1.5.1 Organization

Bookmark Product and Drawing Information documents using the current version of CSI MasterFormat numbering system, and arrange submittals using the specification sections as a structure. Use CSI MasterFormat and UFGS numbers along with descriptive bookmarked titles that explain the content of the information that is being bookmarked.

1.5.2 CD or DVD Label and Disk Holder or Case

Provide the following information on the disk label and disk holder or case:

a. Building Number

b. Project Title

c. Activity and Location

d. Construction Contract Number

e. Prepared For: (Contracting Agency)

f. Prepared By: (Name, title, phone number and email address)

g. Include the disk content on the disk label

h. Date

i. Virus scanning program used

1.6 TYPES OF INFORMATION REQUIRED IN O&M DATA PACKAGES

The following are a detailed description of the data package items listed in paragraph SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES.

1.6.1 Operating Instructions

Provide specific instructions, procedures, and illustrations for the following phases of operation for the installed model and features of each system:

1.6.1.1 Safety Precautions and Hazards

List personnel hazards and equipment or product safety precautions for operating conditions. List all residual hazards identified in the Activity Hazard Analysis provided under Section 01 35 26 GOVERNMENT SAFETY REQUIREMENTS. Provide recommended safeguards for each identified hazard.

1.6.1.2 Operator Prestart

Provide procedures required to install, set up, and prepare each system for use.

1.6.1.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.

1.6.1.4 Normal Operations

Provide Control Diagrams with data to explain operation and control of systems and specific equipment. Provide narrative description of Normal Operating Procedures.

1.6.1.5 Emergency Operations

Provide Emergency Procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Provide Emergency Shutdown Instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance and procedures for emergency operation of utility systems including required valve positions, valve locations and zones or portions of systems controlled.

1.6.1.6 Operator Service Requirements

Provide instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gauge readings.

1.6.1.7 Environmental Conditions

Provide a list of Environmental Conditions (temperature, humidity, and other relevant data) that are best suited for the operation of each product, component or system. Describe conditions under which the item equipment should not be allowed to run.

1.6.1.8 Operating Log

Provide forms, sample logs, and instructions for maintaining necessary operating records.

1.6.1.9 Additional Requirements for HVAC Control Systems

Provide Data Package 5 and the following for control systems:

a. Narrative description on how to perform and apply functions, features, modes, and other operations, including unoccupied operation, seasonal changeover, manual operation, and alarms. Include detailed technical manual for programming and customizing control loops and algorithms.

b. Full as-built sequence of operations.

c. Copies of checkout tests and calibrations performed by the Contractor (not Cx tests).

d. Full points list. Provide a listing of rooms with the following information for each room:

(1) Floor

(2) Room number

(3) Room name

(4) Air handler unit ID

(5) Reference drawing number

(6) Air terminal unit tag ID

(7) Heating or cooling valve tag ID

(8) Minimum cfm

(9) Maximum cfm

e. Full print out of all schedules and set points after testing and acceptance of the system.

f. Full as-built print out of software program.

g. Marking of system sensors and thermostats on the as-built floor plan and mechanical drawings with their control system designations.

1.6.2 Preventive Maintenance

Provide the following information for preventive and scheduled maintenance

to minimize repairs for the installed model and features of each system. Include potential environmental and indoor air quality impacts of recommended maintenance procedures and materials.

1.6.2.1 Lubrication Data

Include the following preventive maintenance lubrication data, in addition to instructions for lubrication required under paragraph OPERATOR SERVICE REQUIREMENTS:

a. A table showing recommended lubricants for specific temperature ranges and applications.

b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities.

c. A Lubrication Schedule showing service interval frequency.

1.6.2.2 Preventive Maintenance Plan, Schedule, and Procedures

Provide manufacturer's schedule for routine preventive maintenance, inspections, condition monitoring (predictive tests) and adjustments required to ensure proper and economical operation and to minimize repairs. Provide instructions stating when the systems should be retested. Provide manufacturer's projection of preventive maintenance work-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation.

a. Define the anticipated time required to perform each of each test (work-hours), test apparatus, number of personnel identified by responsibility, and a testing validation procedure permitting the record operation capability requirements within the schedule. Provide a remarks column for the testing validation procedure referencing operating limits of time, pressure, temperature, volume, voltage, current, acceleration, velocity, alignment, calibration, adjustments, cleaning, or special system notes. Delineate procedures for preventive maintenance, inspection, adjustment, lubrication and cleaning necessary to minimize repairs.

b. Repair requirements must inform operators how to check out, troubleshoot, repair, and replace components of the system. Include electrical and mechanical schematics and diagrams and diagnostic techniques necessary to enable operation and troubleshooting of the system after acceptance.

1.6.2.3 Cleaning Recommendations

Provide environmentally preferable cleaning recommendations in accordance with ASTM E1971.

1.6.3 Repair

Provide manufacturer's recommended procedures and instructions for correcting problems and making repairs for the installed model and features of each system. Include potential environmental and indoor air quality impacts of recommended maintenance procedures and materials.

1.6.3.1 Troubleshooting Guides and Diagnostic Techniques

Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.

1.6.3.2 Wiring Diagrams and Control Diagrams

Provide point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type, identically to actual installation configuration and numbering.

1.6.3.3 Repair Procedures

Provide instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.

1.6.3.4 Removal and Replacement Instructions

Provide step-by-step procedures and a list of required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Use a combination of text and illustrations.

1.6.3.5 Spare Parts and Supply Lists

Provide lists of spare parts and supplies required for repair to ensure continued service or operation without unreasonable delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead-time to obtain.

1.6.3.6 Repair Work-Hours

Provide manufacturer's projection of repair work-hours including requirements by type of craft. Identify, and tabulate separately, repair that requires the equipment manufacturer to complete or to participate.

1.6.4 Appendices

Provide information required below and information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment. Include the following:

1.6.4.1 Product Submittal Data

Provide a copy of SD-03 Product Data submittals documented with the required approval.

1.6.4.2 Certificates

Provide a copy of SD-07 Certificates submittals documented with the required approval.

1.6.4.3 Manufacturer's Instructions

Provide a copy of SD-08 Manufacturer's Instructions submittals documented with the required approval.

1.6.4.4 O&M Submittal Data

Provide a copy of SD-10 Operation and Maintenance Data submittals documented with the required approval.

1.6.4.5 Parts Identification

Provide identification and coverage for the parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing must show the index, reference, or key number that will cross-reference the illustrated part to the listed part. Group the parts shown in the listings by components, assemblies, and subassemblies in accordance with the manufacturer's standard practice. Parts data may cover more than one model or series of equipment, components, assemblies, subassemblies, attachments, or accessories, such as typically shown in a master parts catalog.

1.6.4.6 Warranty Information

List and explain the various warranties and clearly identify the servicing and technical precautions prescribed by the manufacturers or contract documents in order to keep warranties in force. Include warranty information for primary components of the system. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.

1.6.4.7 Extended Warranty Information

List all warranties for products, equipment, components, and sub-components whose duration exceeds one year. For each warranty listed, indicate the applicable specification section, duration, start date, end date, and the point of contact for warranty fulfillment. Also, list or reference the specific operation and maintenance procedures that must be performed to keep the warranty valid. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.

1.6.4.8 Personnel Training Requirements

Provide information available from the manufacturers that is needed for use in training designated personnel to properly operate and maintain the equipment and systems.

1.6.4.9 Testing Equipment and Special Tool Information

Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components. Provide final set points.

1.6.4.10 Testing and Performance Data

Include completed prefunctional checklists, functional performance test forms, and monitoring reports. Include recommended schedule for retesting and blank test forms. Provide final set points.

1.6.4.11 Field Test Reports and Manufacturer's Field Reports

Provide a copy of Field Test Reports (SD-06) and Manufacturer's Field Reports (SD-09) submittals documented with the required approval.

1.6.4.12 Contractor Information

Provide a list that includes the name, address, and telephone number of the General Contractor and each Subcontractor who installed the product or equipment, or system. For each item, also provide the name address and telephone number of the manufacturer's representative and service organization that can provide replacements most convenient to the project site. Provide the name, address, and telephone number of the product, equipment, and system manufacturers.

1.7 SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES

Provide the O&M data packages specified in individual technical sections. The information required in each type of data package follows:

1.7.1 Data Package 1

a. Safety precautions and hazards

b. Cleaning recommendations

c. Maintenance and repair procedures

d. Warranty information

e. Extended warranty information

f. Contractor information

g. Spare parts and supply list

1.7.2 Data Package 2

a. Safety precautions and hazards

b. Normal operations

c. Environmental conditions

d. Lubrication data

e. Preventive maintenance plan, schedule, and procedures

f. Cleaning recommendations

g. Maintenance and repair procedures

h. Removal and replacement instructions

i. Spare parts and supply list

j. Parts identification

k. Warranty information

l. Extended warranty information

m. Contractor information

1.7.3 Data Package 3

a. Safety precautions and hazards

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal operations

e. Emergency operations

f. Environmental conditions

g. Operating log

h. Lubrication data

i. Preventive maintenance plan, schedule, and procedures

j. Cleaning recommendations

k. Troubleshooting guides and diagnostic techniques

l. Wiring diagrams and control diagrams

m. Maintenance and repair procedures

n. Removal and replacement instructions

o. Spare parts and supply list

p. Product submittal data

q. O&M submittal data

r. Parts identification

s. Warranty information

t. Extended warranty information

u. Testing equipment and special tool information

v. Testing and performance data

w. Contractor information

x. Field test reports

1.7.4 Data Package 4

a. Safety precautions and hazards

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal operations

e. Emergency operations

f. Operator service requirements

g. Environmental conditions

h. Operating log

i. Lubrication data

j. Preventive maintenance plan, schedule, and procedures

k. Cleaning recommendations

l. Troubleshooting guides and diagnostic techniques

m. Wiring diagrams and control diagrams

n. Repair procedures

o. Removal and replacement instructions

p. Spare parts and supply list

q. Repair work-hours

r. Product submittal data

s. O&M submittal data

t. Parts identification

u. Warranty information

v. Extended warranty information

w. Personnel training requirements

x. Testing equipment and special tool information

y. Testing and performance data

z. Contractor information

aa. Field test reports

1.7.5 Data Package 5

a. Safety precautions and hazards

b. Operator prestart

c. Start-up, shutdown, and post-shutdown procedures

d. Normal operations

e. Environmental conditions

f. Preventive maintenance plan, schedule, and procedures

g. Troubleshooting guides and diagnostic techniques

h. Wiring and control diagrams

i. Maintenance and repair procedures

j. Removal and replacement instructions

k. Spare parts and supply list

l. Product submittal data

m. Manufacturer's instructions

n. O&M submittal data

o. Parts identification

p. Testing equipment and special tool information

q. Warranty information

r. Extended warranty information

s. Testing and performance data

t. Contractor information

u. Field test reports

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 TRAINING

Prior to acceptance of the facility by the Contracting Officer for Beneficial Occupancy, provide comprehensive training for the systems and equipment specified in the technical specifications. The training must be targeted for the Facilities Management Specialist, building maintenance personnel, and applicable building occupants. Instructors must be well-versed in the particular systems that they are presenting. Address aspects of the Operation and Maintenance Manual submitted in accordance

with Section 01 78 00 CLOSEOUT SUBMITTALS. Training must include classroom or field lectures based on the system operating requirements. The location of classroom training requires approval by the Contracting Officer.

3.1.1 Training Plan

Submit a written training plan to the Contracting Officer for approval at least 60 calendar days prior to the scheduled training. Training plan must be approved by the Quality Control Manager (QC) prior to forwarding to the Contracting Officer. Also, coordinate the training schedule with the Contracting Officer andQC. Include within the plan the following elements:

a. Equipment included in training

b. Intended audience

c. Location of training

d. Dates of training

e. Objectives

f. Outline of the information to be presented and subjects covered including description

g. Start and finish times and duration of training on each subject

h. Methods (e.g. classroom lecture, video, site walk-through, actual operational demonstrations, written handouts)

i. Instructor names and instructor qualifications for each subject

j. List of texts and other materials to be furnished by the Contractor that are required to support training

k. Description of proposed software to be used for video recording of training sessions.

3.1.2 Training Content

The core of this training must be based on manufacturer's recommendations and the operation and maintenance information. The QC and is responsible for overseeing and approving the content and adequacy of the training. Spend 95 percent of the instruction time during the presentation on the OPERATION AND MAINTENANCE DATA. Include the following for each system training presentation:

a. Start-up, normal operation, shutdown, unoccupied operation, seasonal changeover, manual operation, controls set-up and programming, troubleshooting, and alarms.

b. Relevant health and safety issues.

c. Discussion of how the feature or system is environmentally responsive. Advise adjustments and optimizing methods for energy conservation.

d. Design intent.

e. Use of O&M Manual Files.

f. Review of control drawings and schematics.

g. Interactions with other systems.

h. Special maintenance and replacement sources.

i. Tenant interaction issues.

3.1.3 Training Outline

Provide the Operation and Maintenance Manual Files (Bookmarked PDF) and a written course outline listing the major and minor topics to be discussed by the instructor on each day of the course to each trainee in the course. Provide the course outline 14 calendar days prior to the training.

3.1.4 Training Video Recording

Record classroom training session(s) on video. Provide to the Contracting Officer two copies of the training session(s) in DVD video recording format. Capture within the recording, in video and audio, the instructors' training presentations including question and answer periods with the attendees. The recording camera(s) must be attended by a person during the recording sessions to assure proper size of exhibits and projections during the recording are visible and readable when viewed as training.

3.1.5 Unresolved Questions from Attendees

If, at the end of the training course, there are questions from attendees that remain unresolved, the instructor must send the answers, in writing, to the Contracting Officer for transmittal to the attendees, and the training video must be modified to include the appropriate clarifications.

3.1.6 Validation of Training Completion

Ensure that each attendee at each training session signs a class roster daily to confirm Government participation in the training. At the completion of training, submit a signed validation letter that includes a sample record of training for reporting what systems were included in the training, who provided the training, when and where the training was performed, and copies of the signed class rosters. Provide two copies of the validation to the Contracting Officer, and one copy to the Operation and Maintenance Manual Preparer for inclusion into the Manual's documentation.

3.1.7 Quality Control Coordination

Coordinate this training with the QC in accordance with Section 01 45 00.10 20 QUALITY CONTROL FOR MINOR CONSTRUCTION.

-- End of Section --

SECTION 02 41 00

DEMOLITION
05/10

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 (ASSP)

ASSP A10.6	(2006) Safety & Health Program Requirements for Demolition Operations - American National Standard for Construction and Demolition Operations

CARPET AND RUG INSTITUTE (CRI)

CRI CIS	(2011) Carpet Installation Standard

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety and Health Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 61	National Emission Standards for Hazardous Air Pollutants

1.2 PROJECT DESCRIPTION

1.2.1 Demolition/Deconstruction Plan

Prepare a Demolition Plan and submit proposed salvage,demolition, and removal procedures for approval before work is started. Include in the plan procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services, a detailed description of methods and equipment to be used for each operation and of the sequence of operations. Identify components and materials to be salvaged for reuse or recycling with reference to paragraph Existing Facilities to be Removed. Append tracking forms for all removed materials indicating type, quantities, condition, destination, and end use. Coordinate with Waste Management Plan. Include statements affirming Contractor inspection of the existing roof deck and its suitability to perform as a safe working platform or if inspection reveals a safety hazard to workers, state provisions for securing the safety of the workers throughout the performance of the work. Provide procedures for safe conduct of the work in accordance with EM 385-1-1. Plan shall be approved by Contracting Officer prior to work beginning.

1.2.2 General Requirements

Do not begin demolition or deconstruction until authorization is received from the Contracting Officer. The work of this section is to be performed in a manner that maximizes the value derived from the salvage and recycling of materials. Remove rubbish and debris from the project site; do not allow accumulations inside or outside the building. Remove rubbish and debris from Government property daily, unless otherwise directed. Store materials that cannot be removed daily in areas specified by the Contracting Officer. In the interest of occupational safety and health, perform the work in accordance with EM 385-1-1, Section 23, Demolition, and other applicable Sections.

1.3 ITEMS TO REMAIN IN PLACE

Take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Government. Repair or replace damaged items as approved by the Contracting Officer. Coordinate the work of this section with all other work indicated. Construct and maintain shoring, bracing, and supports as required. Ensure that structural elements are not overloaded. Increase structural supports or add new supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract. Do not overload structural elements. Provide new supports and reinforcement for existing construction weakened by demolition, deconstruction, or removal work. Repairs, reinforcement, or structural replacement require approval by the Contracting Officer prior to performing such work.

1.3.1 Existing Construction Limits and Protection

Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction. Provide temporary shoring and bracing for support of building components to prevent settlement or other movement. Provide protective measures to control accumulation and migration of dust and dirt in all work areas. Remove dust, dirt, and debris from work areas daily.

1.3.2 Weather Protection

For portions of the building to remain, protect building interior and materials and equipment from the weather at all times. Where removal of existing roofing is necessary to accomplish work, have materials and workmen ready to provide adequate and temporary covering of exposed areas.

1.3.3 Utility Service

Maintain existing utilities indicated to stay in service and protect against damage during demolition and deconstruction operations. Prior to start of work, utilities serving each area of alteration or removal will be shut off by the Government and disconnected and sealed by the Contractor.

1.3.4 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. Floors, roofs, walls, columns, pilasters, and other structural components that are

designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, must remain standing without additional bracing, shoring, or lateral support until demolished or deconstructed, unless directed otherwise by the Contracting Officer. Ensure that no elements determined to be unstable are left unsupported and place and secure bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Demolition Plan; G
Existing Conditions

SD-07 Certificates

Notification; G

SD-11 Closeout Submittals

1.5 QUALITY ASSURANCE

Submit timely notification of demolition projects to Federal, State, regional, and local authorities in accordance with 40 CFR 61, Subpart M. Notify the Regional Office of the United States Environmental Protection Agency (USEPA) and the Contracting Officer in writing 10 working days prior to the commencement of work in accordance with 40 CFR 61, Subpart M. Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," conform to the safety requirements contained in ASSP A10.6. Comply with the Environmental Protection Agency requirements specified. Use of explosives will not be permitted.

1.5.1 Dust and Debris Control

Prevent the spread of dust and debris to occupied portions of the building and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution.

1.6 PROTECTION

1.6.1 Traffic Control Signs

a. Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Notify the Contracting Officer prior to beginning such work.

1.6.2 Protection of Personnel

Before, during and after the demolition and deconstruction work continuously evaluate the condition of the structure being demolished and deconstructed and take immediate action to protect all personnel working in and around the project site. No area, section, or component of floors, roofs, walls, columns, pilasters, or other structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

1.7 FOREIGN OBJECT DAMAGE (FOD)

Aircraft and aircraft engines are subject to FOD from debris and waste material lying on airfield pavements. Remove all such materials that may appear on operational aircraft pavements due to the Contractor's operations. If necessary, the Contracting Officer may require the Contractor to install a temporary barricade at the Contractor's expense to control the spread of FOD potential debris. The barricade shall include a fence covered with a fabric designed to stop the spread of debris. Anchor the fence and fabric to prevent displacement by winds or jet/prop blasts. Remove barricade when no longer required.

1.8 RELOCATIONS

Perform the removal and reinstallation of temporarily relocated items as indicated with workmen skilled in the trades involved. Repair or replace items to be relocated which are damaged by the Contractor with new undamaged items as approved by the Contracting Officer.

1.9 EXISTING CONDITIONS

Before beginning any demolition or deconstruction work, survey the site and examine the drawings and specifications to determine the extent of the work. Record existing conditions in the presence of the Contracting Officer showing the condition of structures and other facilities adjacent to areas of alteration or removal. Photographs sized 4 inch will be acceptable as a record of existing conditions. Include in the record the finish floor elevations, possible conflicting electrical conduits, plumbing lines, alarms systems, the location and extent of existing cracks and other damage and description of surface conditions that exist prior to before starting work. It is the Contractor's responsibility to verify and document all required outages which will be required during the course of work, and to note these outages on the record document. Submit survey results.

PART 2 PRODUCTS

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

Inspect and evaluate existing structures onsite for reuse. Existing construction scheduled to be removed for reuse shall be disassembled. Dismantled and removed materials are to be separated, set aside, and prepared as specified, and stored or delivered to a collection point for reuse, remanufacture, recycling, or other disposal, as specified. Materials shall be designated for reuse onsite whenever possible.

3.1.1 Utilities and Related Equipment

3.1.1.1 General Requirements

Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by the Contracting Officer. Do not interrupt existing utilities serving facilities occupied and used by the Government except when approved in writing and then only after temporary utility services have been approved and provided. Do not begin demolition or deconstruction work until all utility disconnections have been made. Shut off and cap utilities for future use, as indicated.

3.1.1.2 Disconnecting Existing Utilities

Remove existing utilities as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Contracting Officer. When utility lines are encountered but are not indicated on the drawings, notify the Contracting Officer prior to further work in that area.

3.1.2 Roofing

Sequence work to minimize building exposure between demolition or deconstruction and new roof materials installation.

3.1.2.1 Temporary Roofing

Install temporary roofing and flashing as necessary to maintain a watertight condition throughout the course of the work. Remove temporary work prior to installation of permanent roof system materials unless approved otherwise by the Contracting Officer.

3.1.2.2 Reroofing

When removing the existing roofing system from the roof deck, remove only as much roofing as can be recovered by the end of the work day, unless approved otherwise by the Contracting Officer. Do not attempt to open the roof covering system in threatening weather. Reseal all openings prior to suspension of work the same day.

3.1.3 Masonry

Sawcut and remove masonry so as to prevent damage to surfaces to remain and to facilitate the installation of new work. Where new masonry adjoins existing, the new work shall abut or tie into the existing construction as indicated. Provide square, straight edges and corners where existing masonry adjoins new work and other locations.

3.1.4 Concrete

Saw concrete along straight lines to a depth of a minimum 2 inch. Make each cut in walls perpendicular to the face and in alignment with the cut in the opposite face. Break out the remainder of the concrete provided that the broken area is concealed in the finished work, and the remaining concrete is sound. At locations where the broken face cannot be concealed, grind smooth or saw cut entirely through the concrete.

3.1.5 Structural Steel

Dismantle structural steel at field connections and in a manner that will prevent bending or damage. Salvage for recycle structural steel, steel joists, girders, angles, plates, columns and shapes. Flame-cutting torches are permitted when other methods of dismantling are not practical. Transport steel joists and girders as whole units and not dismantled. Transport structural steel shapes to a designated recycling facility, stacked according to size, type of member and length, and stored off the ground, protected from the weather.

3.1.6 Miscellaneous Metal

Salvage shop-fabricated items such as access doors and frames, steel gratings, metal ladders, wire mesh partitions, metal railings, metal windows and similar items as whole units. Salvage light-gage and cold-formed metal framing, such as steel studs, steel trusses, metal gutters, roofing and siding, metal toilet partitions, toilet accessories and similar items. Scrap metal shall become the Contractor's property. Recycle scrap metal as part of demolition and deconstruction operations. Provide separate containers to collect scrap metal and transport to a scrap metal collection or recycling facility, in accordance with the Waste Management Plan.

3.1.7 Carpentry

Salvage for recycle lumber, millwork items, and finished boards, and sort by type and size. ecycle salvaged wood unfit for reuse, except stained, painted, or treated wood.

3.1.8 Carpet

Remove existing carpet for reclamation in accordance with manufacturer recommendations and as follows. Remove used carpet in large pieces, roll tightly, and pack neatly in a container. Remove adhesive according to recommendations of the Carpet and Rug Institute (CRI). Adhesive removal solvents shall comply with CRI CIS. Recycle removed carpet cushion.

3.1.9 Acoustic Ceiling Tile

Remove, neatly stack, and recycle acoustic ceiling tiles. Recycling may be available with manufacturer. Otherwise, priority shall be given to a local recycling organization. Recycling is not required if the tiles contain or may have been exposed to asbestos material.

3.1.10 Patching

Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces, using on-site materials when available. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new work. Finished surfaces of patched area shall be flush with the adjacent existing surface and shall match the existing adjacent surface as closely as possible as to texture and finish. Patching shall be as specified and indicated, and shall include:

a. Concrete and Masonry: Completely fill holes and depressions, left as a result of removals in existing masonry walls to remain, with an

approved masonry patching material, applied in accordance with the manufacturer's printed instructions.

3.1.11 Cylinders and Canisters

Remove all fire suppression system cylinders and canisters and dispose of in accordance with the paragraph entitled "Disposal of Ozone Depleting Substance (ODS)."

3.1.12 Locksets on Swinging Doors

Remove all locksets from all swinging doors indicated to be removed and disposed of. Deliver the locksets and related items to a designated location for receipt by the Contracting Officer after removal.

3.1.13 Mechanical Equipment

Disconnect mechanical hardware at the nearest connection to existing services to remain, unless otherwise noted. Disconnect mechanical equipment and fixtures at fittings. Remove service valves attached to the unit. Salvage each item of equipment and fixtures as a whole unit; listed, indexed, tagged, and stored. Salvage each unit with its normal operating auxiliary equipment. Transport salvaged equipment and fixtures, including motors and machines, to a designated storage area as directed by the Contracting Officer. Do not remove equipment until approved. Do not offer low-efficiency equipment for reuse.

3.1.13.1 Preparation for Storage

Remove water, dirt, dust, and foreign matter from units; tanks, piping and fixtures shall be drained; interiors, if previously used to store flammable, explosive, or other dangerous liquids, shall be steam cleaned. Seal openings with caps, plates, or plugs. Secure motors attached by flexible connections to the unit. Change lubricating systems with the proper oil or grease.

3.1.13.2 Piping

Disconnect piping at unions, flanges and valves, and fittings as required to reduce the pipe into straight lengths for practical storage. Store salvaged piping according to size and type. If the piping that remains can become pressurized due to upstream valve failure, end caps, blind flanges, or other types of plugs or fittings with a pressure gage and bleed valve shall be attached to the open end of the pipe to ensure positive leak control. Carefully dismantle piping that previously contained gas, gasoline, oil, or other dangerous fluids, with precautions taken to prevent injury to persons and property. Store piping outdoors until all fumes and residues are removed. Box prefabricated supports, hangers, plates, valves, and specialty items according to size and type. Classify piping not designated for salvage, or not reusable, as scrap metal.

3.1.13.3 Ducts

Classify removed duct work as scrap metal.

3.1.13.4 Fixtures, Motors and Machines

Remove and salvage fixtures, motors and machines associated with plumbing,

heating, air conditioning, refrigeration, and other mechanical system installations. Salvage, box and store auxiliary units and accessories with the main motor and machines. Tag salvaged items for identification, storage, and protection from damage. Classify broken, damaged, or otherwise unserviceable units and not caused to be broken, damaged, or otherwise unserviceable as debris to be disposed of by the Contractor.

3.1.14 Electrical Equipment and Fixtures

Salvage motors, motor controllers, and operating and control equipment that are attached to the driven equipment. Salvage wiring systems and components. Box loose items and tag for identification. Disconnect primary, secondary, control, communication, and signal circuits at the point of attachment to their distribution system.

3.1.14.1 Fixtures

Remove and salvage electrical fixtures. Salvage unprotected glassware from the fixture and salvage separately. Salvage incandescent, mercury-vapor, and fluorescent lamps and fluorescent ballasts manufactured prior to 1978, boxed and tagged for identification, and protected from breakage.

3.1.14.2 Electrical Devices

Remove and salvage switches, switchgear, transformers, conductors including wire and nonmetallic sheathed and flexible armored cable, regulators, meters, instruments, plates, circuit breakers, panelboards, outlet boxes, and similar items. Box and tag these items for identification according to type and size.

3.1.14.3 Wiring Ducts or Troughs

Remove and salvage wiring ducts or troughs. Dismantle plug-in ducts and wiring troughs into unit lengths. Remove plug-in or disconnecting devices from the busway and store separately.

3.1.14.4 Conduit and Miscellaneous Items

Salvage conduit except where embedded in concrete or masonry. Consider corroded, bent, or damaged conduit as scrap metal. Sort straight and undamaged lengths of conduit according to size and type. Classify supports, knobs, tubes, cleats, and straps as debris to be removed and disposed.

3.1.15 Items With Unique/Regulated Disposal Requirements

Remove and dispose of items with unique or regulated disposal requirements in the manner dictated by law or in the most environmentally responsible manner.

3.2 DISPOSITION OF MATERIAL

3.2.1 Title to Materials

Except for salvaged items specified in related Sections, and for materials or equipment scheduled for salvage, all materials and equipment removed and not reused or salvaged, shall become the property of the Contractor and shall be removed from Government property. Title to materials

resulting from demolition and deconstruction, and materials and equipment to be removed, is vested in the Contractor upon approval by the Contracting Officer of the Contractor's demolition, deconstruction, and removal procedures, and authorization by the Contracting Officer to begin demolition and deconstruction. The Government will not be responsible for the condition or loss of, or damage to, such property after contract award. Showing for sale or selling materials and equipment on site is prohibited.

3.2.2 Reuse of Materials and Equipment

Remove and store materials and equipment indicated to be reused or relocated to prevent damage, and reinstall as the work progresses.

3.2.3 Salvaged Materials and Equipment

Remove materials and equipment that are indicated to be removed by the Contractor and that are to remain the property of the Government, and deliver to a storage site.

a. Salvage items and material to the maximum extent possible.

b. Store all materials salvaged for the Contractor as approved by the Contracting Officer and remove from Government property before completion of the contract. On site sales of salvaged material is prohibited.

c. Remove salvaged items to remain the property of the Government in a manner to prevent damage, and packed or crated to protect the items from damage while in storage or during shipment. Items damaged during removal or storage must be repaired or replaced to match existing items. Properly identify the contents of containers.

3.3 CLEANUP

Remove and transport the debris in a manner that prevents spillage on streets or adjacent areas. Apply local regulations regarding hauling and disposal.

3.4 DISPOSAL OF REMOVED MATERIALS

3.4.1 Regulation of Removed Materials

Dispose of debris, rubbish, scrap, and other nonsalvageable materials resulting from removal operations with all applicable federal, state and local regulations as contractually specified.

3.4.2 Removal to Spoil Areas on Government Property

Transport noncombustible materials removed from demolition and deconstruction structures to designated spoil areas on Government property.

3.4.3 Removal from Government Property

Transport waste materials removed from demolished and deconstructed structures, except waste soil, from Government property for legal disposal. Dispose of waste soil as directed.

3.5 REUSE OF SALVAGED ITEMS

Recondition salvaged materials and equipment designated for reuse before installation. Replace items damaged during removal and salvage operations or restore them as necessary to usable condition.

-- End of Section --

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wood products.
2. Wood-preservative-treated lumber.
3. Fire-retardant-treated lumber.
4. Dimension lumber framing.
5. Miscellaneous lumber.
6. Plywood.

B. Related Requirements:

1. Section 074113 "Standing Seam Metal Roofing."

1.2 DEFINITIONS

A. Boards or Strips: Lumber of less than 2 inches nominal (38 mm actual) size in least dimension.

B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) size or greater but less than 5 inches nominal (114 mm actual) size in least dimension.

C. Exposed Framing: Framing not concealed by other construction.

D. Lumber grading agencies, and abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NLGA: National Lumber Grades Authority.
3. SPIB: The Southern Pine Inspection Bureau.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include

physical properties of treated materials based on testing by a qualified independent testing agency.

3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency in accordance with ASTM D5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Material Certificates:

1. For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
2. For preservative-treated wood products. Indicate type of preservative used and net amount of preservative retained.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS

A. Lumber: Comply with DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content: 19 percent.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1, Use categories as follows:

1. UC3B (Commodity Specification A): Uncoated sawn products in exterior construction not in contact with ground, exposed to all weather cycles including intermittent wetting but with sufficient air circulation for wood to dry. Excludes sawn products not in contact with ground but with ground contact-type hazards. Include all rough carpentry.

2. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat all rough carpentry unless otherwise indicated.

2.3 FIRE-RETARDANT-TREATED LUMBER

A. General: Where fire-retardant-treated materials are indicated, materials are to comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested in accordance with ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.

1. Treatment is not to promote corrosion of metal fasteners.
2. Exterior Type: Treated materials are to comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering in accordance with ASTM D2898. Use for exterior locations and where indicated.
3. Interior Type A: Treated materials are to have a moisture content of 28 percent or less when tested in accordance with ASTM D3201/D3201M at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry lumber after treatment to maximum moisture content of 19 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency and other information required by authorities having jurisdiction.

E. Application: Treat all plywood.

2.4 MISCELLANEOUS LUMBER

A. Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.

B. Dimension Lumber Items: Structural- or No. 2-grade lumber or better; kiln-dried Douglas fir, southern pine, or wood having similar decay-resistant properties.

2.5 PLYWOOD

A. Plywood, DOC PS 1, Exterior, A-C, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch (19-mm) nominal thickness.

2.6 FASTENERS

A. General: Fasteners are to be of size and type indicated and comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches (38 mm) into wood substrate.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M or ASTM F2329 of Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01, ICC-ES AC58, ICC-ES AC193, or ICC-ES AC308 as appropriate for the substrate.

2.7 MISCELLANEOUS MATERIALS

A. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate framing, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

C. Install plywood by fastening to studs.

D. Do not splice structural members between supports unless otherwise indicated.

E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

F. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

G. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

H. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.10.1, "Fastening Schedule," in ICC's International Building Code (IBC).

J. Securely attach roofing nailers to substrates by anchoring and fastening to withstand bending, shear, or other stresses imparted by Project wind loads and fastener-resistance loads as designed in accordance with ASCE/SEI 7.

K. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 INSTALLATION OF WOOD BLOCKING AND NAILERS

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach wood blocking to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Attach wood roofing nailers securely to substrate to resist the designed outward and upward wind loads indicated on Drawings and in accordance with ANSI/SPRI ED-1, Tables A6 and A7.

3.3 ROOF EDGE

A. Install treated wood nailers as shown to match thickness of roofing system. Fasten nailers to metal decking with screws 12-inches on center (300 mm), staggered. Fasten to each other with nails or screws 12-inches on center, staggered. Stagger board ends 24 inches (609 mm) minimum between layers.
   1. Install additional fasteners as needed to resist wind loads.

B. Install treated wood fascia boards where indicated. Fasten to metal siding panels, metal framing and wood blocking with screws.

END OF SECTION 061000

SECTION 070150.19 - PREPARATION FOR REROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of This Section Includes:

1. Full roof tear-off.
2. Partial roof tear-off.
3. Temporary roofing.
4. Roof re-cover preparation.
5. Base flashing removal.
6. Disposal.

B. Related Requirements:

1. Section 074113 "Standing Seam Metal Roofing" for vapor retarder to be used as temporary roof.

1.2 DEFINITIONS

A. Full Roof Tear-off: Removal of existing roofing system down to existing roof deck.

B. Partial Roof Tear-off: Removal of selected components and accessories from existing roofing system.

C. Roofing Terminology: Definitions in ASTM D1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

D. Roof Re-Cover Preparation: Existing roofing system is to remain and be prepared for new roof installed over it.

1.3 PREINSTALLATION MEETINGS

A. Preliminary Roofing Conference: Before starting removal Work, conduct conference at Project site.

a. Reroofing preparation, including roofing system manufacturer's written instructions.
b. Temporary protection requirements for existing roofing system components that are to remain.
c. Existing roof drainage during each stage of reroofing, and roof-drain plugging and plug removal.

d. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
e. Existing roof deck conditions requiring Architect notification.
f. Condition and acceptance of existing roof deck.
g. Structural loading limitations of roof deck during reroofing.
h. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that affect reroofing.
i. HVAC shutdown and sealing of air intakes.
j. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
k. Existing conditions that may require Architect notification before proceeding.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Temporary Roofing Submittal: Product data and description of temporary roofing system.

1. Intent is to use new vapor retarder at Lab Building as temporary roofing.

1.5 INFORMATIONAL SUBMITTALS

A. Photographs or Video: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces that might be misconstrued as having been damaged by reroofing operations.

1. Submit before Work begins.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with governing EPA notification regulations before beginning roofing removal.
2. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 FIELD CONDITIONS

A. Existing Roofing System: Standing seam metal roofing.

1. Tank/Aquaria Building: Structural standing seam roofing over purlins.
2. Lab Building: Standing seam roofing over insulation on sloped metal roof decking.

B. Government will occupy portions of building immediately below reroofing area.

1. Conduct reroofing so Government's operations are not disrupted.
2. Provide Government with not less than 72 hours' written notice of activities that may affect Government 's operations.

3. Coordinate work activities daily with Government so Government has adequate advance notice to place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below work area.

C. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.

D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

E. Conditions existing at time of inspection for bidding will be maintained by Government as far as practical.

F. Limit construction loads on existing roof areas to remain, and existing roof areas scheduled to be reroofed.

G. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.

1. Remove only as much roofing in one day as can be made watertight in the same day.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.1 PREPARATION

A. Protection of In-Place Conditions:

1. Protect adjacent existing roofing and cladding that are not scheduled to be reroofed.

B. Seal or isolate windows, louvers and intakes that may be exposed to airborne substances created in removal of existing materials.

C. Coordinate with Government if shut off of rooftop utilities and service piping is required.

D. Test existing downspouts to verify that they are not blocked or restricted.

1. Immediately notify Government of any blockages or restrictions.

E. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

F. Maintain downspouts in functioning condition to ensure roof drainage at end of each workday.

1. Prevent debris from entering or blocking downspouts and conductors.

3.2 ROOF TEAR-OFF

A. Notify Government each day of extent of roof tear-off proposed for that day.

B. Lower removed roofing materials to ground using means discussed and approved during preconstruction meeting.

C. Review procedure to determining if existing insulation is acceptable for reuse. Collect and store acceptable salvaged insulation on pallets off the ground and covered by weatherproof tarps. Discard and properly dispose of unacceptable existing insulation.

D. Full Roof Tear-off (Lab Building): Remove existing roofing and other roofing system components down to the existing metal roof deck.

1. Remove roof insulation.

   a. Salvage acceptable insulation and store on site at designated location.

2. Remove base flashings and counter flashings.
3. Remove perimeter edge flashing and gravel stops.
4. Remove copings.
5. Remove flashings at pipes, curbs, mechanical equipment, and other penetrations.
6. Remove gutters and downspouts.
7. Remove wood blocking, curbs, and nailers.
8. Remove fasteners from deck or cut fasteners off flush with deck surface.
9. Remove dormer siding, roofing and valley flashing.
10. Remove single ply membrane roofing and plywood substrate at valley and chimneys.
11. Partially remove stone cladding.

E. Partial Roof Tear-off (Tank/Aquaria Building):

1. Remove dormers and patch roof deck to provide acceptable substrate for new roofing system installation.
2. Remove gutters and downspouts.

F. Inspect wood blocking, curbs, and nailers for deterioration and damage.

1. If wood blocking, curbs, or nailers have deteriorated, immediately notify Onwer.

3.3 DECK PREPARATION

A. Inspect deck after tear-off of roofing system.

B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect.

1. Do not proceed with installation until directed by Government.

C. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect.

1. Do not proceed with installation until directed by Government.

3.4 TEMPORARY ROOFING

A. Install approved temporary roofing over area to be reroofed.

3.5 DISPOSAL

A. Collect demolished materials and place in containers.

1. Promptly dispose of demolished materials.
2. Do not allow demolished materials to accumulate on-site.
3. Storage or sale of demolished items or materials on-site is not permitted.

B. Transport and legally dispose of demolished materials off Government's property.

END OF SECTION 070150.19

SECTION 074113 – STANDING SEAM METAL ROOFING

PART 1 GENERAL

1.1 SUMMARY

A. SECTION INCLUDES

1. Standing-seam metal roof panels, including trim and accessories
   a) Recover roof at existing metal roofed Tank/Aquaria Building.
   b) Replacement standing seam roof at Lab Building.
2. Insulation
3. Vapor Retarder
4. Underlayment

B. RELATED SECTIONS

a) Section 06100 - Rough Carpentry
b) Section 075419 - Polyvinyl chloride (PVC) roofing
c) Section 076200 - Sheet Metal Flashing and Trim
d) Section 133241 - Structural Retrofit Roof Sub-framing

1.2 REFERENCES

A. AISI S-100 – North American Specification for the Design of Cold-Formed Steel Structural Members.

B. ASCE-7 - American Society of Civil Engineers -Minimum Design Loads for Buildings and Other Structures; version adopted by local Building Code authority having jurisdiction.

C. ASTM A792 - Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

D. ASTM E 1514 - Standard Specification form Structural Standing Seam Steel Roof Panel Systems.

E. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding System by Uniform Static Air Pressure Difference

F. ASTM E1646 - Standard Test Method for Rate of Water Penetration Through Exterior Metal Roof Panel Systems By Uniform Static Air Pressure Difference.

G. ASTM E1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.

H. ASTM E2140 - Standard Test method for water penetration of metal roof panel systems by static water pressure head.

I. Factory Mutual 4471 Appendix G - Susceptibility to Leakage Test Procedure for Class 1 Panel Roofs.

J. UL 580 - Tests for Uplift Resistance of Roof Assemblies.

K. UL 1897 - Uplift Tests for Roof Covering Systems.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation Meetings:

1. Schedule meeting to discuss roof project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements before start of work onsite.
2. Required attendees: Contractor, metal deck & roof installer, and any other subcontractors who have equipment penetrating the roof or Work that requires roof access or traffic.

1.4 SUBMITTALS

A. Product Data: Manufacturer literature indicating product specifications, installation instructions, and standard construction details for specified products.

B. Shop Drawings: To be prepared by metal roof system manufacturer and structural retrofit sub-framing manufacturer. The intent is to provide a combined shop drawing showing all requirements for the structural installation and attachment to the existing building structure.

1. Submit roof plan showing panel layout, profiles, components, accessories, finish colors, gutters and downspouts as applicable.

a) Indicate layout of roofing panels and roof panel sizes, including custom fabricated roofing panels if indicated, indicate each trim condition.
b) Include details of each condition of installation, including the locations and types of fasteners, sealants and accessories. Indicate locations, gauges, shapes, and methods of attachment of all panels, accessories and trim.
c) Indicate products/materials required for construction activities of this section not supplied by manufacturer of products of this section.
d) Indicate locations of field applied sealant.
e) Indicate locations of field worked conditions.

2. Roof Panel Attachment:

a) Roof plan with wind uplift pressure calculations at field, corner and perimeter areas according to version of ASCE-7 referenced by locally-adopted Building Code and the authority having jurisdiction.
b) Roof plan indication roof clip spacing pattern at field, corner, perimeters and where panels are to be fixed from thermal movement.

c) Roof panel attachment plan must be stamped by licensed engineer in State of West Virginia, certifying roof attachment meets local Building Code requirements for wind uplift.

C. Samples:

1. Submit two samples of each type of roofing, 12" long, full width panel, showing metal gage, and seam.
2. Two samples each for roof panel clip, bearing plate and clip fastener.
3. Submit color samples for Government's selection.
4. Submit sample warranties:

a) Manufacturer Finish Warranty
b) Manufacturer Weathertightness Warranty complying with this Specification
c) Installer Warranty

D. Certificates:

1. Submit roof panel manufacturer's certification that fasteners, clips, backup plates, closures, roof panels and finishes meet the specification requirements.
2. Submit roof panel manufacturer’s certification that installer meets requirements to install roof system and is qualified to obtain required warranties.

E. Qualification Statements: For Manufacturer and Installer.

1.5 PERFORMANCE/DESIGN CRITERIA

A. Thermal Movement: Metal Roofing system, including flashing, shall accommodate unlimited thermal movement without buckling or excess stress on the structure.

B. Wind Uplift: Maximum wind uplift capacity of roof system shall be determined using ASTM E 1592 test results, with an appropriate Factor of Safety (2 minimum) in accordance with AISI S-100.

C. Panel system shall be designed in accordance with the local building code and ASCE7 for project location with respect to appropriate Exposure category, Importance Factor and Factor of Safety (2 minimum) in accordance with AISI S-100.

D. Air Infiltration: Air leakage of not more than 0.04 cfm/sq. ft. (0.2 L/s per sq. m) when tested in accordance with ASTM E1680 or ASTM E283/E283M at the test-pressure difference of 1.57 lbf/sq. ft. (75 Pa).

E. Water Penetration under Static Pressure: No water penetration when tested in accordance with ASTM E1646 or ASTM E331 at the following test-pressure difference of Test-Pressure Difference: 2.86 lbf/sq. ft. (137 Pa).

F. Watertightness: No water penetration when tested in accordance with ASTM E2140 for hydrostatic-head resistance.

G. Test Reports: Certified test results that indicate roof system meets or exceeds design and performance criteria. Testing to include:

1. Uplift Testing

a) Underwriters Laboratory: Submit documentation that panel System has been tested for uplift in accordance with Underwriters Laboratories UL-580 and UL 1897 and has been tested to failure.

b) Test reports prepared by independent test laboratory and stamped by a professional engineer substantiating that roof system will meet the allowable wind pressures with a safety factor of 2.0.

2. Static Water Testing Certification:

a) The panel system shall be tested in accordance with FM4471 Appendix G, and pass with no leakage. The test specimen must successfully withstand being submerged under 6” of water for a minimum period of 7 days.

3. Air and Water Testing Certification

a) ASTM E1680 - Manufacturer’s test data for air infiltration rates up to 20 pounds per square inch differential pressure.

b) ASTME1646 - Manufacturer’s test data for water infiltration rates up to 20 pounds per square inch differential pressure.

4. ASTM E1592 - Manufacturers test data, signed and sealed by a registered professional engineer, substantiating that roof system will meet the allowable wind pressures using an appropriate Factor of Safety in accordance with AISI S-100.
5. ASTM E2140 - Manufacturers test data, signed and sealed by a registered professional engineer, on a test specimen with no end lap, indicating that no water leakage was observed during the testing period of 6 hours with a 6” water head on the specimen.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Manual indicating requirements and recommendations, to maintain the roof system, in good working condition.

B. Warranty Documentation: Submit final warranties required in this section.

1.7 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer Qualifications: Manufacturer shall have a minimum of ten years experience in the manufacturing of metal roof systems similar to those required for this project. Manufacturer must have a current installer training program.

2. Installer Qualifications: Installer ("roofer") to perform the work of this section shall have no fewer than 5 years of successful experience with the installation of metal roof systems similar to those required for this project. The installer shall be qualified by the roof panel manufacturer for installation of manufacturer-warranted systems.

B. Field Measurements: Prior to fabrication of panels, take field measurements of structure or substrates to receive panel system. Allow for trimming panel units, where final dimensions cannot be established prior to fabrication.

C. Mock-Ups: Install a 30 foot (9 meter) wide, quality control area of each type of metal roofing, for review by the Engineer. The Engineer shall approve the quality of installation for the roof, prior to installing additional metal panels.

1.8 DELIVERY, STORAGE AND HANDLING

A. Delivery and Acceptance Requirements: Deliver panels to jobsite properly packaged to provide protection against transportation damage. Panels too long to ship shall be site formed onto the roof by manufacturer’s factory personnel using manufacturer’s factory roll forming equipment.

B. Storage and Handling Requirements:

1. Exercise care in unloading, storing and erecting panels to prevent bending, warping, twisting, and surface damage.
2. Store all material and accessories above ground on well skidded platforms. Store under waterproof covering. Provide proper ventilation to panels to prevent condensation build-up between each panel.
3. Remove from site and replace panels which are damaged, or become water-stained during storage and handling.

1.9 WARRANTIES

A. Manufacturer Warranties:

1. Panel Material: Furnish manufacturers 45 year warranty covering the panel against rupture, structural failure, or perforation.
2. Panel Coating: Furnish manufacturer's 40 year warranty panel coating warranty covering cracking, checking, and peeling, and 30 year warranty covering fade and chalk.
3. Metal Roof Weathertightness Warranty:

a) Manufacturer’s Single Source Weathertightness Warranty

(1) Warranty term: 20 years commencing on date of substantial completion.
(2) Total manufacturer’s liability: NRL (No Repair Limit) / sq. ft.
(3) Warranty must cover: Pipe and Curb Penetrations, Wind Speeds up to 120 mph

(a) Pipes must be centered in pan or a pipe curb must be used. Pipe must be flashed with flashing system warranted and approved by the manufacturer.
(b) Curbs must be all welded aluminum or stainless steel.
(c) Manufacturer must supply engineered installation drawings signed and sealed by an engineer registered in the Commonwealth of Virginia.

B. Installer Warranty: Installer to provide warranty agreeing to repair or replace metal roof panels, trim, or accessories that fails due to poor workmanship or faulty installation.

1. Warranty term: 2 years commencing on date of substantial completion.

PART 2 - PRODUCTS

2.1 ROOF PANEL SYSTEM

A. Basis of Designs:

1. Tank/Aquaria Roof for Main Sloped Roof Area: Trap Tee (2.75” Seam) by McElroy Metal, Inc. Bossier City, LA, or approved substitute.
2. Lab Roof: 138T by McElroy Metal, Inc. Bossier City, LA, or approved substitute.

B. Substitution Limitations

1. Requests for approval must be submitted in writing at least ten (10) days prior to bid date, and are accompanied by all related test reports and design calculations listed in section 1.4 and Design and Performance criteria Section 2.2.
2. Substitute manufactures will be approved by written addendum to all bidders. Voluntary alternates will not be considered. Substitutions will not be permitted after the bid date of this project.
3. Roof panels proposed for substitution shall fully comply with specified requirements in appearance, assembly, and performance.

C. Product Options

1. Tank/Aquaria Roof:
   a) Site-formed panel, width of 18 inches (457 mm). Panels shall be symmetrical in design and shall be mechanically seamed with a field operated electric seaming machine approved by the manufacturer.
   b) Minimum seam height 2 3/4 inches (70 mm). Integral seam, double lock and snap together type panels are not acceptable

2. Lab Roof:
   a) Factory-formed panel, width of 16 inches (406 mm). Panels shall be symmetrical in design and shall be mechanically seamed with a field operated electric seaming machine approved by the manufacturer.
   b) Minimum seam height 1 3/8 inches (35 mm). Integral seam, double lock and snap together type panels are not acceptable

3. Seam cap matching panel finish with two rows of integral factory hot applied sealant. Sealant should not come in contact with clip, and clip should not require sealant to maintain a weathertight condition.
4. Galvalume steel sheet conforming to ASTM A792, AZ55 coating for bare; AZ50 coating for painted; 24 gauge sheet thickness.
5. Finish: Two coat coil applied, baked-on full-strength (70% resin, PVDF) fluorocarbon coating consisting of a nominal 0.25 mil dry film thickness primer, and a nominal dry film thickness of 0.7 - 0.8 mil color coat for a total 0.9 to 1.1 mil total system dry film thickness. Finish to be selected from manufacturer's standard color selection. The back side of the material should be 0.25 mil primer and 0.25 mil polyester wash coat.
6. Roof panel system must allow individual roof panel removal and replacement from any point on the roof without damage to adjacent roof panel(s).
7. Roof panel system must be approved by manufacturer to be installed on slopes as low as 1/2:12.
8. Panels must be furnished and installed in continuous lengths from ridge to eave with no overlaps. Panels too long to ship will be manufactured on site using manufacturer's employees and equipment.
9. Panel surface characteristics:
   a) Tank/Aquaria Building: trapezoidal standing seams with smooth panel surface.
   b) Lab Building: Smooth.
10. Manufacturer weathertightness warranty meeting requirements of this Section.

2.2 ACCESSORIES

A. Panel Clip Screw - screw required in wind uplift rating requirements and design specification for application, with corrosion-resistant coating, in length necessary to penetrate substrate minimum 3/4 inch (20 mm), as supplied by roof panel manufacturer.

B. Roof Panel Clip:

1. Intermittent Clip:
   a) Recover Roof: 16 gauge galvanized steel, one-piece, designed to allow roof panel thermal movement and not contact roof panel cap, as supplied by roof panel manufacturer, meeting wind uplift requirements and design criteria of this section.
   b) Barrel Roof: 24 gauge grade 50 coated steel, 2 piece fixed clips minimum 8inches (200 mm) long, designed to allow unlimited roof panel thermal movement and not contact roof panel cap, as supplied by roof panel manufacturer, marking meeting wind uplift requirements of this Section.
2. Intermittent Clip Bearing Plate: If required, in gauge, size and finish as supplied by and approved by roof panel manufacturer for use in roof panel manufacturer's full assembly warranted systems.
3. Multi-Span Clip: If required as provided by roof panel manufacturer for full assembly warranted systems.

C. Trim and flashing will be of the same gauge and finish unless approved otherwise by the metal roof system manufacturer.

1. Ridge closures, consisting of metal channel surrounding factory precut closed cell foam, will not be secured through the field of the panel.
2. Trim will be installed specifically as displayed in the manufacturer provided shop drawings. Proposed changes must be approved in writing by the metal roof system manufacturer.

D. Concealed supports, angles, plates, accessories and brackets: gauge and finish as recommended, and furnished by manufacturer.

E. Accessory Screw: Size and screw type as provided by panel manufacturer for each use, with prefinished hex washer head in color to match panels where exposed to view.

F. Rivets: full stainless steel, including mandrel, in size to match application.

G. Field Sealant:

1. Exposed Sealant: Color coordinated urethane or polymer sealant as supplied by panel manufacturer.
2. Non-exposed Sealant: Non-curing, non-skinning, butyl tape or tube sealant as supplied by manufacturer.

H. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick (minimum dimensions).
2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

I. Pipe Penetration Flashings: 20 year warranted flexible boot type, with stainless steel compression ring. Use silicone type at hot pipes.

J. Metal Roof Curbs: 0.063 inch minimum thickness welded aluminum, or 18 gauge minimum welded stainless steel, factory-insulated, with integral cricket, and designed to fit roof panel module, sized to meet application.

K. Air/Vapor Retarder (Lab Building): Rubberized-Asphalt-Sheet Vapor Retarder, Self-Adhering; ASTM D1970/D1970M polyethylene film laminated to layer of rubberized asphalt adhesive, minimum 40-mil (1.0-mm) total thickness; maximum permeance rating of 0.1 perm (6 ng/Pa x s x sq. m); cold applied, with slip-resisting surface and release paper backing. Provide primer when recommended by vapor-retarder manufacturer.

L. Synthetic Underlayment: UV-resistant polypropylene, polyolefin, or polyethylene polymer fabric with surface coatings or treatments to improve traction underfoot and abrasion resistance; evaluated and documented to be suitable for use as a roof underlayment under

applicable codes by a testing and inspecting agency acceptable to authorities having jurisdiction.

M. Ice and Water shield: Self-Adhering, High-Temperature Sheet Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 30 mils (0.76 mm) thick, specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: Stable after testing at 240 deg F (116 deg C); ASTM D1970/D1970M.
2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (minus 29 deg C) or lower; ASTM D1970/D1970M

N. ROOF INSULATION

1. General: Preformed roof insulation boards manufactured or approved by roof system manufacturer.

a) Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.
b) Compressive Strength: 20 psi (138 kPa).Size: 48 by 48 inches (1219 by 1219 mm).
c) Thickness:
(1) Tank/Aquaria Building (Filler): 2 inches (50 mm).
(2) Tank/Aquaria Building (Cover): 1 inch (25 mm)
(3) Lab Building: 5.2 inches (132 mm), installed in two layers. Coordinate thicknesses of new insulation to allow reuse of salvaged insulation.

2.3 FABRICATION

A. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate in accordance with equipment manufacturer's written instructions and to comply with details shown.
B. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

PART 3 - EXECUTION

3.1 INSTALLERS

A. Must be certified and qualified by Manufacturer.

3.2 EXAMINATION

A. Verification of Conditions

1. Ensure surfaces are ready for panel application.

2. Inspect and ensure surfaces are free from objectionable warp, wave, and buckle before proceeding with installation of pre-formed metal roofing.
3. Ensure substrate is ready to receive metal roofing. Report items for correction and do not proceed with metal roof panel system installation until resolved.

3.3 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages in accordance with ASTM C754 and metal panel manufacturer's written installation instructions.

B. Install substrate boards, hat channels, purlins, or furring channels in accordance with manufacturer’s recommendations.

C. Coordinate Work with installation of other associated Work to ensure quality application.

D. Coordinate Work with installation of associated metal flashings and building walls.

E. Coordinate Work to minimize foot traffic and construction activity on installed finished surfaces.

F. Coordinate location of pipe penetrations to allow centering of pipe in panel.

G. Coordinate location of roof curbs to allow proper integration with roof panel seams.

3.4 INSTALLATION OF VAPOR RETARDER (Lab Building):

A. Prime substrate, if required by manufacturer. Install sheet vapor retarder over area to receive vapor retarder, side and end lapping each sheet a minimum of 3-1/2 and 6 inches (90 and 150 mm), respectively.

1. Extend vertically up parapet walls, over wood blocking and projections to a minimum height equal to height of the insulation.
2. Seal laps by rolling.
3. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.

3.5 INSTALLATION OF ROOF INSULATION

A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, in accordance with manufacturer's written installation instructions.

B. Tank/Aquaria Building:

1. Install pan filler insulation to completely fill area between existing standing seams. Cut to provide snug fit between purlins.
2. Install top insulation layer to span across existing standing seams. Set so insulation panel joints align with insulation panel below, not with a standing seam. Cut to provide snug fit between purlins.

3.6 INSTALLATION OF UNDERLAYMENT

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated below, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (152 mm) staggered 24 inches (610 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.

1. Apply over the roof area indicated below:

   a) Roof perimeter for a distance up from eaves of 36 inches (914 mm).
   b) Rake edges for a distance of 18 inches (460 mm).
   c) Ridges for a distance on each side of 18 inches (450 mm).

2. Lap over synthetic underlayment in shingled fashion.

B. Synthetic Underlayment: Apply at locations indicated over entire roof area not receiving self-adhering sheet underlayment. Install in shingle fashion to shed water, and with lapped joints of not less than 6 inches (150 mm).

3.7 ROOF PANEL INSTALLATION

A. Comply with and install roofing and flashings in accordance with all details shown on manufacturer’s approved shop drawings and manufacturer's product data, instructions, and installation manuals, within specified erection tolerances.

B. Install field panels in continuous lengths, without endlaps

C. Do not install panels damaged by shipment or handling.

D. Install intermittent clips with bearing plates, if required, and continuous clips, if required, according to the engineered design pattern in the field, perimeter, and corner areas of the roof.

E. Hand crimp cap onto seams at clip locations.

F. Fix panels at location depicted on approved shop drawings.

G. Fold up pan of panel at ridge, hip and headwalls. Commonly referred to as breadpanning.

H. Allow for required panel clearance at penetrations for thermal movement.

I. Install concealed supports, angles and brackets as furnished by manufacturer to form complete assemblies.

J. Remove roof panel and flashing protective film prior to extended exposure to sunlight, heat, and other weather elements.

K. Field-apply sealant tape and gun-grade sealant according to reviewed shop drawings and manufacturer’s requirements for airtight, watertight installation.

L. Ensure sealant beads and tapes are applied prior to sheet metal installation to achieve a concealed bead. Neatly trim exposed portions of sealant without damaging roof panel or flashing finish.

M. Align pipe penetrations to occur at center of roof panel. Report and have corrected improperly-placed penetrations before proceeding with panel installation. Remove and replace roof panels which have improperly-placed penetration flashings.

N. Align roof curbs to fit roof panel module and overlap standing seam(s). Allow for proper drainage on both sides of curb.

O. Install sheet metal flashings according to manufacturer’s recommendations, reviewed shop drawings and in accordance with provision of Section 07 62 00.

1. Provide materials and install soldered/welded sheet metal valleys integral with roof panels installed in this Section as show on the drawing and approved shop drawings and as specified in Section 07 62 00 “Sheet Metal Flashing and Trim.”

2. Intent is for full sheet metal roofing system, including valleys to be covered by prime metal roof panel manufacturer.

3.8 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect completed metal panel installation, including accessories. Report results in writing.

3.9 CLEANING

A. Clean exposed surfaces of work promptly after completion of installation.

B. Clean mud, dirt, and construction-related debris from panels before panels are scratched or marred.

3.10 INSTALLATION TOLERANCES

A. Installation Tolerances: Shim and align metal panel units within installed tolerance of 1/4 inch in 20 ft. (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.11 PROTECTION

A. Protect Work as required to ensure roofing will be without damage at time of final completion.

B. Do not allow excessive foot traffic over finished surfaces.

C. Do not track mud, dirt, or construction-related debris onto panel surfaces.

D. Replace damaged Work before final completion.

END OF SECTION 074113

SECTION 075419 - POLYVINYL-CHLORIDE (PVC) ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Polyvinyl chloride (PVC) roofing system.
2. Accessory roofing materials.
3. Substrate board.
4. Vapor retarder.
5. Roof insulation.
6. Insulation accessories and cover board.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood nailers, curbs, and blocking; and for wood-based, structural-use roof deck panels.
2. Section 074113 “Standing Seam Metal Roofing” for tie-in detailing.
3. Section 076200 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.

1.2 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D1079 and glossary in NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

1.3 PREINSTALLATION MEETINGS

A. Preliminary Roofing Conference: Coordinate preconstruction meeting for PVC roofing with preconstruction meeting for SBS Modified Bituminous and Standing Seam roofing.

1.4 ACTION SUBMITTALS

A. Product Data:

1. Polyvinyl chloride (PVC) roofing system.
2. Accessory roofing materials.
3. Roof insulation.
4. Insulation accessories and cover board.

B. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:

1. Layout and thickness of insulation.
2. Base flashings and membrane terminations.
3. Flashing details at penetrations.
4. Tapered insulation thickness and slopes.
5. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

C. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and manufacturer.

B. Manufacturer Certificates:

1. Performance Requirement Certificate: Signed by roof membrane manufacturer, certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

   a. Submit evidence of compliance with performance requirements.

2. Special Warranty Certificate: Signed by roof membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.

C. Product Test Reports: For roof membrane and insulation, tests performed by independent qualified testing agency indicating compliance with specified requirements.

D. Field quality-control reports.

E. Sample Warranties: For manufacturer's special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturers: A qualified manufacturer that is UL listed or listed in SPRI's Directory of Roof Assemblies for roofing system identical to that used for this Project.
2. Installers: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.10 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.

1. Special warranty includes roof membrane, base flashings, roof insulation, fasteners, cover boards, and other components of roofing system.
2. Warranty Period: 20 years from date of Substantial Completion.
   a. Provide warranty as part of main metal roof warranty.

B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, roof insulation, fasteners, cover boards, for the following warranty period:

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Installed roofing and base flashings to withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roof system and flashings to remain watertight.

1. Accelerated Weathering: Roof membrane to withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
2. Impact Resistance: Roof membrane to resist impact damage when tested according to ASTM D3746, ASTM D4272/D4272M, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.

B. Material Compatibility: Roofing materials to be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

C. Wind Uplift Resistance: Design roofing system to resist the following wind uplift pressures when tested according to FM Approvals 4474, UL 580, or UL 1897 as indicated on the drawings.

D. Exterior Fire-Test Exposure: ASTM E108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

E. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.2 POLYVINYL CHLORIDE (PVC) ROOFING SYSTEM

A. PVC Sheet Type III: ASTM D4434/D4434M, fabric reinforced.

1. Thickness: 60 mils (1.5 mm).
2. Exposed Face Color: White.

B. Source Limitations: Obtain components for roofing system from roof membrane manufacturer or manufacturers approved by roof membrane manufacturer.

2.3 ACCESSORY ROOFING MATERIALS

A. General: Accessory materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.

1. Adhesives and Sealants: Comply with VOC limits of authorities having jurisdiction.

B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as PVC sheet.

C. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.

D. Bonding Adhesive: Manufacturer's standard.

E. Water-Based, Fabric-Backed Membrane Adhesive: Roofing system manufacturer's standard water-based, cold-applied adhesive formulated for compatibility and use with fabric-backed membrane roofing.

F. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.

G. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick (25 mm wide by 1.3 mm thick), prepunched.

H. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing components to substrate, and acceptable to roofing system manufacturer.

I. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.4 ROOF INSULATION

A. General: Preformed roof insulation boards manufactured or approved by PVC roof membrane manufacturer.

B. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.

1. Compressive Strength: 20 psi (138 kPa).
2. Size: 48 by 48 inches (1219 by 1219 mm).
3. Thickness: 2” (50 mm) unless otherwise indicated on Drawings

C. Tapered Insulation: Provide factory-tapered insulation boards.

1. Material: Match roof insulation.
2. Minimum Thickness: 1/4 inch (6.35 mm).
3. Slope:

a. Roof Field: 1/4 inch per foot (1:48) unless otherwise indicated on Drawings.
b. Saddles and Crickets: 1/4 inch per foot (1:48) unless otherwise indicated on Drawings.

2.5 INSULATION ACCESSORIES AND COVER BOARD

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with other roofing system components.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:
   1. Bead-applied, low-rise, one-component or multicomponent urethane adhesive.
   2. Full-spread, spray-applied, low-rise, two-component urethane adhesive.

D. Glass-Mat Gypsum Cover Board: ASTM C1177/C1177M, water-resistant gypsum board.

   1. Thickness: 1/2 inch (13 mm).
   2. Surface Finish: Factory primed.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

   1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
   2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

3.3 INSTALLATION OF ROOFING, GENERAL

A. Install roofing system according to roofing system manufacturer's written instructions, SPRI's Directory of Roof Assemblies listed roof assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.

B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

C. Install roof membrane and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition.

3.4 INSTALLATION OF VAPOR RETARDER

A. Prime substrate, if required by manufacturer. Install sheet vapor retarder over area to receive vapor retarder, side and end lapping each sheet a minimum of 3-1/2 and 6 inches (90 and 150 mm), respectively.

B. Extend vertically up parapet walls, over wood blocking and projections to a minimum height equal to height of the insulation.

C. Seal laps by rolling.

D. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.

3.5 INSTALLATION OF INSULATION

A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.

B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.

C. Install base layer of insulation with joints staggered not less than 24 inches (610 mm) in adjacent rows and end joints staggered not less than 12 inches (305 mm) in adjacent rows.

   a. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
   b. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
   c. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
   d. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

e. Mechanically attach base layer of insulation using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to metal decks.
   1) Fasten insulation to resist specified uplift pressure at corners, perimeter, and field of roof.

2. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches (305 mm) from previous layer of insulation.

   a. Staggered end joints within each layer not less than 24 inches (610 mm) in adjacent rows.
   b. Install with long joints continuous and with end joints staggered not less than 12 inches (305 mm) in adjacent rows.
   c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
   d. Make joints between adjacent insulation boards not more than 1/4 inch (6 mm) in width.
   e. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
   f. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
   g. Adhere each layer of insulation to substrate using adhesive according to manufacturer requirements for wind uplift resistance.
      1) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
      2) Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

3.6 INSTALLATION OF COVER BOARDS

A. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction.

   1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
   2. Cut and fit cover board tight to nailers, projections, and penetrations.
   3. Adhere cover board to substrate using adhesive according to manufacturer requirements to achieve specified wind uplift resistance.
      a. Set cover board in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
      b. Set cover board in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

3.7 INSTALLATION OF ADHERED ROOF MEMBRANE

A. Adhere roof membrane over area to receive roofing according to roofing system manufacturer's written instructions.

B. Unroll roof membrane and allow to relax before installing.

C. Start installation of roofing in presence of roofing system manufacturer's technical personnel.

D. Accurately align roof membrane, and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

E. Bonding Adhesive: Apply to substrate and underside of roof membrane at rate required by manufacturer, and allow to partially dry before installing roof membrane. Do not apply to splice area of roof membrane.

F. Fabric-Backed Roof Membrane Adhesive: Apply to substrate at rate required by manufacturer, and install fabric-backed roof membrane.

G. In addition to adhering, mechanically fasten roof membrane securely at terminations, penetrations, and perimeter of roofing in accordance with manufacturer and warranty requirements.

H. Apply roof membrane with side laps shingled with slope of roof deck where possible.

I. Seams: Clean seam areas, overlap roofing, and hot-air weld side and end laps of roof membrane and sheet flashings to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roof membrane and sheet flashings.
2. Verify field strength of seams a minimum of twice daily, and repair seam sample areas.
3. Repair tears, voids, and lapped seams in roof membrane that do not comply with requirements.

3.8 INSTALLATION OF BASE FLASHING

A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.9 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to inspect substrate conditions, surface preparation, roof membrane application, sheet flashings, protection, and drainage components, and to furnish reports to Architect.

B. Perform the following tests:

1. High-Voltage Membrane Testing: Testing agency surveys entire roof area, flashings, and parapet walls to locate discontinuity in the roof membrane using an electrically charged metal "broom head."

a. Perform tests before overlying construction is placed.
b. After testing, repair areas of discontinuities, repeat tests, and make further repairs until roofing and flashing installations are contiguous.

1) Cost of retesting is Contractor's responsibility.

2. Testing agency to prepare survey report indicating locations of initial discontinuities, if any.

C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion, in presence of Architect, and to prepare inspection report.

D. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.10 PROTECTING AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Government.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075419

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Custom flashing and trim fabrications, made from the following:

1. Sheet metal materials.
2. Underlayment.
3. Miscellaneous materials.
4. Roof drainage assemblies.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood nailers, curbs, and blocking.
2. Section 074113 "Standing Seam Metal Roofing" for roof systems to be installed with flashing components specified in this section.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference in coordination with conferences of other specification sections.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For sheet metal flashing and trim.

1. Plans, elevations, sections, and attachment details.
2. Fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
3. Identification of material, thickness, weight, and finish for each item and location in Project.
4. Details for forming, including profiles, shapes, seams, and dimensions.
5. Details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Details of termination points and assemblies.
7. Details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.
8. Details of roof-penetration flashing.
9. Details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counterflashings.
10. Details of special conditions.

11. Details of connections to adjoining work.
12. Formed flashing and trim at scale of not less than 1-1/2 inches per 12 inches (1:10).

C. Samples: Prefinished Galvanized Steel: Samples to show full range to be expected for each color required.

1.4 INFORMATIONAL SUBMITTALS

A. Certificates: For each type of coping and roof edge flashing that is ANSI/SPRI/FM 4435/ES-1 tested.

B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

C. Research Reports: For copings and roof edge flashing, from an agency acceptable to authority having jurisdiction showing compliance with ANSI/SPRI/FM 4435/ES-1.

D. Qualification Statements: For fabricator.

E. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sheet metal flashing and trim, and its accessories.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: Entity that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

B. For roof edge flashings and copings that are ANSI/SPRI/FM 4435/ES-1 tested, shop is to be listed as able to fabricate required details as tested and approved.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
2. Protect stored sheet metal flashing and trim from contact with water.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.8 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.9 WARRANTY

A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

B. Provide warranty coverage for elements installed integrally with Section 07 41 13 Standing Seam Metal Roofing under warranty provided by roof system manufacturer.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, are to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim are not to rattle, leak, or loosen, and are to remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. SPRI Wind Design Standard: Manufacture and install roof edge flashings and copings tested in accordance with ANSI/SPRI/FM 4435/ES-1 and capable of resisting the following design pressure:

1. Design Pressure: As indicated on Drawings.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 SHEET METAL MATERIALS

A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with minimum ASTM A653/A653M, G90 (Z275) coating designation,; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.

1. Nominal Thickness: 0.028 inch (0.71 mm) and 0.034 inch (0.86 mm).
2. Surface: Smooth, flat.
3. Exposed Coil-Coated Finish:

a. Two-Coat Fluoropolymer: Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

4. Color: As selected by Architect from manufacturer's full range.
5. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil (0.013 mm).

C. Stainless Steel Sheet: ASTM A240/A240M, Type 304 or Type 316, dead soft, fully annealed.

1. Nominal Thickness: 0.0156 inch (0.396 mm) and 0.0188 inch (0.477 mm).
2. Surface: Smooth, flat.
3. Exterior Finish: ASTM A480/A480M, No. 2D (dull, cold rolled).

a. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.

2.3 UNDERLAYMENT

A. Self-Adhering, High-Temperature Sheet Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 30 mils (0.76 mm) thick, specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: Stable after testing at 240 deg F (116 deg C); ASTM D1970/D1970M.

2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (minus 29 deg C) or lower; ASTM D1970/D1970M.

B. Synthetic Underlayment: Laminated or reinforced, woven polyethylene or polypropylene, synthetic roofing underlayment; bitumen free; slip resistant; suitable for high temperatures over 220 deg F (111 deg C); and complying with physical requirements of ASTM D226/D226M for Type I and Type II felts.

2.4 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

   a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
   b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.
   c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

2. Fasteners for Zinc-Coated (Galvanized) or Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel in accordance with ASTM A153/A153M or ASTM F2329/F2329M.
3. Fasteners for Stainless Steel Sheet: Series 300 stainless steel.
4. Fasteners for Zinc Sheet: Series 300 stainless steel.

C. Solder (Stainless Steel): ASTM B32, Grade Sn60 or Grade Sn96, with acid flux of type recommended by stainless steel sheet manufacturer.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

E. Elastomeric Sealant: ASTM C920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

F. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

G. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

H. Bituminous Coating: Cold-applied asphalt emulsion in accordance with ASTM D1187/D1187M.

I. Asphalt Roofing Cement: ASTM D4586/D4586M, asbestos free, of consistency required for application.

2.5 ACCESSORIES

A. Sheet Metal Accessories: Provide components required for complete sheet metal assembly, including trim, fasciae, corner units, clips, flashings, sealants, gaskets, fillers, metal closures, closure strips, and similar items. Match material and finish of sheet metal roofing unless otherwise indicated.

1. Cleats: Intermittent and continuous attachment devices for mechanically seaming into joints and formed from the following materials and thicknesses unless otherwise indicated:
   a. Stainless Steel Roofing: 0.0188 inch (0.477 mm) thick stainless steel.

2.6 FABRICATION, GENERAL

A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.

1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Custom-Fabricated Sheet Metal Roofing (large valley pans): Comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions (panel and seam width), geometry, metal thickness, and other characteristics of installation. Fabricate sheet metal roofing and accessories in shop to greatest extent possible.

C. Flat-Seam Sheet Metal Roofing (large valley pans): Form flat-seam panels from metal sheets 20 by 28 inches (508 by 710 mm) with 1/2-inch (13-mm) notched and folded edges.

D. Form exposed sheet metal work to fit substrates with little oil canning; free of buckling and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.

1. Lay out sheet metal roofing, so transverse seams, if required, are made in direction of flow, with higher panels overlapping lower panels.
2. Offset transverse seams from each other 12 inches (300 mm) minimum.
3. Fold transverse seams in shop.

E. Form and fabricate sheets, seams, strips, cleats, valleys, ridges, edge treatments, integral flashings, and other components of metal roofing to profiles, patterns, and drainage arrangements indicated on Drawings and as required for leakproof construction

F. Fabrication Tolerances:

1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 ft. (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.
2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.

G. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

H. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.

I. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

J. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard for application, but not less than thickness of metal being secured.

K. Seams (flashing accessories):
1. Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use.

L. Do not use graphite pencils to mark metal surfaces.

2.7 ROOF-DRAINAGE SHEET METAL FABRICATIONS

A. Hanging Gutters:

1. Fabricate to cross section required, complete with end pieces, outlet tubes, and other accessories as required.
2. Fabricate in minimum 96-inch- (2400-mm-) long sections.
3. Furnish flat-stock gutter brackets and flat-stock gutter spacers and straps fabricated from same metal as gutters, of size recommended by cited sheet metal standard, but with thickness not less than twice the gutter thickness, 1 inch (25 mm) wide.
4. Fabricate expansion joints, expansion-joint covers, gutter bead reinforcing bars, and gutter accessories from same metal as gutters. Shop fabricate interior and exterior corners.
5. Gutter Profile: Style D in accordance with cited sheet metal standard.
6. Gutter Dimensions: Fabricate gutters to match dimensions on drawings, with a width of 8 inch (200 mm) and a depth of 8 inch (200 mm).
7. Expansion Joints: Lap type.
8. Accessories: Continuous, removable leaf screen with sheet metal frame and hardware cloth screen.

9. Gutters with Girth 26 to 30 Inches (660 to 760 mm): Fabricate from the following materials:

    a. Galvanized Steel: 0.040 inch (1.02 mm) thick.

B. Downspouts: Fabricate rectangular downspouts to dimensions indicated on Drawings, complete with mitered elbows (Figure 1-32B, cited standard). Furnish with metal hangers from same material as downspouts and anchors. Shop fabricate elbows.

1. Fabricated Hanger Style: Fig. 1-35G in accordance with cited standard.
2. Fabricate from the following materials:

    a. Galvanized Steel: 0.022 inch (0.56 mm).

2.8 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing (Gravel Stop) and Fascia Cap: Fabricate in minimum 96-inch- (2400-mm-) long, but not exceeding 12 ft. (3.6 m) long sections. Furnish with 6-inch- (150-mm-) wide, joint cover plates. Shop fabricate interior and exterior corners.

1. Joint Style: Butted with expansion space and 6-inch- (150-mm-) wide, concealed backup plate.
2. Fabricate from the following materials:

    a. Prefinished Galvanized Steel: 0.028 inch (0.71 mm).

B. Copings: Fabricate in minimum 96-inch- (2400-mm-) long, but not exceeding 12 ft.- (3.6 m) long, sections. Furnish with continuous cleats to support edge of external leg and drill elongated holes for fasteners on interior leg. Miter corners, pop rivet and seal watertight. Shop fabricate interior and exterior corners extending 2 feet in each direction.

1. Coping Profile: Fig. 3-4A in accordance with SMACNA's "Architectural Sheet Metal Manual."
2. Joint Style: SMACNA J6, tongue and groove seams. Lapped down slope. Provide SMACNA J2 butted with concealed backup plate at level coping.

    a. Provide turned out end dams (top and sides) at rising walls with lapped, sealed and pop riveted seams.

3. Fabricate from the following materials:

    a. Prefinished Galvanized Steel: 22 gauge (0.033 inch) (0.853 mm) thick.

C. Counterflashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:

1. Prefinished Galvanized Steel: 24 gauge (0.0276 inch) (0.701 mm) thick.

D. Roof-Penetration Flashing: Fabricate from the following materials:

1. Prefinished Galvanized Steel: 24 gauge (0.0276 inch) (0.701 mm) thick.
2. Stainless Steel: 0.0188 inch (0.477 mm) thick.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrates, and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
3. Verify that air- or water-resistant barriers have been installed over substrate to prevent air infiltration or water penetration.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

A. Synthetic Underlayment: Install synthetic underlayment, wrinkle free, in accordance with manufacturers' written instructions, and using adhesive where possible to minimize use of mechanical fasteners under sheet metal.

1. Lap horizontal joints not less than 4 inches (100 mm).
2. Lap end joints not less than 12 inches (300 mm).

B. Self-Adhering, High-Temperature Sheet Underlayment:

1. Install self-adhering, high-temperature sheet underlayment; wrinkle free at locations indicated.
2. Prime substrate if recommended by underlayment manufacturer.
3. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures.
4. Apply in shingle fashion to shed water, with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses.
5. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps and edges with roller.
6. Roll laps and edges with roller.
7. Cover underlayment within 14 days.

C. Install slip sheet, wrinkle free, over underlayment before installing sheet metal roofing (large valley flashing) and related flashing.

1. Install in shingle fashion to shed water, with lapped joints of not less than 4 inches (100 mm).

3.3 INSTALLATION OF CUSTOM-FABRICATED SHEET METAL ROOFING (Large Valley Flashing)

A. Install sheet metal roofing system with lines and corners of exposed units true and accurate.

1. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks, considering metal temper and reflectivity.
2. Provide uniform, neat seams with minimum exposure of solder.

B. Install cleats to hold sheet metal roofing panels in position.

1. Attach each cleat with at least two fasteners to prevent rotation.
2. Space cleats not more than 12 inches (300 mm) o.c.
3. Bend tabs over fastener head.

C. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.

1. Pre-tin edges of sheets with solder to a width of 1-1/2 inches (38 mm); however, reduce pre-tinning where pre-tinned surface would show in completed Work.
2. Do not use torches for soldering.
3. Heat surfaces to receive solder, and flow solder into joint.

   a. Fill joint completely.
   b. Completely remove flux and spatter from exposed surfaces.

4. Stainless Steel Soldering:

   a. Tin edges of uncoated sheets, using solder for stainless steel and acid flux.
   b. Promptly remove acid flux residue from metal after tinning and soldering.

c. Comply with solder manufacturer's recommended methods for cleaning and neutralization.

D. Flat-Seam Roofing (large valley flashing):

1. Attach flat-seam metal panels to substrate with cleats, starting at eave and working upward toward ridge.
2. After panels are in place, mallet seams tight and solder.

   a. Solder all seams the same day that the panels are installed.

3. Attach edge flashing to face of roof edge with continuous cleat fastened to roof substrate at 12-inch (300-mm) o.c. spacing. Lock panels to edge flashing and apply sealant.
4. Attach top edge of flat seam valley flashing to substrate with cleats 12 inches (300 mm) on center. Set cleats to allow for thermal movement.

   a. Lap self-adhered underlayment membrane stripping over top valley edge.

3.4 INSTALLATION OF SHEET METAL FLASHING AND TRIM, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of sealant.
3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
5. Install continuous cleats with fasteners spaced not more than 12 inches (300 mm) o.c.
6. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
7. Do not field cut sheet metal flashing and trim by torch.
8. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Coat concealed side of stainless steel sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.

2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

1. Space movement joints at maximum of 10 ft. (3 m) with no joints within 24 inches (600 mm) of corner or intersection.
2. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for screws and not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Seal joints as required for watertight construction.

G. Rivets: Rivet joints where necessary for strength.

3.5 INSTALLATION OF ROOF-DRAINAGE SHEET METAL FABRICATIONS

A. Install sheet metal roof-drainage items to produce complete roof-drainage system in accordance with cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.

B. Hanging Gutters:

1. Join sections with joints sealed with sealant.
2. Provide for thermal expansion.
3. Attach gutters at eave or fascia to firmly anchor them in position.
4. Provide end closures and seal watertight with sealant.
5. Slope to downspouts.
6. Fasten gutter spacers to front and back of gutter.
7. Anchor gutter with gutter brackets spaced not more than 24 inches (600 mm) apart to fascia unless otherwise indicated, and loosely lock to front gutter bead.
8. Install gutter with expansion joints at locations indicated on Drawings, but not exceeding, 50 ft. (15.2 m) apart. Install expansion-joint caps.
9. Install continuous gutter screens on gutters with noncorrosive fasteners, hinged to swing open for cleaning gutters.

C. Downspouts:

1. Join sections with 1-1/2-inch (38-mm) telescoping joints.
2. Provide hangers with fasteners designed to hold downspouts securely to walls.
3. Locate hangers at top and bottom and at approximately 60 inches (1500 mm) o.c.
4. Connect downspouts to underground drainage system.

3.6 OTHER SHEET METAL INSTALLATIONS

A. Counterflashing:

1. Coordinate installation of counterflashing with installation of roof panels, wall flashing and base flashing.
2. Insert counterflashing in receivers and fit tightly to wall flashing and base flashing.
3. Extend counterflashing 4 inches (100 mm) over wall flashing or base flashing.
4. Lap counterflashing joints minimum of 4 inches (100 mm).

B. Copings:

1. Install copings in accordance with ANSI/SPRI/FM 4435/ES-1.
2. Anchor to resist uplift and outward forces in accordance with recommendations in cited sheet metal standard unless otherwise indicated.
3. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 12-inch (300 mm) centers.
4. Anchor interior leg of coping with washers and screw fasteners at 24-inch (600-mm) centers.

C. Drip Edge:

1. Coordinate installation of drip edges with installation of roof panels,.
2. Form drip edges to profiles shown in the details.
3. Extend drip edges 4 inches (100 mm) or as specified in the details.
4. Lap drip edge joints minimum of 4 inches (100 mm).

3.7 INSTALLATION TOLERANCES

A. Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 ft. (6 mm in 6 m) on slope and location lines indicated on Drawings and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.8 CLEANING

A. Clean off excess sealants.

3.9 PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

C. Maintain sheet metal flashing and trim in clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION 076200

SECTION 077253 – SNOW GUARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Rail-type, seam-mounted snow guards.

1.2 ACTION SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

1. Rail-type, seam-mounted snow guards.

B. Shop Drawings: Include roof plans showing layouts and attachment details of snow guards.

1. Include details of rail-type snow guards.

C. Samples:

1. Rail-Type Snow Guards: Bracket, 12-inch- (300-mm-) long rail, and installation hardware.

a. For units with factory-applied finishes, submit manufacturer's standard color selections.

1.3 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of snow guard, for tests performed by a qualified testing agency, indicating load at failure of attachment to roof system identical to roof system used on this Project.

1.4 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit snow guards to be installed according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Performance Requirements: Provide snow guards that withstand exposure to weather and resist thermally induced movement without failure, rattling, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

B. Structural Performance: Snow guards to withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.

1. Snow Loads: As indicated on Drawings.

2.2 RAIL-TYPE SNOW GUARDS

A. Rail-Type, Seam-Mounted Snow Guards:

1. Basis of Design: ASGSnowMax Snow Guard system by Alpine Snowguards, 289 Harrel Street, Morrisville, VT.
2. Description: Snow guard rails fabricated from metal pipes, bars, or extrusions, anchored to brackets and equipped with single bar.
3. Brackets and Baseplate: ASTM B209 (ASTM B209M) aluminum; mill finished.
4. Bars: ASTM B221 (ASTM B221M) aluminum; mill finish.

   a. Profile: Flat.

5. Seam Clamps: ASTM B221 (ASTM B221M) aluminum extrusion or ASTM B85/B85M aluminum casting with stainless steel set screws incorporating round nonpenetrating point; designed for use with applicable roofing system to which clamp is attached.

B. Snow Flags: 6000 series aluminum, thickness as recommended by manufacturer. Width: 3-inches (76 mm). Length to extend to within 1-inch (25 mm) of roof panel surface.

C. Sealant/Adhesive: Silicone.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, snow guard attachment, and other conditions affecting performance of the Work.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install snow guards according to manufacturer's written instructions.

1. Provide rows as indicate on roof plans and as submitted on approved shop drawings.

a. Tank/Aquaria Building: Align snow rails with structural purlin.

B. Attachment for Standing-Seam Metal Roofing:

1. Do not use fasteners that will penetrate metal roofing or fastening methods that voids metal roofing finish warranty.

2. Seam-Mounted Snow Guards:

a. Install brackets to vertical ribs in straight rows.
1) Provide bracket spaced longitudinally on vertical seams at spacing shown on the drawing and on approved shop drawings.

b. Secure with stainless steel set screws, incorporating round nonpenetrating point, on same side of standing seam.
c. Torque set screw in accordance with manufacturer's written instructions.
d. Install cross members to brackets.
1) Provide spline splice fittings as needed.
2) Provide gap between bars at manufacturer recommended spacing to accommodate thermal expansion of snow rails.
3) Install aluminum end collars and secure with set screws.

3. Snow Flags: Set one snow flag in center of each standing seam roof pan. Secure to rail in accordance with manufacturer requirements.

C. Remove all debris from project site.

END OF SECTION 077253

SECTION 133421 – STRUCTURAL RETROFIT

PART 1 GENERAL

1.1 SUMMARY

A. SECTION INCLUDES

1. Structural retrofit roof sub-framing system to support new metal roofing system constructed over the existing building roof.
2. Engineer in accordance with the specified code and design loading to transfer positive acting loads at each attachment location into an existing structural member.

B. RELATED SECTIONS

1. Section 061000 – Rough Carpentry
2. Section 074113 – Standing Seam Sheet Metal Roofing

1.2 REFERENCES

A. ASTM International

1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM A 1011/A 1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
3. ASTM E 1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.

B. American Iron and Steel Institute (AISI)

1. AISI D100-13: Cold-Formed Steel Design Manual, current edition.
2. AISI S100-16: North American Specification for the Design of Cold-Formed Steel Structural Members, current edition.

C. American Institute of Steel Construction (AISC)

1. ANSI/AISC 360-16: - Specification for Structural Steel for Buildings, current edition.

1.4 SUBMITTALS

A. Product Data: Manufacturer literature indicating product specifications, installation instructions, and standard construction details for specified products.

B. Shop Drawings: Submit manufacturer's shop drawings for sub-purlins indicating gauge, yield strength, flange and web sizes, cut-out dimensions, and punch pattern for attachment holes in base flange.

C. Design Data: Submit design data from independent engineering firm indicating table of wind uplift capacity of sub-purlins.

1.3 DELIVERY, STORAGE AND HANDLING

A. Delivery and Acceptance Requirements: Deliver materials to jobsite properly packaged to provide protection against transportation damage. Provide in unopened package with labels clearly identifying product name and manufacturer.

B. Storage and Handling Requirements:

1. Store all material and accessories in accordance with manufacturer requirements. Store above ground with one end elevated to promote drainage. Store under waterproof covering.

1.4 EXISTING ROOF SYSTEM AND PRE-CONSTRUCTION INSPECTION

A. Conduct an inspection of the existing roof to identify any existing roof elements that are a cause for concern and submit to Government for review and evaluation.

B. Confirm existing panel dimensions, type and profile.

C. Verify the existing roof geometry including width, length, eave height, roof pitch and purlin spacing. This information is to be forwarded to the retrofit sub-framing system manufacturer for coordination and integration into the design and installation documents.

1.5 DESIGN REQUIREMENTS

A. General

1. Design for approval and installation in accordance with the Contract Documents, a complete retrofit sub-framing and metal roof panel assembly as a single structural package.
2. Engineer and factory fabricate sub-framing system in accordance with applicable references.
3. Coordinate design with the retrofit sub-framing manufacturer and the metal roof panel manufacturer to perform as one engineered structural package.
   a) Clearly identify if addition of sub-framing members are required based on design loads and existing framing layout.

B. Engineering Design Criteria:

1. Building Codes:
   a) International Building Code (IBC-2021), International Code Council (ICC)
   b) International Existing Building Code (IEBC-2021), International Code Council (ICC)
   c) ASCE/SEI 7-16, "Minimum Design Loads and Associated Criteria for Buildings and Other Structures".

2. Additional Requirements:
   a) Sloped Roof Snow Load: 23 PSF.
   b) Ground Snow Load: 30 PSF.
   c) Wind Speed: 111 MPH Ultimate Wind Speed.
   d) Exposure Category: C.
   e) Enclosure: Enclosed.

PART 2 - PRODUCTS

2.1 MANUFACTURER QUALIFICATIONS

A. Manufacturer shall have a minimum of five years' experience in manufacturing and fabrication of retrofit sub-framing systems of this nature.

B. Light-gauge steel sub-framing components specified in this section shall be produced in a factory environment by roll forming and press-brake equipment assuring the highest level of quality control.

C. Basis of Design Manufacturer: Roof Hugger, LLC., PO Box 1560, Lutz, Florida 33548. Toll Free Phone (800) 771-1711. Toll Free Fax (877) 202-2254. Phone (813) 909-4424. Fax (813) 948-4742. Website: www.roofhugger.com E-Mail: sales@roofhugger.com

   1. Other manufacturers must submit a request for approval according to applicable Division 1 Section(s) and shall be equal to Roof Hugger, LLC, demonstrated by 3rd party lab test data.

2.2 RETROFIT STEEL SUB-PURLINS

A. Standard Retrofit Factory-notched Sub-Purlins: "Roof Hugger".

   1. Description:

      a) 1-piece, custom-notched and punched, Z-shaped section.
      b) Pre-punched to nest over existing through-fastened metal roof panel ribs for low-profile attachment.
      c) Pre-punched for attachment fasteners.
      d) Integrally formed Anti-Rotational Arm as required for high clip standing seam panels.
      e) Fastens directly into existing purlins, joists or structural decking with fasteners.

B. Material:

   1. Galvanized steel, ASTM A 653 or A 1011, G-90, yield strength 50 KSI.

   2. Thickness: 0.060 inch (1.524 mm) minimum, 16-Gauge (1.524 mm)

   3. Web Height: 5 1/2 inches (140 mm).

   4. Base Flange Width: Pre-punch base flange to manufacturer's standard unless otherwise specified.

5. Top Flange Width: Nominally 2 inches (50 mm) with 0.25 inch (6.35 mm) minimum stiffening lip unless otherwise specified.

6. Length: Nominally 10 feet (3048 mm) long, plus an additional +/- 1 inch (25.4 mm) top flange extension for part lap or per manufacturer's recommendations.

C. Attachment Fasteners/Anchorage

1. "Standard" Roof Hugger Sub-Purlin:
   a) Attachment to Existing Purlins/Joist: Two- 1/4"-14 x 1-1/2", DP3, self- drilling screws, per L.F. or as specified.
   b) Existing Purlin Strengthening, Top Flange Lap Connection: Four- #10-16 x 1 inch (25 mm) pancake head screws through overlapping sub-purlin top flanges, joining them into a continuous member, per lap connection or as specified.
   c) Mid-Span Hugger Sub-Purlin to added Sub-Rafter: As required by engineering design.
   d) Fastener Length: As required to penetrate existing purlins in accordance with fastener attachment standards.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine existing roof areas to receive sub-purlins. Notify Government if areas are not acceptable or structurally adequate. Do not begin installation until unacceptable conditions have been corrected

B. Verify existing purlins and eave struts are in good serviceable condition, without rust-thru of flanges.

C. Field Verify Before Ordering of and Installation of Sub-Purlins:

1. Existing panel profile and panel rib dimensions.
2. Existing panel run-out by measuring roof over several 20-foot (6 meter) areas to confirm panels were installed on module and in-square. Note variations.

3.2 INSTALLATION OF SUB-FRAMING AND OTHER ROOFTOP APPURTENANCES

A. Install sub-purlins in accordance with manufacturer's instructions at locations indicated and based on approved shop drawings.

B. Limit installation of sub-purlins to amount that can be roofed over each day.

C. Install fasteners as specified and as required per approved shop drawings.

D. Install sub-purlins directly over existing purlins and fasten to existing purlin through existing panel pan section.

E. Install new sub-rafters if required by engineering design. Install sub-purlins onto the sub-rafters between the existing purlins as shown on approved shop drawings.

F. Removal of Existing Roof Fasteners: Do not remove existing roof fasteners unless installation of sub-purlins over fasteners causes sub-purlins to “roll” or “porpoise”. Some distortion of base flange of sub-purlins caused by existing roof fasteners is normal.

END OF SECTION 133421